



# big bear valley

PEDESTRIAN, BICYCLE AND EQUESTRIAN

# master plan



Draft Plan | June 2013

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## **ACKNOWLEDGEMENTS**

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## **EXECUTIVE SUMMARY**

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# I. INTRODUCTION

## PLAN PURPOSE AND OVERVIEW

For nearly a century, the Big Bear Valley has been highly regarded for its scenic and natural beauty and access to year-round outdoor recreation. Yet today, Valley residents and the thousands of visitors that arrive each year are faced with limited lengths of sidewalks, insufficient numbers of street crossings and connections to trail heads. At the same time, there is an opportunity to leverage improvements in the multi-modal system to strengthen the Valley's identity, quality of life and local economy.



In response to these needs, the City of Big Bear set-out to establish the Valley's first comprehensive plan and vision for a well-planned, multi-modal system. The first step was to form a strong partnership with California Department of Transportation (Caltrans) and San Bernardino County and initiate the Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan (Master Plan) process. The culmination of the process is this Master Plan, intended to be a guide and resource to support pedestrians, bicyclists and equestrians throughout the Valley.

Through input from the community and recreational users, and a thorough analysis of existing conditions and future needs, the Master Plan sets the course to:

- Improve connectivity and safety for all modes and users;
- Integrate land use and transportation decisions;
- Strengthen commerce, identity and community;
- Position Big Bear Valley for active living and an outdoor recreation economy; and
- Advance existing plans, goals and policies including those set forth by Caltrans' "Smart Mobility 2010: A Call to Action for the New Decade."

The Master Plan is made possible by Caltrans's Community-Based Transportation Planning Grant. Caltrans awarded grant funding to the City of Big Bear Lake and San Bernardino County to produce a master plan for non-motorized transportation and recreation.

### **Smart Mobility and Complete Streets**

Along with local and regional needs, the impetus for the Master Plan comes from a shift towards safer, more welcoming streets and trails at state and national levels.

- *Smart Mobility*: Smart Mobility sets forth new concepts and tools for transportation planning in California.<sup>1</sup> The state-wide transportation vision is founded on the “3 E” principles of sustainability (environment, economy and equity), setting forth goals to reduce greenhouse gas emissions, reduce vehicle miles traveled, increase safety and promote social equity and environmental justice. Based on this guidance, the Pedestrian, Bicycle and Equestrian Master Plan furthers state ambitions by establishing local policies and initiatives that are specific to Big Bear Valley and the desires and ambitions of its people. More information on Smart Mobility is provided in Chapter 4. The Master Plan also addresses Caltrans’s Bicycle Transportation Account (BTA) program criteria to ensure eligibility for bicycle infrastructure-related funding from the state. Appendix D provides a table for reference.
- *Complete Streets*: Complete Streets is the collective term for streets and street-fronts designed for all aspects of civic life such as commerce and community events, image and identity and mobility and access. The term stems from the growing and renewed interest in making streets safer and usable for all modes, balancing the needs of motorists with non-motorized users. Complete Streets is a common theme found in Caltrans’s *Smart Mobility*, as well as the *Bear Valley Community Plan* and the *San Bernardino County Non-Motorized Transportation Plan*.

### **PLAN PROCESS SUMMARY**

Beginning in summer of 2012, the plan process consisted of a three phased approach, concluding with adoption of the Master Plan in summer of 2013. Involvement from public agencies, land managers and interested and engaged citizens is a fundamental component of the Master Plan, with opportunities for involvement occurring throughout

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<sup>1</sup> Smart Mobility 2010: A Call to Action for the New Decade.

the plan process. Chapter 3 provides a more complete summary of public input opportunities and feedback.

### **Phase 1: Existing Conditions and Community Visioning**

*September-December 2012*

The purpose of this phase was to begin understanding the issues and opportunities facing the Valley, and to identify a common vision for the pedestrian, bicycle and equestrian system. During the first phase, the planning team conducted a thorough review of the study area to build a foundation for the Master Plan. This phase included field activities and a community tour with user groups and outdoor enthusiasts, meetings with local residents and stakeholders and the first community-wide workshop. Phase 1 also resulted in an inventory of existing facilities and Valley assets and base mapping.

### **Phase 2: Analysis and Concept Refinement**

*December 2012-February 2013*

The second phase began in winter of 2012 to analyze the pedestrian, bicycle and equestrian networks, as well as to assess the current state of the Valley's transit and traffic conditions. The planning team conducted a review of land use and economic conditions in the Valley to identify gaps in the multi-modal system, and to assess its role in the local economy. During this phase, the planning team met with plan committees and held the second community workshop to identify the types of projects and strategies needed to achieve the envisioned future of the Valley.

### **Phase 3: Plan Development, Documentation and Acceptance**

*March-June 2013*

After identifying the preferred system-wide improvements and strategies in Phase 2, the third and final phase consisted of plan development, review and refinement. During this phase, the planning team held a public open house to present prioritized improvement projects to complete the pedestrian, bicycle and equestrian networks. During this time, project stakeholders and interested members of the community provided their feedback on these and other recommendations and their impact on the Master Plan. As a final step

in the process, the planning team presented the Master Plan to the City Council and Planning Commission for their review and approval.

## STUDY AREA DESCRIPTION

The project study area consists of about 16.5 square miles of land, including both incorporated and unincorporated communities. The scope of this study also includes the roads and pathways that connect these communities. The City of Big Bear Lake is the only incorporated city in the study area and accounts for nearly seven square miles of the total land area. The communities of Big Bear City, Sugarloaf, Erwin Lake, Baldwin Lake, and Lake Williams are all east or northeast of the City of Big Bear Lake and comprise about 8.5 square miles of the total area. The community of Fawnskin is located across Big Bear Lake to the north of the city, and is less than one square mile in size. Collectively, and for purposes of the Master Plan, the study area is referred to as the Valley (Figure 1.1, below).

Figure 1.1: Big Bear Valley Study Area



Located in the southwestern corner of San Bernardino County, the Valley is situated within the San Bernardino Mountains at an elevation of 6,700 feet with temperate, dry summers and snowy winters. The Valley is surrounded by the San Bernardino National Forest and defined

by the dam and the lake at the west end, the City of Big Bear Lake and the Snow Summit and Bear Mountain resorts to the south, Baldwin Lake to the east, and the Big Bear Discovery Center to the north (Figure 1.1). The study area is also characterized by numerous drainages and creeks that make up the top of the Santa Ana River Watershed.

Big Bear Lake and the surrounding mountains offer extensive outdoor recreation opportunities, including boating and fishing, alpine skiing and snowboarding, mountain biking, hiking, horseback riding and many other outdoor activities. The Valley is a two to three -hour drive from the Los Angeles and San Diego metro areas, making it a recreational destination for over 20 million people. Along with approximately 12,000 full-time residents, the population swells to between 20,000 and 40,000 on a typical weekend due to tourists and second home owners.

## SYSTEM USERS

There are several different users that rely on the Valley's streets and trails, with unique needs and comfort levels. The Valley's influx of tourists places an even greater strain on streets and trails, requiring a balanced and responsive system for all transportation modes.

### Equestrians

Equestrians have the most unique needs of all users because horseback riding involves two users (horse and rider), rather than one. As prey animals, horses have developed strong fight-or-flight instincts. Because horses typically run when scared, serious injury may result to the rider, the horse and other trail users. This can occur for a number of reasons but is especially common due to the presence of other users and unexpected encounters. Equestrians also have specific needs because hard surfaces and granular stone can injure horse hooves.

### Pedestrians

Pedestrians include walkers, hikers, joggers and runners, as well as those using skates and skateboards. Pedestrians also include people with disabilities who may be dependent on wheelchairs or other mobility devices. Pedestrians travel at slower speeds than other users, typically traveling side-by-side.



Share the trail sign  
(source: IMBA)

### **Road Cyclists**

Road cyclists use paved trails and roads for commuting and/or recreation. On the street, cyclists must follow the same rules of traffic as motorists. Like pedestrians, road cyclists may also travel side-by-side or single file. Cyclists can reach higher speeds, and rely on smooth, unobstructed pavement, good visibility and safe buffering from other users. Casual and beginner cyclists generally prefer off-street routes with a wide buffer from motorists. Experienced cyclists typically prefer on-street routes where there are less obstructions and where they can maintain a steady speed. Road cyclists yield to all users.

### **Mountain Bikers**

Mountain bikers ride on a range of surfaces and trails, both on- and off-road. As cyclists, mountain bikers have much of the same needs as road cyclists when using streets or paved trails. For off-road riding, mountain bikers typically prefer narrower single track trails composed of natural/compacted earth. Beginner riders need even terrain and a wider trail surface. As the fastest trail user on natural surface trails, mountain bikers must yield to all other trail users.

### **Motorists**

Like other street users, motorists rely on direct connections to reach their destinations. At pedestrian crossings and areas of heightened safety such as blind corners or busy commercial areas and school zones, motorists need visual cues and signage, as well as traffic calming to slow vehicle speeds and safely accommodate other users. Motorists yield to all users.

## **USE OF THIS PLAN**

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan is intended for interested members of the public, trail user groups, businesses and private developers, and land managers and decision makers. Because different readers may be more interested in particular sections of the Master Plan than others, the following provides a description of each section of the Master Plan, and definitions of terminology used in this document.

### **Document Organization**

- *Chapter 2: Existing Conditions* provides a description of the people and places in the Valley. This chapter summarizes



conformance with other plans, types of programs and partnerships, the existing trail and street system, and describes key destinations, system connectivity and collision data.

- *Chapter 3: Planning Process:* Summarizes public involvement, findings from the community questionnaire and assets issues and opportunities in the Valley.
- *Chapter 4: Vision and Evaluation Criteria:* Presents the aspirations, ambitions and decision making criteria set forth by the Master Plan.
- *Chapter 5: Multi-modal Network:* Describes the projects, policies and program needs to complete the multi-modal system.
- *Chapter 6: Pedestrian Network:* Describes the projects, policies, and programs needed to complete the pedestrian network.
- *Chapter 7: Bicycle Network:* Describes the projects, policies and programs needed to complete the bicyclist network.
- *Chapter 8: Equestrian Network:* Describes the projects, policies and programs needed to complete the equestrian network.
- *Chapter 9: Outdoor Recreation Economy:* Identifies the types of strategies needed to strengthen the Valley's sense of place and local economy.
- *Chapter 10: Implementation:* Provides the necessary steps and funding sources to successfully fund, build and maintain the multi-modal system.
- Appendices include street and *Design Guidelines* (Appendix A), Project Lists (Appendix B), *Economic Development Case Studies* (Appendix C) and Bicycle Transportation Account Compliance (Appendix D).

### **Common Terms**

The Master Plan makes frequent use of the terms: route, network, system, facilities or infrastructure and trails or paths.

- *Route:* Refers to a connected length or loop that is preferred for use by pedestrians, cyclists and/or equestrians.

- *Network*: Refers to the collection of routes used by a particular user group.
- *System*: Refers to the entire network (all trails, streets and related sidewalks and crossings in the Big Bear Valley).
- *Facilities/infrastructure*: Includes the routes and supporting amenities used by the user such as trailheads, parking and signage.
- *Trails/paths*: Refers to off-street routes or route segments that can be paved or unpaved.

## 2. EXISTING CONDITIONS

This chapter provides an overview of baseline information related to key demographic, land use and transportation considerations. Findings from this review build the foundation for plan directions and recommendations outlined in the following chapters. This chapter is composed of the following sections:

- Consistency with Other Planning Documents;
- Community Profile Key Findings;
- Transportation Programs and Partnerships;
- Network and Infrastructure;
- Origins, Destinations and Connectivity; and
- Collisions.



### CONSISTENCY WITH OTHER PLANNING DOCUMENTS

There are several plans and studies that influence the shape and future of the Valley, its streets and trail network and local economy. These include local plans such as the *City of Big Bear Lake General Plan, Land Use, Circulation, and Open Space Elements (1999)*, *Moonridge Specific Plan Community Visioning Summary (October 2009)* and the *Village Specific Plan Update Summary Report (February 2010)*, as well as regional and statewide plans such as the *San Bernardino County Non-Motorized Transportation Plan (2011)* and *Caltrans Smart Mobility Framework (2010)*.

The Pedestrian, Bicycle and Equestrian Master Plan forwards the goals and recommendations set-forth by these efforts, based on common themes summarized below.

#### **Creating Complete Streets**

Residents value the role public streets play in providing transportation, recreation and economic health, and desire streets that are useful and welcoming for all modes and users.

### **Connecting Destinations**

Safer, easy to identify and complete connections for pedestrians, cyclists and equestrians are needed among shops, schools and neighborhoods, lakefront access and forestland trailheads.

### **Building Upon a Unique Identity**

The Valley is rooted in its history as a year-round recreation destination, and residents embrace its rural, small town feel. Future improvements and economic development strategies must build on this character and foster a community that is unique, attractive and inviting.

### **Balancing Needs of Visitors and Residents**

As a tourist destination for thousands of visitors, and home to year-round residents, the transportation system must balance the need to accommodate periods of increased visitors, with the need to get-around the Valley efficiently for work, school and other daily needs.

### **Minimizing Impacts to the Environment**

The Big Bear Valley is renowned for its natural and scenic beauty, clean air and water, and these same resources must be protected through the design, construction and management of transportation improvements.

### **Creating a Pedestrian Friendly Street**

Residents, visitors and businesses all profit from a vibrant and inviting street front. Wide sidewalks, safe crossings and a welcoming street front are all ingredients to make Big Bear more pedestrian friendly and economically strong.

### **Building Better Bike Routes**

Valley roads and surrounding trails are popular for road and mountain cyclists alike and a variety of safe route options are needed for commuting, fitness and fun.

## **COMMUNITY PROFILE KEY FINDINGS**

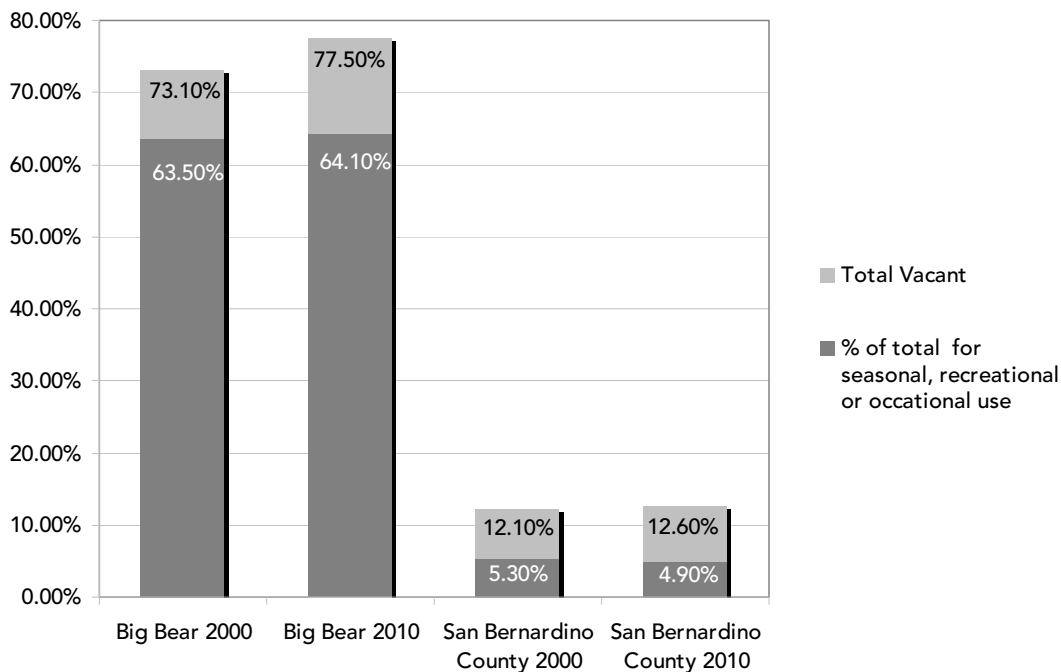
Demographic information, socio-economic characteristics and commuting patterns describe conditions facing the Valley and how trends have changed over time. Key findings from this assessment provide a baseline of information to form decisions about the future

system. The majority of current and available information used in this section stems from 2010 US Census data for the City of Big Bear Lake.

**A Large Percentage of Short-term and Seasonal Residents**

The city has a large percentage of short-term and seasonal residents as indicated by visitor data and home vacancy rates. Of all homes in the city, 77.5% are vacant based on the most recent US Census data. As shown in Figure 2.1, the majority of all vacant housing in the city (64.1%) is used for seasonal, recreational or occasional use.<sup>1</sup> This is substantially higher than the County-wide average of 4.9% and has increased slightly since 2000.

Figure 2.1: Housing Vacancy: City of Big Bear and San Bernardino County (2000-2010)



Source: US Census 2000 and 2010.

Of occupied housing, there is a large share of renter-occupied units. The percentage of renter occupied homes was 41.9% in 2010 compared to 37.3% for the County. Between 2000 and 2010, the

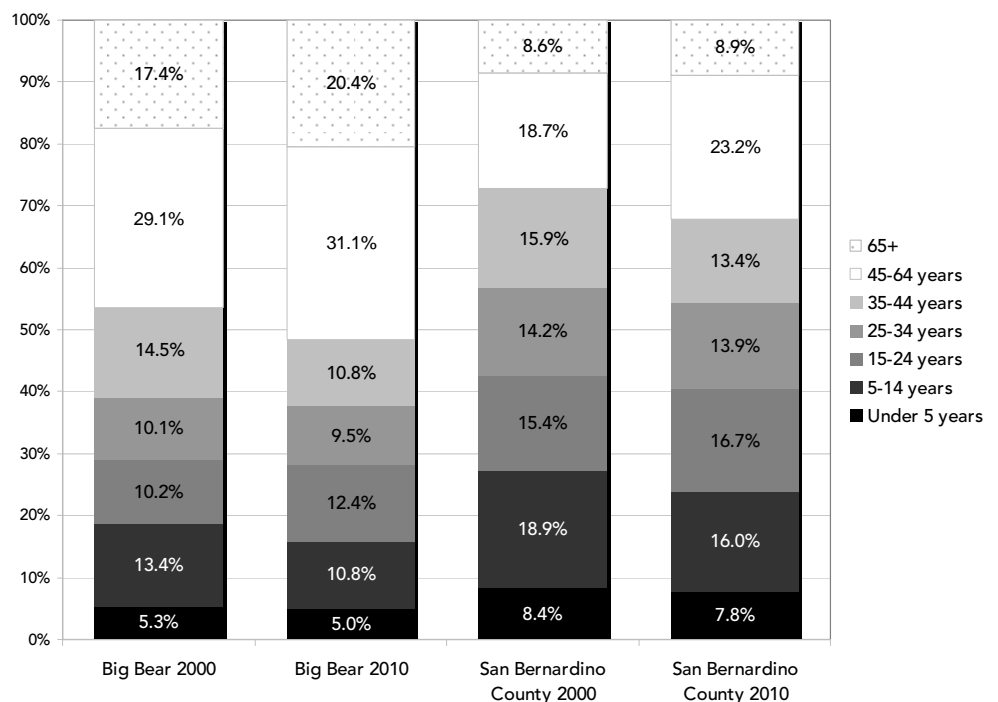
<sup>1</sup> Other vacant housing types include homes for rent, rented (not occupied), for sale only, sold (not occupied), other vacancies.

percentage of owner occupied housing in the city has decreased from 63% in 2000, to 58% in 2010.

### An Older Population

The City of Big Bear Lake has an aging population with a small percentage of youth. The median age in the city is higher than the County-wide average and has increased to 46.1 from 42.9 since 2000. The population of seniors (age 65 and older) is larger than the County-wide average and has also increased to 20.4% since 2000. Conversely, the population of children (14 years and younger) is lower than the County percentage and has decreased since 2000 (Figure 2.2).

Figure 2.2: Age Comparison: City of Big Bear and San Bernardino County (2000-2010)



Source: US Census 2000 and 2010.

### Increasing Numbers of Low Income Families

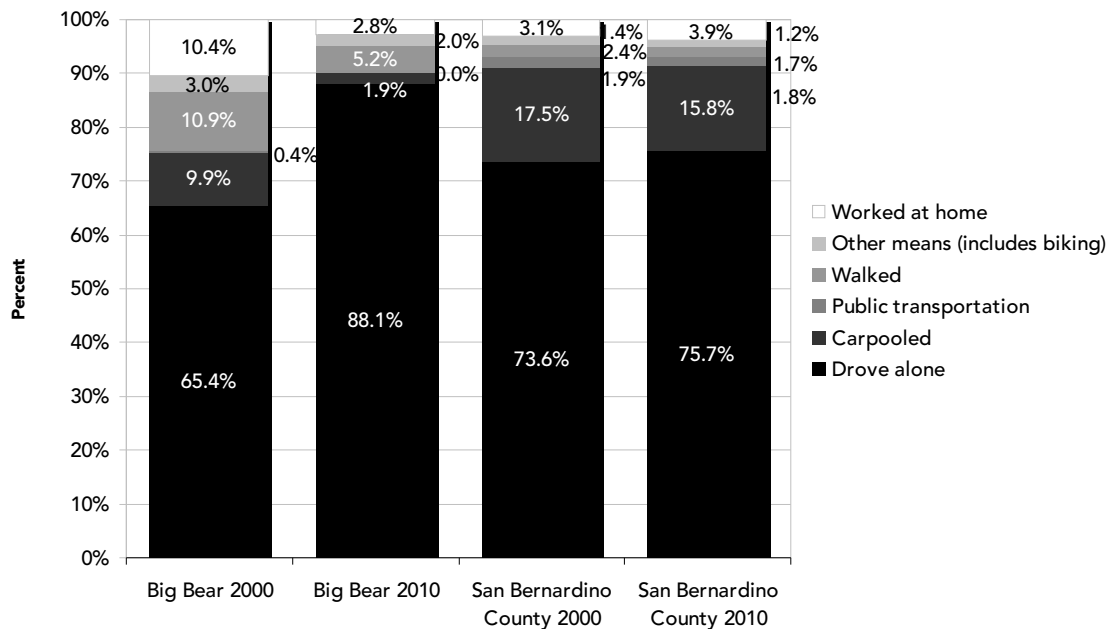
Income, poverty and employment also play a role in determining the future of the transportation system, as different occupations and incomes require different types of transportation choices. The median household income is less than the County-wide average and has decreased slightly since 2000. The percentage of families below the

poverty level is higher than the County-wide average and has increased to 17.9% from 11.1% in 2000. The service industry is the largest occupation type in the city (37.1%), and has increased 7.1% since 2000. This is nearly twice the County-wide average.

**More Commuters Driving Shorter Distances**

Commuting data provides a glimpse of patterns in travel mode choice. Like most communities, the majority of City residents commute to work by driving alone (88.1%). However, since 2000 this number has increased at a faster rate than the county-wide average, while the rate of those using all other modes has decreased (Figure 2.3). The percentage of those walking (5.2%) decreased from 10.9% in 2000, and the percentage of those working from home also decreased from 10.4% to 2.8% during the same time period.

Figure 2.3: Commuting to Work: City of Big Bear and San Bernardino County (2000-2010)



Source: US Census 2000 and 2010.

While more workers are driving and fewer are using other modes, the mean travel time to work has decreased nearly in half; from 22.4 minutes in 2000 to 12.7 minutes in 2010. Interestingly, the majority of those driving alone have a commute time less than 10 minutes which

suggests that these commuters are driving short distances within the Valley. Of commuters relying on other means, all have a travel time of less than 14 minutes.

**Fewer Commuters Biking**

The number of residents in Big Bear Lake that claim to bike to work is little to non-existent. Based US Census estimates (the most recent available data), the percentage of bike commuters in Big Bear Lake is 0.0%. While the statewide percentage is only slightly greater at 1.0%, totals from comparable communities with characteristics similar to the Valley have a higher average (Table 2.1).

Across the west, communities known for their proximity to outdoor recreation and with comparable climates and/or population sizes have bicycle commuter ride shares ranging from 0.9% (Truckee, CA) to as much as 5.6% (Steamboat Springs, CO). The closest and most similar community to Big Bear Lake is the mountain community of Mammoth Lakes, CA with a bike commute share of 2.1%.

*Table 2.1: Bike Commuting in Big Bear Lake and Comparable Communities*

	Big Bear Lake, CA	California comparables			Comparables in other states		
		Mammoth Lakes, CA	Truckee, CA	State Total	Ketchum, ID	Steamboat Springs, CO	Bend, OR
Total Population	5,100	8,081	16,009	-	2,762	11,926	75,841
Elevation	6,700'	7,800'	5,800'	-	5,800'	6,700'	3,600'
% of Bike Commuters	0.0%	2.1%	0.9%	1.0%	3.9%	5.6%	2.3%

Source: US Census, 2007-2011 ACS 5 Year Estimates.

**PROGRAMS AND PARTNERSHIPS**

There are several programs and partner organizations that support the multi-modal system and local economy in the Valley, providing management and operations, education, maintenance and related services.



**Public transit**

The Mountain Area Regional Transit Authority (MARTA) is the primary public transportation provider in the Valley. The agency operates both fixed route and demand-response services (Dial-A-Ride). Funding for transit service and operations is provided in part by SANBAG's Local Transportation Funding.

**Cycling**

In the 1980s and 1990s, mountain biking was a significant part of local identity and took shape in the form of downhill and cross-country competitions and large scale festivals. For a variety of reasons, downhill racing disappeared from the mountain and high profile mountain biking events ceased along with it. More recently, mountain biking in the Valley has reemerged in popularity and road cycling has also become widely popular. Today the Valley is becoming a major destination for cyclists of all types. Organizations such as Team Big Bear and other bike shop race teams host and promote competitive cycling. The Big Bear Cycling Association has also become successful, hosting events and training for all skill levels. The organization promotes biking to local youth and promotes Big Bear Lake as a training destination for professional road cycling teams. The Big Bear Cycling Association and others were major contributors to the Big Bear Climb, a mountaintop stage of the Amgen Tour of California.

**Trail development and maintenance**

The Big Bear Valley Trails Foundation is an advocacy group that helps promote the non-motorized trail system, collaborates with the U.S. Forest Service (USFS) on planning for new trails, and organizes volunteers to build and maintain trails. The organization has been instrumental in the creation of the Skyline Trail, the first new trail on USFS-managed lands in decades, as well as the South Shore Trail System. In the past two years, the Big Bear Valley Trails Foundation and the USFS have successfully secured multiple grant awards to promote sustainable trail building practices in the area immediately south of the City of Big Bear Lake.

**Street improvements**

The City's Public Works Street Maintenance Division manages and maintains city streets, traffic control, signage and snow removal. Within the Village District, the City's Village Maintenance District funds

improvements and maintenance within this specific area. Properties within the district boundary that benefit from improvements pay an annual assessment based on street frontage, and the City provides maintenance for the street and related infrastructure. State highways 18 and 38 are maintained by Caltrans and San Bernardino County is responsible for maintenance of streets outside of the city limits.

### **Education**

The Bear Valley Unified School District operates public schools in and around the Valley. The district also manages the school bus system which provides home-to-school, special needs, field trip and athletic transportation for students of the district. The Big Bear Valley Education Trust is a newly formed organization that works closely with the school district to offer students with out-of-classroom, real world experiences. One of those programs is in formation and is known as the Pebble Plains Wildland Park Concept.

### **Environmental Stewardship**

The Southern California Mountain Foundation provides a variety of services and education programs to promote forest stewardship and responsible outdoor and mountain-based recreation. The Big Bear Group of the Sierra Club San Gorgonio Chapter hosts hikes, events, and advocates for responsible use of natural resources.

### **Economic development**

Currently, the Big Bear Chamber of Commerce serves as the primary proponent of local business and economic development. Due to the state-wide dissolution of redevelopment agencies, the City and the County are currently refocusing their economic development programs.

### **Land & Water Management**

Along with local municipalities and the county, there are additional land managers responsible for maintenance and management of the Valleys forest and water resources.

- *U.S. Forest Service:* The Forest Service is responsible for managing the San Bernardino National Forest which includes most of the land surrounding Big Bear. This includes the network of non-paved roads and forest trails. The Forest Service

co-manages the Big Bear Discovery Center with the Southern California Mountains Foundation.

- *Big Bear Municipal Water District (MWD)*: MWD is an independent special district that manages Big Bear Lake. The district relies on its comprehensive management plan for management of the lake for wildfire, recreation and water use.
- *Big Bear Regional Wastewater Agency (BBARWA)*: BBARWA provides wastewater collection and treatment for the Valley. They are a major landowner and easement holder in the eastern part of the Valley.
- *San Bernardino County Flood Control*: Along with the City of Big Bear Lake, San Bernardino County Flood Control is responsible for the system of drainages that offer a wide variety of opportunities for non-motorized pathways and connections.

## NETWORK AND INFRASTRUCTURE

The Valley's transportation system consists of specialized facilities for pedestrians, cyclists, equestrians and transit users, as well as several streets and trails intended for multiple users. The following provides an overview of the existing network and infrastructure.

### Multimodal Network

There are two state highways that provide the primary access in and around the Valley. Highway 18 is the primary transportation route to the Valley from the west, and becomes the major route through the city as Big Bear Boulevard. Highway 38 is the primary transportation route to the Valley from the east, and connects the east and the west ends of the Valley as North Shore Drive.

Before connecting with the City of Big Bear Lake, Hwy. 18 is a two-lane road with limited width and narrow shoulders due to steep slopes and the lake frontage. In central Big Bear, the boulevard runs north of the Village and widens to a four lane road with a center turn lane at Pine Knot Avenue until narrowing back to a two-lane section at the Stanfield Cutoff. At the east end of the Big Bear Airport, Hwy. 18 turns north at Greenway Drive and then east on E North Shore Drive. Big Bear Boulevard becomes Hwy 38 at Greenway Drive. Hwy 38 connects with

the communities of Big Bear City, Sugarloaf, Baldwin Lake, Erwin Lake, and Lake Williams then heads outside of the Valley to the east.

Moonridge Road is another primary street located in the City of Big Bear Lake. The road runs northwest and southeast and connects Big Bear Boulevard with the golf course, Bear Mountain Resort and homes located in the neighborhood commonly known as Moonridge.

On the north side of Big Bear Lake is State Highway 38 (North Shore Drive). Like parts of Big Bear Boulevard, North Shore Drive is also a two-lane road with a narrow and constrained right-of-way. The road connects the community of Fawnskin and functions as a lesser traveled east-west connector for Big Bear City.

### **Pedestrian Network**

Pedestrian facilities such as sidewalks, safe street crossings and street lighting are primarily located within the Village area along Pine Knot Avenue and Village Drive. Since the 1980s, crossings in the Village have featured colored street crossings, street trees and pedestrian lighting. In the summer of 2013, the Village Renaissance Project updated these features and added new amenities, such as outdoor fireplaces.

Elsewhere, pedestrian facilities are minimal or are generally lacking. Between Bartlett Road and the Stanfield Cutoff, Big Bear Boulevard has curb-tight sidewalks. At this location, the sidewalks are narrow, interrupted by utility poles and are often used by bicyclists who are uncomfortable riding on the street. Partial sidewalks also exist on Big Bear Boulevard between Paine Road and the top of Red Ant Hill (Millcreek Road). Most residential streets in the Valley are wide and receive lower traffic volumes and residents generally feel safe walking without sidewalks in residential areas.

There are nine traffic lights along Big Bear Boulevard in the city which allow for safe pedestrian street crossing. Outside of the city further east on Big Bear Boulevard, there are three traffic lights located at the intersections of Division Drive, Greenway Drive and Maple Lane.

### **Bicycle Network**

The bicycle network consists of three primary route types characterized by how well they are separated from vehicle traffic: Off-street routes or

trails (Class I), on-street separated bike lanes (Class II) and shared travel lanes (Class III). Throughout the Valley, there is one Class I bike route and one Class II bike route and all other routes are shared Class III bike routes on local surface streets. Over the past five years, the City of Big Bear has spent approximately \$20,000 on bicycle-related infrastructure, including signage and striping. There is currently no public bike parking, or related facilities such as bike storage, provided by the City of Big Bear Lake or Valley partners.

Area cyclists have identified seven existing bike routes in the Valley as the preferred networks for safe recreational cycling. Together these routes total 29.2 miles and primarily consists of Class III shared streets.

- *Alpine Pedal Path*: This is a 2.5-mile Class I bike route on the north shore of the lake that extends between the observatory, along North Shore Drive to the Stanfield Cutoff. The Alpine Pedal Path is the only existing Class I facility in the Valley. Due to substantial use by pedestrians, it functions as a multi-modal path. However, the narrower width of the path limits its potential as a true multi-use path.
- *Big Bear Boulevard*: An 8-mile Class III signed bike route that extends the entire length of the south shore along Big Bear Boulevard. Conditions vary between a two- to five-lane road.
- *Eagle Point Loop*: A 3.2-mile Class III bike route northeast of the Village with three distinct segments that vary between 23-44 feet wide.
- *Lakeview Loop*: A 2.8-mile Class III bike route just west of the Village with three distinct segments varying between 20-26 feet wide.
- *Moonridge Loop*: A 5.9-mile Class III bike route that connects the Village and Bear Mountain, with six distinct segments varying between 20-98 feet wide.
- *Transition Route*: Connects the Lakeview Loop route with the Eagle Point Loop by way of Big Bear Boulevard and totals 0.9 miles. The Class III route has three distinct segments varying between 22-26 feet wide.
- *Other Bike Route*: A 5.9-mile Class III bike route that parallels Big Bear Boulevard/Highway 38, connecting Big Bear Lake to

the community of Sugarloaf. Conditions vary between a local street and two-lane road.

### **Equestrian Network**

In the study area, there is an extensive network of roads and informal trails that are used by equestrians. In addition, there are several neighborhoods with large lots and stables, including many in the east end of the Valley. However, there are no designated equestrian routes or trails and only a limited number of equestrian trailheads. The existing trailheads have varying degrees of amenities for users and equestrian accessibility.

The equestrian network is composed of formal and informal facilities. Informal facilities are unofficial or unmaintained trails developed over the years from users that access National Forest lands. Some of these trails cross public and private property. Outside of the study area, in the San Bernardino National Forest, there are formalized equestrian facilities including group camps and trailheads.

- *Group Camps:* There are three public group camps for equestrians located north of the lake and one camp located on the south side. These include Little Bear Springs, Harold F. Whittle, Old Baldy and Green Spot camps. Los Vaquero's is a private facility located in Erwin Lake that may be used for camping.
- *Trailheads:* There are three trailheads that currently allow for equestrian users, trailer parking and staging. These include Cougar Crest, Sand Canyon/Shasta Loop and Grays Peak trailheads.

## Transit Routes

The Mountain Area Regional Transit Authority (MARTA) provides public transit access in the Valley. Big Bear Mountain Resorts also offers seasonal shuttle service for overflow parking based on parking demand. There are two public transit fixed routes that run in the Valley.

- *Erwin Lake to Boulder Bay (Route 1)*: Route 1 has six stops in Big Bear Lake and five in the eastern Valley.
- *The Village to Gold Mountain (Route 1A)*: Route 1A has six stops in Big Bear Lake and two in the eastern Valley.

Both routes operate seven days a week at one-hour headways, or duration of transit arrival times. MARTA also offers dial-a-ride service for seniors and special needs residents living within a ¼-mile distance from the fixed route service.

## ORIGINS, DESTINATIONS AND CONNECTIVITY

Major activity centers are the origins and destinations where trips begin and end. Many of these are used on a routine basis such as schools, retail stores and shopping centers and post offices. Others, such as recreational facilities, lodging and trailheads generate a large number of visitors to the area. Safe, effective and connected routes between the Valley's origins and destinations support a multi-modal network. Major activity centers are generally located along Big Bear Boulevard, along Moonridge Road and within the Village Specific Plan Area. There are fewer destinations in surrounding communities (Map 2.1: Big Bear Valley Existing Land Uses).

### Origins and Destinations

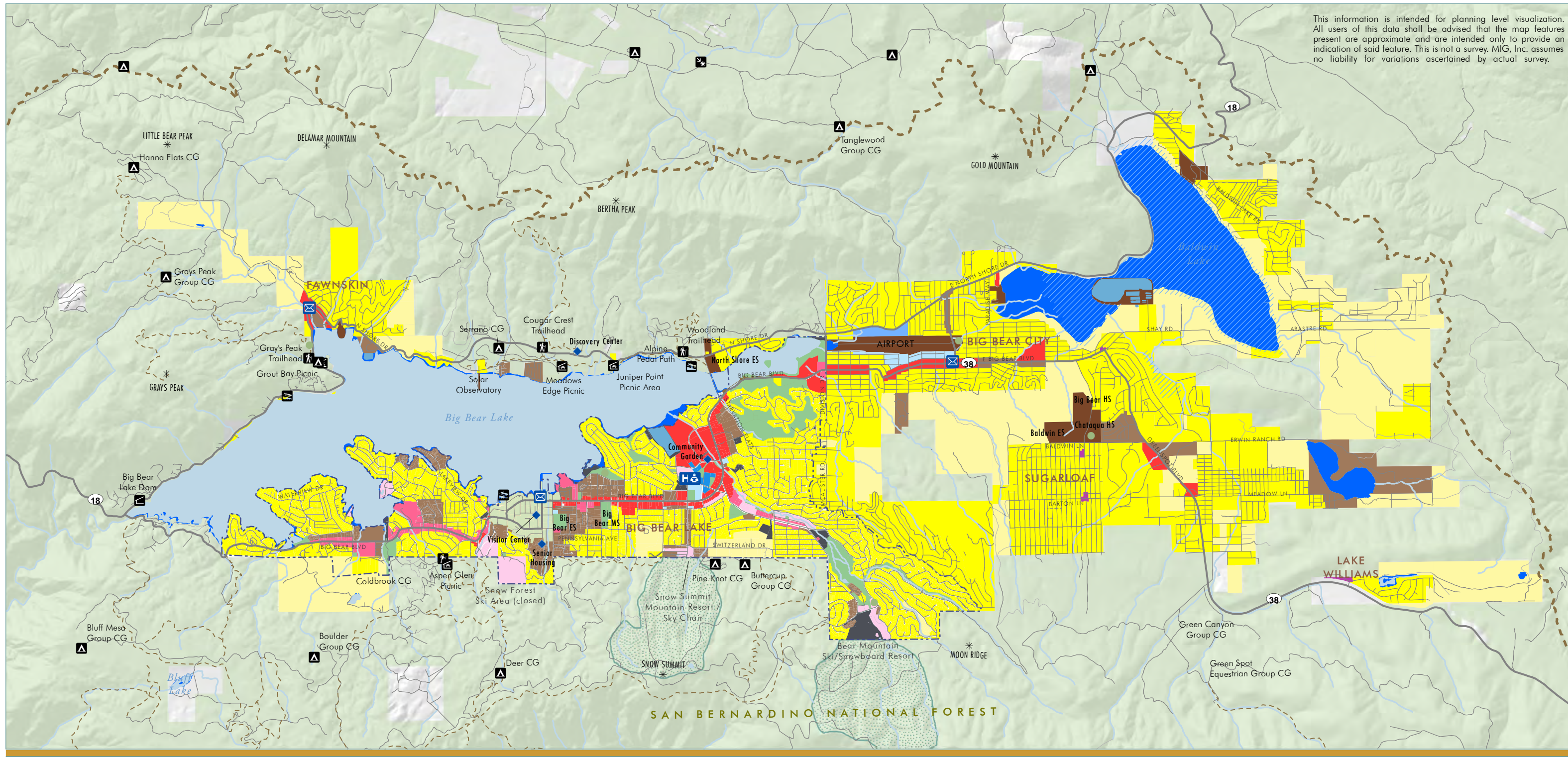
- *Commercial*: The primary concentration of restaurants and retail businesses are located along Big Bear Boulevard, between Paine Road and Georgia Street. The Village, along Pine Knot Avenue and Village Drive, serves as the Valley's primary retail center, attracting both residents and visitors with a range of restaurants, entertainment, services and amenities. Other central areas of activity include a stretch of commercial businesses along Big Bear Boulevard between Moonridge Road and Sandalwood Drive. These businesses include grocery stores and general commercial businesses such as Kmart. In the vicinity of

Garstin Drive and Fox Farm Road there are several significant employers including the hospital, the newspaper, and the City Public Works Yard. A smaller number of businesses are located along North Shore Drive in Fawnskin and in Big Bear City.

- *Lodging:* Lodging facilities and vacation rentals are distributed throughout the Valley. The area between Boulder Bay in the west end of the Valley and the Village is filled with smaller, rustic lodges. Larger, more modern facilities are located in the Village, on Moonridge Road, and at Division.
- *Residential:* The majority of zoning in the Big Bear Valley is residential. Smaller lot sizes and denser housing clusters exist adjacent to the commercial areas and near the lake. Multi-family housing development exists mostly along Big Bear Boulevard and near the Village. There is also a mobile home park on the north shore and a manufactured home development in Sugarloaf near the Big Bear High School.
- *Schools:* There are six schools in the study area. Big Bear Elementary School and Big Bear Middle School are a short distance from one another and alongside or near Big Bear Boulevard in the central city. To the north, North Shore Elementary School is accessed from North Shore Drive. Although the start of the Alpine Pedal Path is across the street from the school, parents do not perceive the path as a viable route for children to get to school. Outside of the city to the east, Big Bear and Chataqua high schools and Baldwin Elementary School are accessed off of Big Bear Boulevard/Greenspot Boulevard.



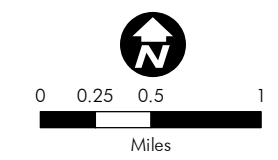
This information is intended for planning level visualization. All users of this data shall be advised that the map features present are approximate and are intended only to provide an indication of said feature. This is not a survey. MIG, Inc. assumes no liability for variations ascertained by actual survey.



- |  |                     |  |                              |  |                     |  |                            |  |                         |  |                             |
|--|---------------------|--|------------------------------|--|---------------------|--|----------------------------|--|-------------------------|--|-----------------------------|
|  | Campground          |  | Hospital                     |  | Pacific Crest Trail |  | Park/Open Space            |  | Village Specific Plan   |  | Public/Open Space           |
|  | Picnic Site         |  | Post Office                  |  | Trail               |  | Forest Service             |  | Commercial-Service      |  | Residential Low             |
|  | Day Use Area        |  | Library                      |  | Boardwalk           |  | Snow Recreation            |  | Commercial-General      |  | Single Family Residential   |
|  | Trailhead           |  | Peak                         |  | Stream/River        |  | Snow Recreation Boundary   |  | Commercial-Visitor      |  | Multiple Family Residential |
|  | Potential Trailhead |  | Major Road                   |  | Lake/Pond           |  | Golf Course                |  | Commercial-Recreation   |  | Floodway                    |
|  | Water Access        |  | Local Road                   |  | Reservoir           |  | Village Specific Plan Area |  | Commercial-Neighborhood |  | Institutional               |
|  | Interpretive Site   |  | Alley, Private or Other Road |  | Swamp/Marsh         |  | City Limits                |  | Community Industrial    |  | Split Zone                  |

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

## Map 2.1: Big Bear Valley Existing Land Uses



January 2013 | Data Sources: City of Big Bear, San Bernardino County, USGS, USDA & Planning Project Stakeholders.



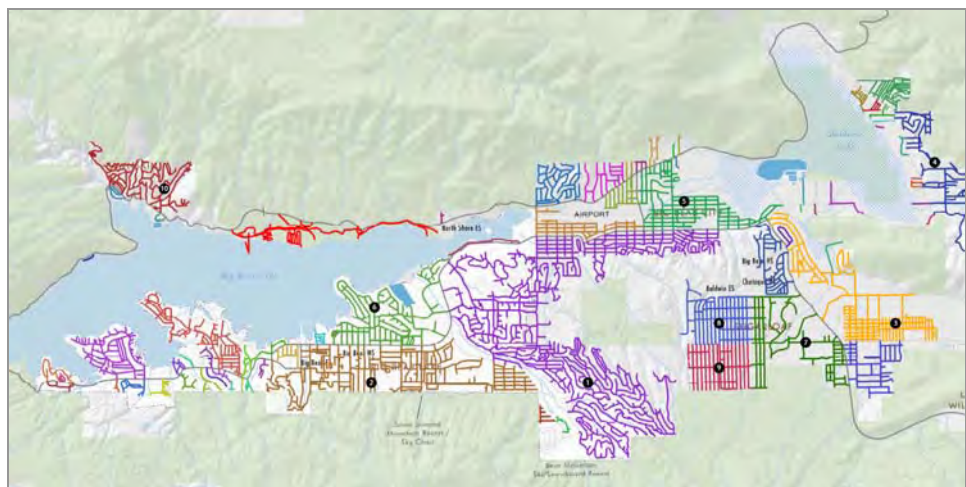
- *Post offices:* There are three post offices located in Fawnskin along North Shore Drive, in Big Bear Lake along Big Bear Boulevard, and in Big Bear City along Big Bear Boulevard.
- *Hospitals:* There is one hospital (Bear Valley Community Hospital), which is located in Big Bear Lake, accessible from Big Bear Boulevard. There are also multiple clinics and health care related uses in the Valley.
- *Recreation:* The Valley boasts a wide range of recreational opportunities for summertime and wintertime activities. Snow Summit and Bear Mountain ski areas—both located in the City of Big Bear Lake—are two of the largest recreational destinations in the Valley. Public boating access is located on the north side of the lake at the East Boat Ramp and the West Boat Ramp. Private boating access is located at Pine Knot Landing and Big Bear Marina in the Village, Holloway’s Marina and Pleasure Point Marina in Metcalf Bay in the southwest area of the Lake and Captain John’s Fawn Harbor Marina in Fawnskin. Various picnicking areas are also found along the Lake, and there are two public camp grounds within a short distance from Big Bear Lake City, as well as one campground along the north side of the lake. Moonridge Animal Park is also located in the City of Big Bear Lake near Bear Mountain. Within and near the city, there are three trailheads along the north shore of the lake, as well as one near the Aspen Glen Picnic area just south of Big Bear Lake City.

### **Bicycle Connectivity**

Bicycle routes that are well connected, direct and safe are welcoming to cyclists and encourage more users to ride. Conversely, wider streets with faster speeds, or segments with narrow shoulders such as Big Bear Boulevard and North Shore Drive are mostly unwelcoming to cyclists.<sup>2</sup>

Because many activity centers rely on one of these highways as their only access, many areas of the Valley are cut-off from each other. As a result, there are several bicycle connectivity “islands” throughout the Valley that lack safe bicycle routes to link with other routes and/or destinations.<sup>3</sup> Figure 2.4 shows connectivity islands with the most miles of unconnected streets. Each island is differentiated using different colored streets.

*Figure 2.4: Big Bear Valley Bicycle Connectivity Islands*



<sup>2</sup> For this analysis, other factors include physical space separation, blockages of bike facilities, average daily trips (ADT) and slope of the street. The analysis used roadway classification as a proxy to ADT and is related to the speed and width of the street.

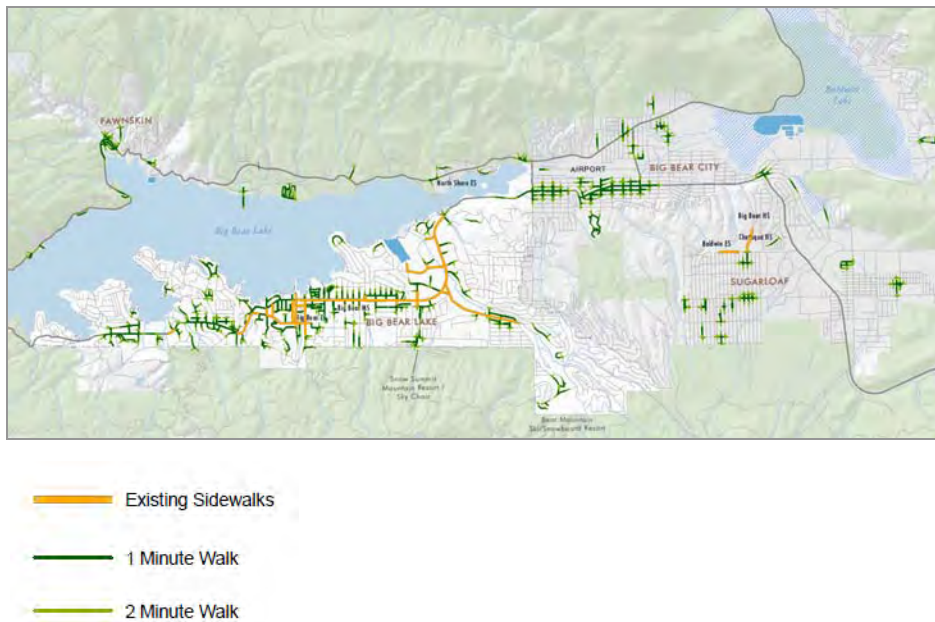
<sup>3</sup> For this analysis, safe streets include those with a 30mph speed limit or less, and a maximum of four travel lanes if separated by a raised median.

### Pedestrian Connectivity

Most pedestrians are generally willing to walk a one to two-minute distance to reach their destination. Pedestrians need safe, wide sidewalks, direct connections that avoid out-of-the-way travel and safe street crossings. Figure 2.5 shows existing sidewalks and a one to two-minute walk distance from activity centers.

When applying a one to two-minute distance from activity centers, much of the Village has convenient access to the sidewalks along Big Bear Boulevard. Outside of the Village, nearly all other activity centers lack pedestrian facilities within a one to two minute walking distance, including the destinations in west Big Bear Lake, Fawnskin, ski resorts, Big Bear City and Sugarloaf. The lack of safe crossings that span Big Bear Boulevard and North Shore Drive have a major impact on pedestrian access.

Figure 2.5: Big Bear Valley Pedestrian Connectivity



### Transit Connectivity

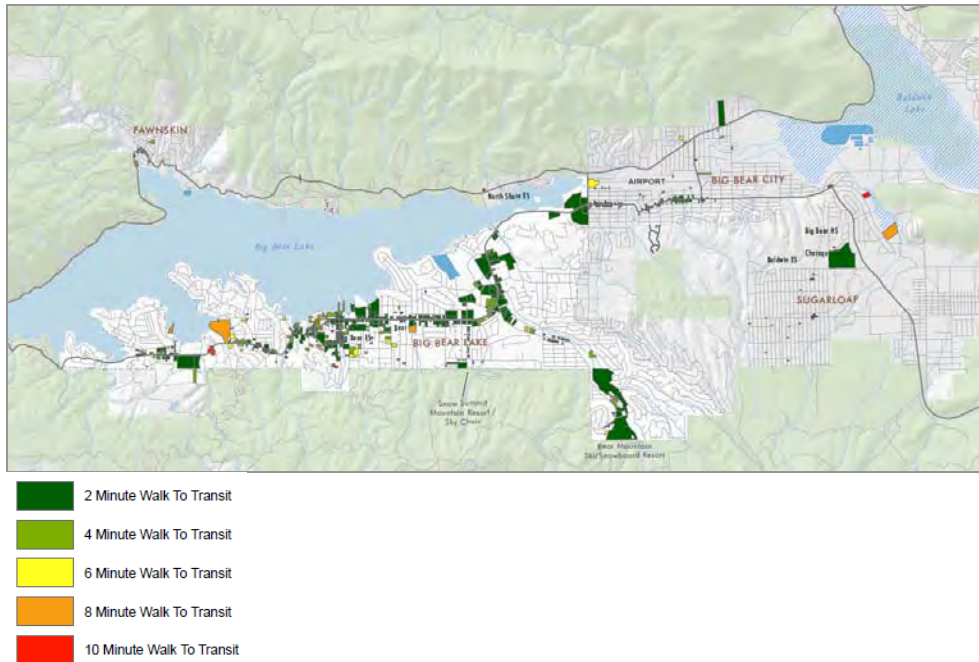
According to the Federal Highway Administration, most people are willing to walk for up to ten minutes to reach a transit stop. Activity centers in the Valley are generally well served by public transit within a ten-minute walk time. Existing transit routes run along Big Bear Boulevard and Moonridge Road which have the largest concentration of activity centers (Figure 2.6, following page).

Table 2.2 shows that nearly all commercial and office uses, and civic and health care facilities are in close proximity to public transit. However, there are fewer schools and residential uses within proximity to transit. Only 67% of Valley schools have convenient access to transit, and the percentage of residential area within a ten-minute distance to transit ranges between 45 to 67%.

*Table 2.2: Big Bear Valley Activity Centers/Land Uses within a Ten-Minute Walk to Transit*

Activity Centers/Land Uses	Total Activity Centers/Parcels	% Within a 10-Min. Walk Radius
Civic Facilities	8	100%
Commercial	11	100%
Health Care	13	100%
Ski Resorts	2	100%
Commercial Retail/Neighborhood Commercial	227	99%
Office	84	95%
Recreational Facilities	37	81%
Residential (Low Density)	20,552	67%
Schools	6	67%
Residential (High Density)	55	62%
Residential (Moderate Density)	602	45%

Figure 2.6: Big Bear Lake Transit Walk Time to Activity Centers



## COLLISIONS

Collision data provides a glimpse of how safe the Valley's streets are for pedestrians and bicyclists, based on the number of reported pedestrian and bicycle collisions with motorists. The most recent and available data is provided for the years 2006-2011.<sup>4</sup> Table 2.3 summarizes the total collisions that have occurred over this six-year time period. The table includes the total of all collisions (including those involving motorists alone) and totals for pedestrian and bicyclist-related collisions.

<sup>4</sup> The data shows total accidents, not accident rates. Accident rates apply total number of trips to total accidents and therefore provide a more complete sample of collision data. The sum of accidents may be higher than shown due to the total number involved in the accident, unreported collisions and/or missing data.

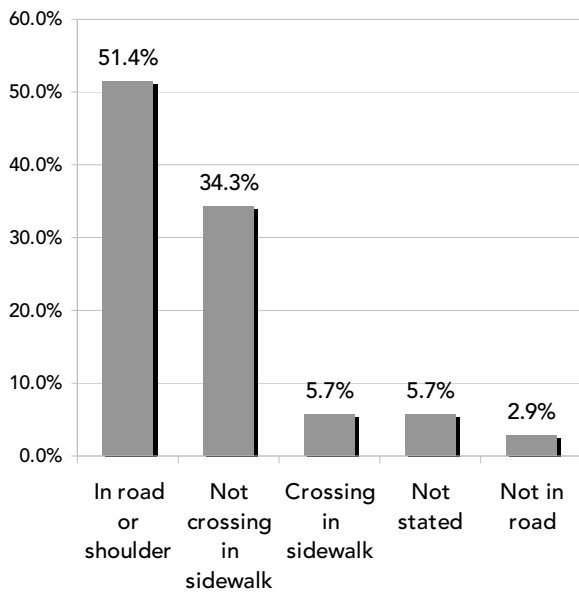
Table 2.3: Big Bear Valley Collision Data (2006-2011)

Year	Total Collisions (all modes)	Pedestrian Collisions			Bicycle Collisions		
		Total Number	% of Total	Fatalities	Total Number	% of Total	Fatalities
2006	82	5	6.1%	0	5	6.1%	0
2007	98	8	8.2%	0	5	5.1%	0
2008	89	8	9.0%	0	5	5.6%	0
2009	72	3	4.2%	1	6	8.3%	1
2010	70	5	7.1%	0	4	5.7%	0
2011	82	6	7.3%	0	6	7.3%	0

Source: California Statewide Integrated Traffic Records System (SWITRS) and California Highway Patrol.

According to the data, the percentage of pedestrian and bicycle collisions have increased at the same rate since 2006, and both represent 7.3% of all collisions in 2011. There were two fatalities in 2009, one each from a pedestrian and bicycle collision. However, these numbers account for one percent of the total number of collision-based fatalities in the Valley.

Figure 2.7: Big Bear Valley Pedestrian Collision Types



### Collision Types

Data for pedestrian-related collisions indicates that the majority of causes are due to pedestrians in the road and/or shoulder (51.4% of all pedestrian collisions) and crossing the street outside of a crosswalk (34.3%) (Figure 2.7). Other types of pedestrian-related collisions include vehicles crossing the sidewalk (eg. vehicles accessing driveways, access ways, etc) (5.7%) and not in the road (2.9%). An additional 5.7% of all pedestrian collisions do not have a stated cause.

Source: California Statewide Integrated Traffic Records System (SWITRS) and California Highway Patrol.

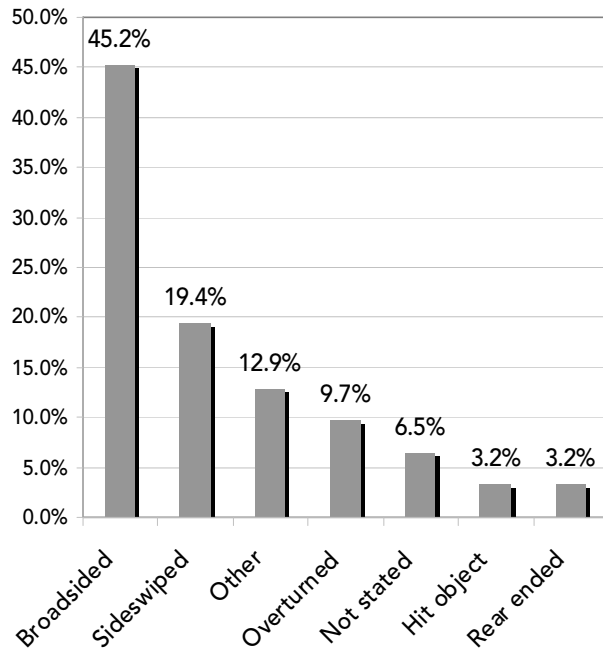


The majority of all bicycle collisions in the Valley during the time period are caused from being broadsided by a motor vehicle (45.2% of all bicycle collisions) (Figure 2.8). The second most prevalent type of bicycle collision is being sideswiped (19.4% of all collisions).

**Collision Locations**

Available collision data indicates that the majority of all pedestrian and bicycle collisions occur in unincorporated areas outside of the City of Big Bear Lake, and along Highways 18, 38 and Big Bear Boulevard. Approximately 67% of all reported pedestrian and bicycle collisions during the years 2006-2011 occurred in unincorporated areas of the Valley compared with 33% within the City of Big Bear Lake. Very few collisions occurred in residential areas inside the city or near schools.

Figure 2.8: Big Bear Valley Bicyclist Collision Types



Source: California Statewide Integrated Traffic Records System (SWITRS) and California Highway Patrol.



### 3. PLANNING PROCESS

This chapter describes the types of public involvement opportunities used throughout the planning process, which resulted in understanding the needs currently facing the Valley. Along with key findings identified in Chapter 2, these needs form the vision and principles set forth in Chapter 4, and the types of recommended policies, projects and programs outlined in subsequent chapters. This chapter is composed of the following sections:

- Public Involvement Overview;
- Key Findings;
- Assets, Issues and Opportunities; and
- Vision Concepts



#### PUBLIC INVOLVEMENT OVERVIEW

Three separate committees convened at each phase of the planning process to shape the direction of the project, and discuss plan content and recommendations.

- *Technical Advisory Committee (TAC)*: The TAC provided detailed feedback and direction from the perspective of public officials, community leaders and agency staff. The planning team held three TAC meetings over the course of the planning process.
- *Recreational Industry Advisory Committee (RIAC)*: The RIAC consisted of representatives from the recreation industry to provide input on the plan related to outdoor recreation in the Valley. The RIAC held four meetings over the course of the project.
- *Stakeholder Advisory Committee (STAC)*: The STAC provided additional guidance to the planning team, providing a setting where citizens with a major role in the study area and a specific interest in the plan could collaborate. The STAC held four meetings over the course of the project.

Public involvement was a major component of the plan that ran throughout the process. A range of opportunities and settings allowed the planning team to hear from a cross section of the community to

ensure feedback and support from visitors, residents, business owners, user groups, public agency representatives and local officials.

- *Community Field Activities:* Early in the planning process, project team members joined different trail user groups and set out on different trail-related activities in the Valley. Four separate field activities, including a walk with seniors, trail running, mountain biking and hiking, provided the project team with a chance to explore the trail system, while discussing opportunities and issues with the different trail users.
- *Focus Groups and Stakeholder Interviews:* Focus groups and one-on-one interviews were conducted to get in-depth feedback from specific stakeholders at the on-set of the project. In addition, a series of interviews were conducted with representatives from four user groups including, road cyclists, mountain bikes, non-motorized commuters and equestrians. Each participant gave an overview of their own interests, as well as their views on areas of need.
- *Complete Streets/Smart Mobility Workshop:* On November 13, 2012 the planning team hosted a daylong “Complete Streets Workshop/Smart Mobility Workshop” in conjunction with the National Complete Streets Coalition. The workshop provided an engaging and educational discussion as well as an opportunity to design the future of the transportation system in the Valley. As part of the workshop, area youth were invited to create art to express their values and vision for the future system.
- *Community Workshops and Open House:* There were three public workshops held at major project milestones. The City held the first event in November 2012 to discuss the community’s vision for the future of the pedestrian, bicycle and equestrian system in the Valley. The second workshop was held in January 2013 to explore the system and begin identifying how the future network should be improved. A final open house was held in the spring of 2013 to present the proposed system, allowing the public to view and comment on prioritized projects.
- *Community Questionnaire:* The project team developed a community questionnaire to help address specific questions related to system-wide use, benefits and improvements. This

questionnaire was not designed to be statistically significant. Instead, the questionnaire was used as a tool to gather input from a wider audience while allowing the public to provide feedback at their convenience. Responses to several demographic questions also helped verify respondent information from data gathered from US Census estimates. The questionnaire was available on-line, through a link on the city and project website, as well as in paper version. The questionnaire was active from the winter to spring of 2013. There were 151 total responses and 107 full responses to the questionnaire.

- *Project Website:* The project's website (gettherebigbear.com) provided the public with information, documents and updates on the project. The site provided a calendar and list of upcoming events and ways to find out more about the project. Through a link on the website, members of the public provided written comments via email which were tracked by the planning team.
- *Joint City Council/Planning Commission Meetings:* The project team provided three briefings to the City Council and Planning Commission at major project milestones. These occurred after each of the public workshops and open house.

## KEY FINDINGS

There are several key findings from the public involvement activities and project committees that drive the direction of the Master Plan. The following provides a summary of responses from the community questionnaire, combined with outcomes from other activities conducted during the planning process.

### Demographics

Like most residents, respondents to the questionnaire are older, without children and most drive to work.

- Similar to census data, most questionnaire respondents are 45 years and older and live in the Valley without children. Of residents, respondents are either new to the area (have lived in the Valley for three years or less) or have lived in the Valley for eleven years or more.

- Thirty-seven percent of respondents work in the Valley and most drive alone to get to work (72%), while only four percent walk and none bike, which is similar to census data.

### **Local Economy**

Visitors come for recreation and entertainment and spend money locally.

- Of visitors, most come for hiking, winter recreation, shopping and dining. On average, questionnaire respondents spend the most on dining out (\$37) and recreational activities (\$22). Other average expenses include \$11 on retail shopping and \$5 on entertainment.
- When asked where they typically purchase items and services, the top three locations chosen by questionnaire respondents are within the City of Big Bear Lake, elsewhere in San Bernardino County and via internet/mail order. Few respondents purchased goods or services elsewhere in Big Bear Valley and/or outside of the county. Within the City of Big Bear Valley, respondents spent the most on health and wellness services (48% of responses) and entertainment (66% of responses).

### **Community Identity and Livability**

Outdoor recreation is central to community identity and livability.

- Overwhelmingly, feedback from public involvement activities and the questionnaire indicated that recreation and active living is very important to quality of life in the Valley.
- Respondents from the questionnaire indicated that the top three benefits of the pedestrian, bicycle and equestrian networks are providing access to nature/outdoors (75.9% of responses), improving health and wellness (65.2%) and enhancing community image and sense of place (39.3%).

### **Non-motorized System Use**

Paved routes are popular and most use the network for fun and exercise.

- Based on feedback from members of the public, most use trails to walk, run or bike for fun and exercise and to a lesser degree,

access recreational destinations and parks. Fewer do so to shop/run errands and/or to get to work.

- According to the questionnaire, more respondents use paved surfaces for walking/running and/or cycling than unpaved trails. Nearly half of respondents (47.9%) walk or run on a paved surface, on a regular to frequent basis. Only slightly fewer respondents do so on a regular to frequent basis on an unpaved surface (32.5%). For biking, 23 percent bike on-road on a regular to frequent basis, and fewer (15.4%) do so off-road. Only 6.9 percent of respondents ride horses on a regular to frequent basis.
- According to the questionnaire, the top two popular trails are Cougar Crest Trail and neighborhood forest trails on the north shore. The questionnaire shows that cyclists typically have to ride more than five miles to reach parks and recreation destination and other trails.

### **Safety, Access and Wayfinding**

Improvements are needed to increase safety, access and wayfinding.

- When asked why respondents don't walk, run, bike and/or horseback ride more frequently, the top three reasons are a lack of convenient routes, lack of safe street and crossings and inadequate road widths.
- Almost 39 percent rated existing sidewalks, crosswalks, bike lanes and trails as fair and another 33.9 percent rating these facilities as poor. The top missing programs and/or facilities lacking in the system are more opportunities for road cycling, signage and wayfinding, more opportunities for hiking, walking and running and safety improvements.
- When asked about the top priorities for improving the pedestrian, bicycle and equestrian network, the top response is to create a network that enables people to comfortably move around the Valley without a car (76.8%). Others prioritized strengthening Big Bear's identity as an outdoor recreation destination (42%). A smaller portion of respondents prioritized improving lake access (26.8%) and making new and safer street crossings (21.4%).

## ASSETS, ISSUES AND OPPORTUNITIES

Findings outlined in Chapter 2 and outcomes from public involvement opportunities identified several common assets, issues and opportunities facing the Valley. Together, these concepts and needs form the vision and goals set forth by the Master Plan, and set the tone for the types of policies, projects and programs specified in subsequent plan chapters.

### Assets

Based on feedback from the public, there are multiple assets that set the stage for future improvements to the pedestrian, bicycle and equestrian network.



*Proximity to the LA basin.* The Valley benefits from the thousands of visitors that come from the nearby LA area and elsewhere.



*Rural character and small town feel.* The Valley's character gives it a unique and well loved sense of place.



*Natural and scenic beauty.* The surrounding landscape sets the Valley apart from other communities and attracts residents and visitors alike.



*Access to the National Forest.* Forest trails provide opportunities for pedestrians, cyclists and equestrians.



*Big Bear Lake.* The lake's backdrop and access to water recreation make Big Bear Lake a major Valley asset.



*Outdoor recreation destination.* Mountains, lakes and the four season climate make the Valley a destination for outdoor enthusiasts.



## Issues

The Valley's pedestrian, bicycle and equestrian network is faced with a range of issues related to system connectivity and infrastructure needs, safety and economic development.

### System Connectivity and Infrastructure:

- Few commuters biking and walking;
- User conflicts;
- Lack of amenities for non-motorized users;
- Limited signage and system awareness;
- Poor trailhead parking; and
- Incomplete routes

### Safety:

- A perceived lack of safe routes to school;
- Traffic speeds;
- Large traffic volumes for short times periods;
- Unsafe crossings; and
- Poor visibility

### Economic Development:

- Few visitors in the off-season;
- Lack of overnight and extended stay visitors; and
- Low wage jobs and seasonal employment

## Opportunities

The public also identified a number of opportunities that build on existing assets and serve to improve existing conditions. Table 3-1 summarizes key issues and opportunities, showing how these contrasting themes can come into balance and improve system-wide conditions. As the table illustrates, in most cases acting on one opportunity can provide solutions to multiple issues.

### System Connectivity and Infrastructure:

- Bike lanes and safer streets;
- A series of recreational loops;
- Better end-of-trip facilities;

- Increasing access to key destinations;
- Improving links to transit;
- Using utility and creek corridors;
- Improved access to the lake; and
- Better signage and wayfinding;

Safety:

- Education and enforcement programs;
- Safer crossings; and
- Slowing traffic and maintaining flow

Economic Development:

- Attracting residents, workers and businesses;
- Attracting families and providing beginner experiences;
- Athlete training and major sporting events;
- Encouraging motorists to park once; and
- Leveraging local and out of town businesses and partners

Table 3.1: Issues and Opportunities Matrix

Opportunities	Key Issues														
	Connectivity and Infrastructure					Safety					Economy				
	Few commuters biking and walking	User conflicts	Lack of amenities for non-motorized users	Limited signage and system awareness	Poor trailhead parking	Incomplete routes	Narrow roads	Lack of safe routes to school	Traffic speeds	Large traffic volumes for short time periods	Unsafe crossings	Poor visibility	Few visitors in off-season	Lack of overnight and extended stay visitors	Low wage jobs and seasonal employment
System Connectivity and Infrastructure															
Bike lanes and safer streets	•	•	•			•	•	•				•			
A series of recreational loops	•	•	•			•									
Better end-of-trip facilities	•		•		•			•							
Increasing access to key destinations	•	•	•			•	•								

Opportunities	Key Issues														
	Connectivity and Infrastructure					Safety					Economy				
	Few commuters biking and walking	User conflicts	Lack of amenities for non-motorized users	Limited signage and system awareness	Poor trailhead parking	Incomplete routes	Narrow roads	Lack of safe routes to school	Traffic speeds	Large traffic volumes for short time periods	Unsafe crossings	Poor visibility	Few visitors in off-season	Lack of overnight and extended stay visitors	Low wage jobs and seasonal employment
Improving links to transit	•		•			•	•		•						
Using utility and creek corridors	•		•			•	•								
Improved access to the lake						•									
Better signage and wayfinding	•	•	•	•		•	•		•	•	•				
<b>Safety</b>															
Education and enforcement Programs	•	•		•			•	•	•	•	•		•		
Safer crossings	•	•	•	•		•	•	•	•	•	•				
Slowing traffic and maintaining flow	•	•					•	•	•	•	•				
<b>Economic Development</b>															
Attracting residents, workers and businesses													•	•	•
Attracting families and providing beginner experiences													•	•	•
Athlete training and major sporting events													•	•	•
Encouraging motorists to park once	•													•	
Leveraging local and out of town businesses and partners													•	•	•

## VISION CONCEPTS

Based on the assets, issues and opportunities, there are several overarching vision elements that define what the desired future of the Valley's street and trail system will consist of. The following vision elements are aspirations that drive the formation of the vision, as well as the direction of the planning principles presented in the following chapter:

- Create well-connected "complete" networks;
- Promote climate sensitive design;
- Develop new programs to enhance the multi-modal system;
- Embrace and celebrate the unique local character;
- Enhance safety for all modes;
- Provide facilities and amenities for all users (ages, locations and abilities);
- Improve signage and wayfinding;
- Build partnerships with businesses and other organizations;
- Increase education and enforcement; and
- Consider and plan for maintenance needs and impacts.

## 4. VISION AND EVALUATION CRITERIA

### PLANNING FRAMEWORK

As the result of a multi-layered public outreach process and a close look at existing issues and opportunities facing the Valley, this chapter presents the unified vision for the future of the multi-modal transportation system, and criteria for evaluating and prioritizing future transportation improvements. This planning framework is based on a combination of local input and state and regional transportation and planning goals to form a relevant, effective and successful plan for the future.



### Smart Mobility Framework

The statewide Smart Mobility Framework establishes six overarching principles to guide transportation and development at the local level. Together, the principles forward statewide mandates to reduce greenhouse gas (GHG) emissions and related vehicle miles traveled, improve safety and further social equity and environmental justice.

1. *Location Efficiency*: Encourages integration of transportation and land use.
2. *Reliable Mobility*: Manages, reduces and avoids congestion by emphasizing multi-modal options and transportation network management.
3. *Health and Safety*: Prioritizes integrated transportation systems and services that support healthy lifestyles, minimize environmental risks, protect travelers from hazardous conditions, and support emergency preparedness.
4. *Environmental Stewardship*: Strives to protect and enhance the State's built and natural environments. This includes minimizing the transportation sector's emission of pollutants and GHGs that contribute to global climate change.
5. *Social Equity*: Measures outcomes on providing mobility for people who are economically, socially or physically disadvantaged in order to support their full participation in society.

6. *Robust Economy*: Supports a competitive economy with a multi-modal transportation system that is responsive to travel demand associated with productive and sustaining travel.

## SYSTEM-WIDE VISION AND PLANNING PRINCIPLES

The system-wide vision describes the desired future of the multi-modal transportation system. The vision statement defines what the Valley aspires to become, building on current conditions and planning goals, and resident and visitor values and needs.

### Vision

*Big Bear Valley's residents and visitors are connected to key destinations and surrounding recreational amenities by a safe and "complete" multi-modal transportation network. Interconnected systems of on-street and off-street routes for pedestrians, bicyclists and equestrians provide a range of choices for users of all ages and abilities. Policies, programs and physical projects work in unison to promote health and well-being, support the local economy, celebrate the natural environment, and strengthen the Valley's identity as a world-class outdoor recreation destination.*

### Planning Principles

The result of the public involvement process led to a number of planning principles that further describe the multiple objectives of the vision. The planning principles are supported by the Smart Mobility Framework, as well as local planning goals, resulting in a comprehensive set of desired future conditions.

1. *Design a safe and efficient transportation system for all users and modes*: Improvements will enhance safety and transportation efficiency for motorists and for pedestrians, cyclists and equestrians of all skill and ability levels.
2. *Link the Valley together with destinations and recreational resources*: Improvements will fill incomplete segments of the non-motorized trail system and provide new connections to

natural areas, valley destinations and regional recreation amenities.

3. *Strengthen the local economy and create a world-class recreational destination:* The transportation system will help the City increase its role as a hub for commerce and culture, becoming a destination for outdoor athletes and events large and small.
4. *Support healthy outdoor lifestyles through the non-motorized transportation network:* A well-connected, safe and inviting street and trail system will increase the number of pedestrians, cyclists and equestrians.
5. *Integrate the area's natural beauty while protecting environmental resources:* The region's natural beauty will be integrated into the transportation system, while creating a sustainable and multi-modal transportation system.
6. *Create an inviting and distinctive sense of place:* The area's four season climate, natural beauty, recreational opportunities and mountain character will serve as the inspiration for trail amenities and street design and street front.
7. *Encourage visitors to stay while they shop and play:* Increasing the duration of visits for recreating, shopping and dining will increase tourism revenue and support for local businesses.
8. *Promote the trail system while conveying the significance of the area's unique environment, culture and history:* Promotional materials, signage and interpretive displays will attract more visitors and enhance user experiences and appreciation of the valley.
9. *Educate users of all modes to increase safety, awareness and understanding:* Provide signage and engage with user groups, residents and local businesses to reduce conflicts between different users and to increase respect and safety for all modes.
10. *Leverage partnerships to support and finance desired improvements:* Well organized nonprofits and partners can help build and sustain the trail system. Alliances and coordination with the local business community and private investors can maximize the City's resources and help complete the envisioned street system.

## EVALUATION CRITERIA

The evaluation criteria are measurable targets, or performance measures that test future and proposed transportation projects. The criteria are intended for use in decision making to evaluate how well new projects and improvements fulfill the planning principles. As projects are proposed, the criteria should be used to determine their relative value among all other projects, and then prioritized accordingly. Those that provide the most support for the most criteria should be considered for future funding in the County of San Bernardino's and the City of Big Bear's Capital Improvement Plans (CIP). They should also be considered in the budgeting and capital planning of partner agencies.

Because the criteria are extensive and wide reaching—covering economic, environmental, transportation and social principles—it is unlikely that any one project will support them all. However, priority improvements to the system should meet as many as possible, thereby meeting the intent of the Master Plan vision. Each criterion has a range of possible points, ranging from 1 (the project partially fulfills the criterion) to 3 (the project completely fulfills the criterion).

### **A. Safe Routes to School: Creates or improves connection to schools.**

1. a. Pedestrians: Project will create a safe route greater than a ¼-mile but within ½-mile from a school and another safe connection.  
b. Cyclists: Project will create a safe route greater than a ½-mile but within 1-mile from a school and another safe connection.
2. a. Pedestrians: Project will create a safe route within a ¼-mile from a school and another safe connection.  
b. Cyclists: Project will create a safe route within a ½-mile from a school and another safe connection.
3. Project will complete a safe route between a school and another safe connection (direct connection to school).

### **B. Safe Routes to Transit: Creates or improves connection to existing transit stops.**



1. a. Pedestrians: Project will create a safe linkage greater than a ¼-mile but within ½-mile from another safe connection.  
b. Cyclists: Project will create a safe linkage greater than a ½-mile but within 1-mile from another safe connection.
2. a. Pedestrians: Project will create a safe linkage within a ¼-mile from another safe connection.  
b. Cyclists: Project will create a safe linkage within a ½-mile from another safe connection.
3. Project will complete a safe linkage between a transit stop and another safe connection.

**C. Neighborhood Connectivity: Creates or improves connection between two or more neighborhoods.**

3. Project will provide a direct connection between two or more separate neighborhoods.

**D. Lake and Forest Connectivity: Creates or improves connection to water body or trailhead.**

1. a. Pedestrians: Project will create a safe linkage greater than a ¼-mile but within ½-mile from a water body or a trailhead.  
b. Cyclists and equestrians: Project will create a safe linkage greater than a ½-mile but within 1-mile from a water body or a trailhead.
2. a. Pedestrians: Project will create a safe linkage within a ¼-mile from a water body or trailhead.  
b. Cyclists and equestrians: Project will create a safe linkage within a ½-mile from a water body or trailhead.
3. Project will complete a safe linkage between a water body and a trailhead.

**E. Business Access: Creates or improves connection to commercial areas.**

1. a. Pedestrians: Project will create a safe linkage greater than a ¼-mile but within ½-mile from a commercial area.  
b. Cyclists and equestrians: Project will create a safe linkage greater than a ½-mile but within 1-mile from a commercial area.

2. a. Pedestrians: Project will create a safe linkage within a ¼-mile from a commercial area.  
b. Cyclists and equestrians: Project will create a safe linkage within a ½-mile from a commercial area.
3. Project will complete a safe linkage to commercial areas.

**F. Visitor Supporting: Creates or improves connection to lodging facilities.**

1. a. Pedestrians: Project will create a safe linkage greater than a ¼-mile but within ½-mile from lodging facilities.  
b. Cyclists and equestrians: Project will create a safe linkage greater than a ½-mile but within 1-mile from lodging facilities.
2. a. Pedestrians: Project will create a safe linkage within a ¼-mile from lodging facilities.  
b. Cyclists and equestrians: Project will create a safe linkage within a ½-mile from lodging facilities.
3. Project will complete a safe linkage to lodging facilities.

**G. Public Facility Access: Creates or improves connection to public facilities (library, zoo, post office, etc)**

1. a. Pedestrians: Project will create a safe linkage greater than a ¼-mile but within ½-mile from public facilities.  
b. Cyclists and equestrians: Project will create a safe linkage greater than a ½ -mile but within 1-mile from public facilities.
2. a. Pedestrians: Project will create a safe linkage within a ¼-mile from public facilities.  
b. Cyclists and equestrians: Project will create a safe linkage within a ½-mile from public facilities.
3. Project will complete a safe linkage to public facilities.

**H. Ease of Implementation: Does the project require structural work, road widening, design exceptions, etc.**

1. Project requires major changes (ie. road widening, structural work, etc.).
2. Project requires moderate changes (ie. road reconfiguration for Class II routes).

3. Project requires minor changes (ie. painting a Class III bike route).

**I. Cost-Benefit: Cost per Mile divided by the total scores of all other criteria. A lower cost and higher total score for all other criteria provides the greatest cost-benefit.**

1. Project costs more than \$100,000 when divided by the total scores of all other criteria.
2. Project costs more than \$50,000 but less than \$100,000 when divided by the total scores of all other criteria.
3. Project costs less than \$50,000 when divided by the total scores of all other criteria.



## 5. MULTIMODAL NETWORK

The non-motorized multimodal network provides transportation and recreation opportunities for pedestrians, cyclists, and equestrians when designed for all modes. The strategy for building and sustaining this network consists of different projects, policies and programs presented in this chapter.



### PROJECTS

The entire multimodal network will consist of over 39 miles of paved pathways, natural surface trails and boardwalks and a new water trail route across Big Bear Lake (Table 5.1). The total cost to complete the multimodal network is approximately \$49 million. Map 5.1, Proposed Multimodal Non-Motorized Network, shows the complete envisioned network. Map 5.2, Multimodal Projects, shows the location of all projects, which are summarized in Appendix B.

As a network made of mostly Class I off-street trails, multimodal projects require land acquisition, extensive permitting, and involve more complex planning and design needs than other networks in the system.

Table 5.1: Proposed Multimodal Network Summary

Total Projects <sup>1</sup>	Project Type	Total Miles	Planning Level Cost Estimates
1	Boardwalk	0.6	\$408,000
23	Paved Pathway	26.5	\$45,452,000
8	Natural Surface Trail	12.1	\$3,195,000
1	Water Trail	1.1	NA
<b>35</b>		<b>39.8</b>	<b>\$49,055,000</b>

<sup>1</sup> Total includes multiple segments of individual projects

Of all projects, approximately 38 percent are located within the City of Big Bear Lake. The remainder (62%) are located in unincorporated areas, including National Forest lands.

### Prioritized Projects

There are several projects that will provide the greatest benefit when weighted against the evaluation criteria. Based on the total scoring of the criteria, the top 15 projects would add 19.2 miles of paved pathways, boardwalks and natural surface trails throughout the Valley. The total planning level cost estimate of the prioritized multimodal projects is \$29.3 million (Table 5.2).

Table 5.2: Prioritized Multimodal Projects

Priority Ranking	Project Number	Project Name	Facility Type	Length (Miles)	Planning Level Cost Estimate
#1	P901	Stanfield Marsh Route	Boardwalk	0.6	408,000
#2	PB102	Knickerbocker Creek Route	Paved Pathway (Class I)	0.8	\$1,602,000
#3	PB112	Stanfield Marsh Loop	Paved Pathway (Class I)	1.4	\$2,668,000
#4	PB101	Marina Route	Paved Pathway (Class I)	1.4	\$2,661,000
#5	PBE501	Saw Mill Route	Natural Surface Trail	1.1	\$297,000
#6	PBE103	Rathbun Creek Route	Paved Pathway (Class I)	3.9	\$7,343,000
#7	PB105	Rathbun Creek Route	Paved Pathway (Class I)	0.9	\$1,748,000
#8	PB107	Stanfield Marsh Loop	Paved Pathway (Class I)	0.1	\$100,000
#9	PB111	Stanfield Cutoff	Paved Pathway (Class I)	0.2	\$362,000
#10	PB108	North Shore Drive Route	Paved Pathway (Class I)	3.0	\$5,732,000
#11	PB113	Stanfield Marsh Loop Connector	Paved Pathway (Class I)	0.1	\$160,000
#12	PB110	Alpine Pedal Path	Paved Pathway (Class I)	0.2	\$315,000
#13	PB115	Airport Loop Route	Paved Pathway (Class I)	1.4	\$2,621,000
#14	PB114	Airport Loop Route	Paved Pathway (Class I)	1.4	\$2,615,000
#15	PBE500	Canyon Route	Natural Surface Trail	2.7	\$714,000
<b>Total</b>				<b>19.2</b>	<b>\$29,346,000</b>

## POLICIES

The following goals and objectives are necessary to guide the development and management of the multimodal network.

### **Goal M1: Create safe and inviting streets and trails throughout Big Bear Valley**

- 1-1. Buffer sidewalks along major arterials and in commercial areas with one or more of the following: landscaped planting strip, on-street parking, and/or a paved furnishing zone for benches, trash receptacles, lighting and other types of seating.
- 1-2. Buffer separated bike lanes (Class II) with wide street markings and/or on-street parking where practicable.
- 1-3. Explore opportunities for separated grade crossings where major trails cross state highway facilities.
- 1-4. Maximize visibility and physical access to trails from streets and other public lands.
- 1-5. Improve parking and multimodal circulation at trailheads to limit the need to walk across high speed and high volume roadways.
- 1-6. Provide pedestrian scale lighting in all pedestrian zones and along multi-use pathways (especially those serving a prominent role in the transportation system).
- 1-7. Minimize vehicular conflicts with non-motorized trail users through new crossings along Big Bear Boulevard, no more than a quarter-mile apart within the City of Big Bear Lake and no more than half-mile apart in Big Bear City.

### **Goal M2: Establish and expand recreational opportunities for pedestrians, cyclists and equestrians**

- 2-1. Provide multimodal loops around Big Bear Lake, Stanfield Marsh and Baldwin Lake.
- 2-2. Provide linkages between trails and paved pathways, bike lanes, transit terminals, activity centers, shuttle and bus stops, and park & ride lots.

- 2-3. Enhance trail corridors along creeks, such as Rathbun Creek and Knickerbocker Creek, to connect commercial areas and neighborhoods to the Lake and National Forest.
- 2-4. Assess opportunities to formalize use of neighborhood forest trails and neighborhood trail access points.
- 2-5. Explore a sustainable model for providing a pedestrian and bicyclist-serving ferry service across Big Bear Lake.

### **Goal M3: Provide improved signage and wayfinding**

- 3-1. Develop and implement a signage and wayfinding system specific to non-motorized users with appropriate scale, font sizes, destinations and distances.
- 3-2. Provide signage that educates residents and visitors about dog leash laws, speed limits and other regulations.
- 3-3. Improve existing signage and pavement markings to better notify all modes of proper use and to minimize user conflicts.

## **PROGRAMS**

Along with policies, the following multimodal-oriented programs will promote non-motorized transportation in the Valley, through safety and education and enforcement.

### **Safe Routes to School**

- Work with schools and parents to develop “bike trains” and “walking school buses” at the beginning of each school term to encourage biking and walking to school.
- Develop incentive and tracking programs to encourage students, faculty and staff to walk to school.

### **Landscaping**

- Require setbacks with native landscaping adjacent to sidewalks and pathways.
- Consider landscaping along buffered sidewalks, in median islands and in curb extensions (i.e. bulb-outs).



### **Education and Enforcement**

- Develop a multimodal map for the various areas of Big Bear Valley with clear delineation of difficult grades, crossing characteristics, logical loops and distances.
- Promote street and trail etiquette through educational campaigns, public safety classes and through communication with user groups.
- Create better route and trail maps, guides and route information. Consider providing free information for users at trail heads, retail shops and public facilities.
- Enforce speed limits throughout the Valley with a particular emphasis on school zones.



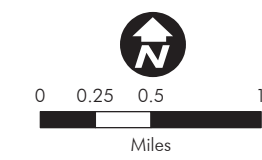
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|--|---------------------|--|-----------------------------------|--|------------------------|--|------------------------------|--|----------------------------|
|  | Campground          |  | Post Office                       |  | Boardwalk Planned      |  | Major Road                   |  | Swamp/Marsh                |
|  | Trailhead           |  | Library                           |  | Pacific Crest Trail    |  | Local Road                   |  | Park/Open Space            |
|  | Potential Trailhead |  | Peak                              |  | Proposed Trail         |  | Alley, Private or Other Road |  | Forest Service             |
|  | Picnic Site         |  | Proposed Trailhead                |  | Existing Class 1 Route |  | Stream/River                 |  | Snow Recreation            |
|  | Day Use Area        |  | Proposed Forest Access            |  | Proposed Class 1 Route |  | Snow Recreation Boundary     |  | Golf Course                |
|  | Water Access        |  | Proposed Water Access             |  | Trail                  |  | Lake/Pond                    |  | Village Specific Plan Area |
|  | Interpretive Site   |  | Traffic Signal                    |  | Boardwalk              |  | Reservoir                    |  | City Limits                |
|  | Hospital            |  | Proposed Separated Grade Crossing |  | Water Trail            |  |                              |  |                            |

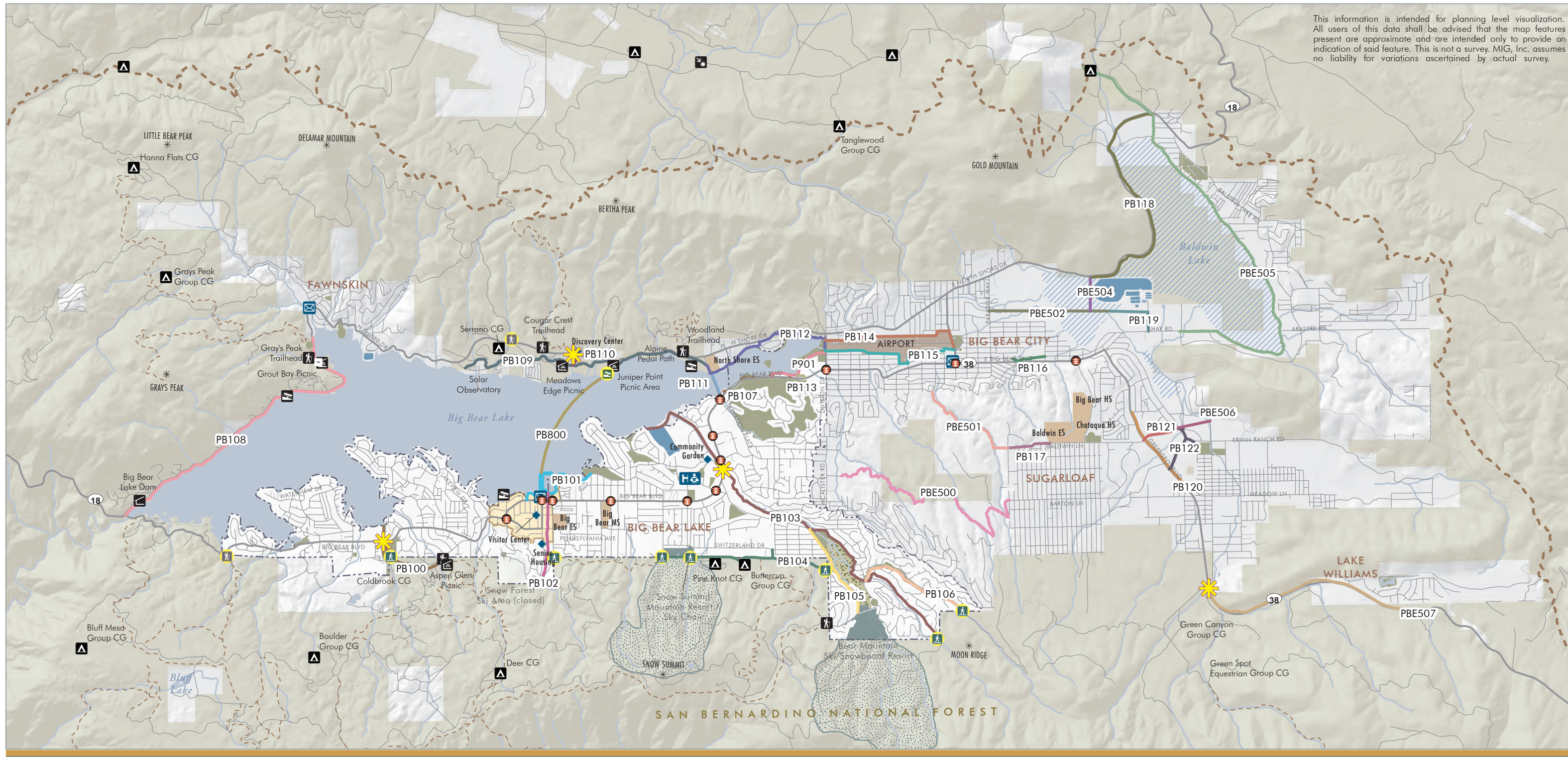
The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

### Map 5.1: Proposed Multimodal Non-Motorized Network





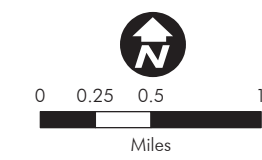
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|--|---------------------|--|------------------------|--|-----------------------------------|--|------------------------------|--|----------------------------|
|  | Campground          |  | Post Office            |  | Multimodal Projects               |  | Major Road                   |  | Park/Open Space            |
|  | Trailhead           |  | Library                |  | Proposed Separated Grade Crossing |  | Local Road                   |  | Forest Service             |
|  | Potential Trailhead |  | Peak                   |  | Boardwalk Planned                 |  | Alley, Private or Other Road |  | Snow Recreation            |
|  | Picnic Site         |  | Proposed Trailhead     |  | Pacific Crest Trail               |  | Lake/Pond                    |  | Snow Recreation Boundary   |
|  | Day Use Area        |  | Proposed Forest Access |  | Trail                             |  | Reservoir                    |  | Golf Course                |
|  | Water Access        |  | Proposed Water Access  |  | Boardwalk                         |  | Swamp/Marsh                  |  | Village Specific Plan Area |
|  | Interpretive Site   |  |                        |  |                                   |  | Stream/River                 |  | City Limits                |
|  | Hospital            |  |                        |  |                                   |  |                              |  |                            |

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

### Map 5.2: Multimodal Projects





## 6. PEDESTRIAN NETWORK

The pedestrian network includes new sidewalks and improved street crossings throughout the Valley. The strategy for building and sustaining this network consists of different projects, policies and programs presented in this chapter.



### PROJECTS

The entire pedestrian network will consist of 16 miles of new sidewalks, including 9.7 miles of sidewalks within the City of Big Bear Lake, 1.6 miles along North Shore Drive and 4.73 miles in other areas of the Valley (Table 6.1). The pedestrian network also consists of 36 improved intersections around the Valley. The total cost to complete the entire pedestrian network is approximately \$61.9 million. Map 6.1, Proposed Pedestrian Network, shows the complete envisioned network. Map 6.2, Pedestrian Projects, shows the location of all projects, which are summarized in Appendix B.

Table 6.1: Proposed Pedestrian Network Summary

Total Projects <sup>1</sup>	Project Type and Location	Total Miles	Planning Level Cost Estimates
61	City of Big Bear Lake Sidewalks	9.7	\$25,483,000
11	County of San Bernardino Sidewalks	6.33	\$16,637,000
15	City of Big Bear Lake Intersections	N/A	\$8,250,000
21	County of San Bernardino Intersections	N/A	\$11,550,000
<b>108</b>		<b>16</b>	<b>\$61,920,000</b>

<sup>1</sup> Total includes multiple segments of individual projects

Of all pedestrian projects, approximately 69 percent are located within the City of Big Bear Lake. The remainder (31%) are located in unincorporated areas of the Valley.

### Prioritized Projects

There are several projects that will provide the greatest benefit when weighted against the evaluation criteria. Based on the total scoring of the criteria, the top 15 pedestrian projects would add 5.2 miles of sidewalk, and four intersection improvements in and around the Valley. The total planning level cost estimate of the prioritized pedestrian projects is approximately \$16.5 million (Table 6.2).

Table 6.2: Prioritized Pedestrian Projects

Priority Ranking	Project Number	Project Name	Facility Type	Length (Miles)	Planning Level Cost Estimate
#1	P109	Big Bear Blvd – Paine Rd to Pine Knot Ave	Sidewalk	0.3	\$907,000
#2	P117	Pedder Rd	Sidewalk	0.1	\$ 257,000
#3	P143	Big Bear Blvd	Sidewalk	1.1	\$2,790,000
#4	P211	Big Bear Blvd at Bartlett Rd	Intersection Enhancement	-	\$550,000
#5	P212	Big Bear Blvd (midblock)	Intersection Enhancement	-	\$550,000
#6	P110	Beaver Ln	Sidewalk	0.2	\$608,000
#7	P114	Squirrel Ln	Sidewalk	0.1	\$157,000
#8	P116	Bartlett Rd	Sidewalk	0.0	\$129,000
#9	P118	Maryland Rd/Stocker Rd	Sidewalk	0.2	\$455,000
#10	P119	Cameron Dr/Knickerboker Rd/Pine Knot Ave	Sidewalk	0.6	\$1,545,000
#11	P120	Knickerboker Rd	Sidewalk	0.1	\$134,000
#12	P123	Alden Rd	Sidewalk	0.2	\$571,000
#13	P210	Big Bear Blvd at Simmonds Dr	Intersection Enhancement	-	\$550,000
#14	P213	Big Bear Blvd at Leisure Bear Mobile Home Park	Intersection Enhancement	-	\$550,000
#15	P149	E Big Bear Blvd/W Big Bear Blvd	Sidewalk	2.3	\$6,166,000
<b>Total</b>				<b>5.2</b>	<b>\$16,469,000</b>



## **POLICIES**

The following goals and objectives are necessary to guide the development and management of the pedestrian network.

### **Goal P1: Create a safe and inviting pedestrian environment throughout Big Bear Valley**

- 1-1. Provide sidewalks with a minimum width of five (5) feet where feasible.
- 1-2. Buffer sidewalks along major arterials and in commercial areas with one or more of the following: landscaped planting strip, on-street parking, and/or a paved furnishing zone for benches, trash receptacles, lighting and other types of seating.
- 1-3. Explore opportunities for separated grade crossings where major trails cross state highway facilities.
- 1-4. Improve parking and multi-modal circulation at trailheads to limit the need to walk across high speed and high volume roadways.
- 1-5. Provide pedestrian scale lighting in all pedestrian zones and along multi-use pathways (especially those serving a prominent role in the transportation system).
- 1-6. Provide pedestrian crossings of Big Bear Boulevard no more than a quarter-mile apart within the City of Big Bear Lake and no more than half-mile apart in Big Bear City.
- 1-7. Encourage pedestrian-oriented development with parking located behind or on the sides of buildings, limited setbacks and major entrances oriented to sidewalks and trails.
- 1-8. Identify opportunities to reduce crossing distances for pedestrians through the use of curb extensions (i.e. bulb-outs), narrower travel lanes, and pedestrian refuge islands.

### **Goal P2: Improve pedestrian connections to schools and other community facilities**

- 2-1. Prioritize safe routes to schools by providing sidewalks, multi-use pathways and improved intersections near schools and between neighborhoods and schools.

- 2-2. Provide dedicated pedestrian connections between neighborhoods and community facilities (e.g., Connection to Discovery Center, Senior Center, City Hall, post offices).

**Goal P3: Establish and expand recreational opportunities for pedestrians, runners and hikers**

- 3-1. Provide pedestrian-friendly loops around Big Bear Lake, Stanfield Marsh and Baldwin Lake.
- 3-2. Enhance trail corridors along creeks, such as Rathbun Creek and Knickerbocker Creek, to connect commercial areas and neighborhoods to the Lake and National Forest.
- 3-3. Assess opportunities to formalize use of neighborhood forest trails and neighborhood trail access points.
- 3-4. Explore a sustainable model for providing a pedestrian and bicyclist-serving ferry service across Big Bear Lake.

**Goal P4: Design pedestrian facilities to reduce conflicts between pedestrians and other facility users**

- 4-1. Enforce and educate residents and visitors about dog leash laws.
- 4-2. Improve existing signage and pavement markings to notify all modes and minimize user conflicts.

**Goal P5: Provide improved pedestrian-specific signage and wayfinding**

- 5-1. Develop and implement a signage and wayfinding system specific to pedestrians with appropriate scale, font sizes, destinations and distances.
- 5-2. Improve existing signage and pavement markings to better notify all modes of proper use and to minimize user conflicts.

**PROGRAMS**

Along with policies, the following pedestrian-related programs will promote walking in the Valley, through inviting places, safety and encouragement.

### **Café Seating and Parklets**

- Encourage café seating and outdoor displays that do not impede pedestrian circulation.
- Develop a permit and design assistance program for businesses interested in creating parklets – seating areas situated in the parking strip – in one or more parking spaces adjacent to their storefronts.

### **Safe Routes to School**

- Work with schools and parents to develop “walking school buses” at the beginning of each school term to encourage walking to school.
- Develop incentive and tracking programs to encourage students, faculty and staff to walk to school.

### **Public Art and Landscaping**

- Identify locations for public art and facilitate a program to commission temporary and permanent art pieces.
- Promote artistic design of street furnishings, including signage, sign standards, light standards, benches and trash receptacles.
- Require setbacks with native landscaping adjacent to sidewalks and pathways.
- Consider landscaping along buffered sidewalks, in median islands and in curb extensions (i.e. bulb-outs).

### **“Park Once” Strategy**

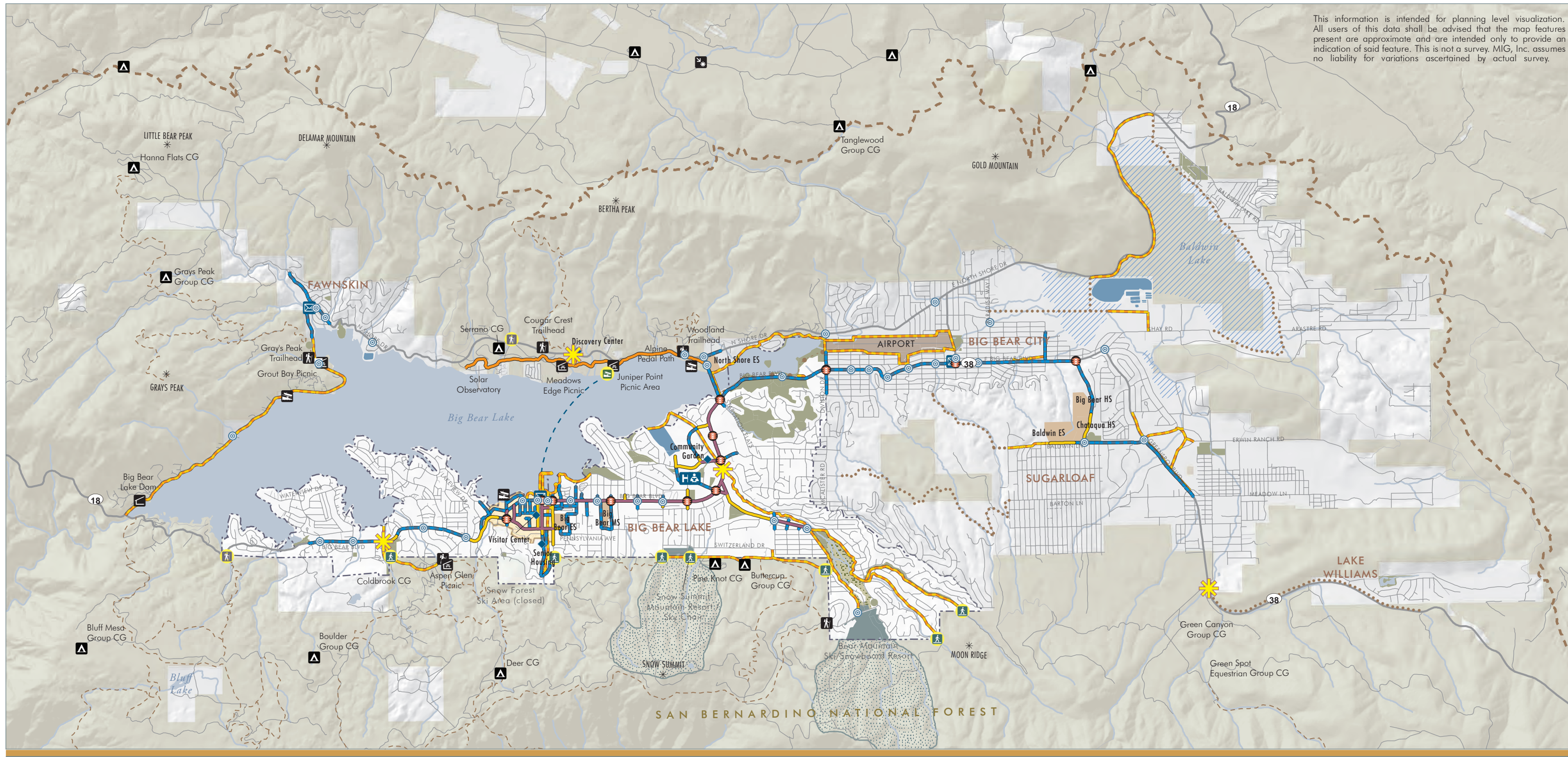
- Encourage drivers to park once when visiting multiple destinations within the Village or in close proximity to each other on Big Bear Boulevard.

### **Education and Enforcement**

- Develop a walking map for the various areas of Big Bear Valley with clear delineation of difficult grades, crossing characteristics, logical loops and distances.
- Enforce speed limits throughout the Valley with a particular emphasis on school zones.



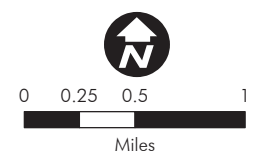
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|--|---------------------|--|-----------------------------------|--|-------------------------------|--|------------------------------|--|----------------------------|
|  | Campground          |  | Library                           |  | Traffic Signal                |  | Major Road                   |  | Park/Open Space            |
|  | Trailhead           |  | Peak                              |  | Proposed Crossing Enhancement |  | Local Road                   |  | Forest Service             |
|  | Potential Trailhead |  | Proposed Trailhead                |  | Proposed Pedestrian Facility  |  | Alley, Private or Other Road |  | Snow Recreation            |
|  | Picnic Site         |  | Proposed Forest Access            |  | Existing Sidewalk (1-side)    |  | Lake/Pond                    |  | Snow Recreation Boundary   |
|  | Day Use Area        |  | Proposed Water Access             |  | Existing Sidewalk (2-sides)   |  | Reservoir                    |  | Golf Course                |
|  | Water Access        |  | Proposed Separated Grade Crossing |  | Proposed Class1 Trail         |  | Swamp/Marsh                  |  | Village Specific Plan Area |
|  | Interpretive Site   |  | Boardwalk Planned                 |  | Proposed Water Route          |  | Stream/River                 |  | City Limits                |
|  | Hospital            |  | Pacific Crest Trail               |  | Trail                         |  |                              |  |                            |
|  | Post Office         |  | Proposed Trail                    |  | Boardwalk                     |  |                              |  |                            |

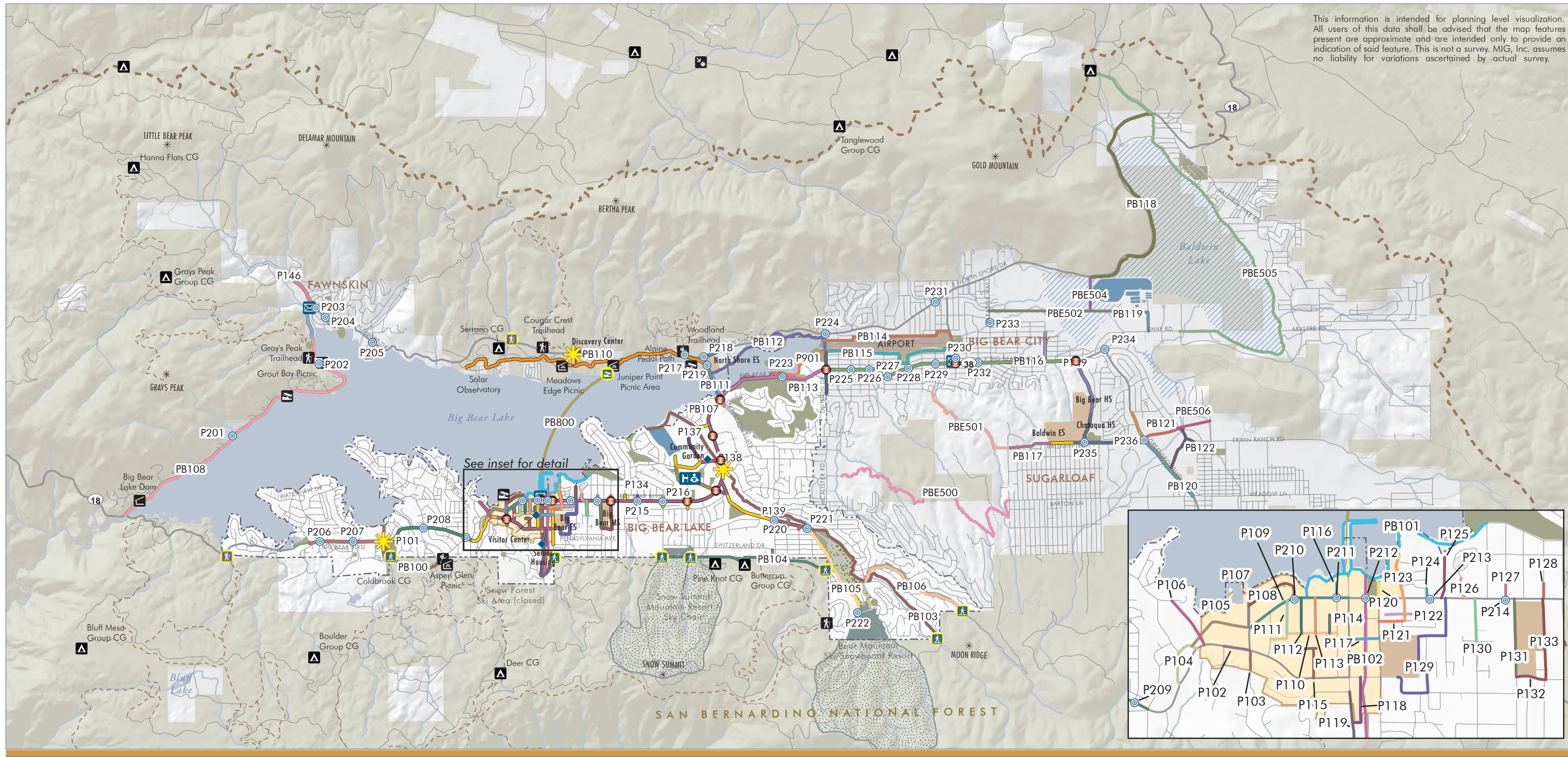
The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

### Map 6.1: Existing and Proposed Pedestrian Network





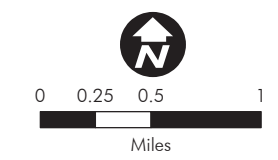
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|--|---------------------|--|-----------------------------------|--|------------------------------|--|------------------------------|--|----------------------------|
|  | Campground          |  | Library                           |  | Traffic Signal               |  | Pedestrian Projects          |  | Park/Open Space            |
|  | Trailhead           |  | Peak                              |  | Proposed Crossing            |  | Major Road                   |  | Forest Service             |
|  | Potential Trailhead |  | Proposed Trailhead                |  | Proposed Pedestrian Facility |  | Local Road                   |  | Snow Recreation            |
|  | Picnic Site         |  | Proposed Forest Access            |  | Existing Sidewalk (1-side)   |  | Alley, Private or Other Road |  | Snow Recreation Boundary   |
|  | Day Use Area        |  | Proposed Water Access             |  | Existing Sidewalk (2-sides)  |  | Lake/Pond                    |  | Golf Course                |
|  | Water Access        |  | Proposed Separated Grade Crossing |  | Proposed Class 1 Trail       |  | Reservoir                    |  | Village Specific Plan Area |
|  | Interpretive Site   |  | Boardwalk Planned                 |  | Proposed Water Route         |  | Swamp/Marsh                  |  | City Limits                |
|  | Hospital            |  | Pacific Crest Trail               |  | Trail                        |  | Stream/River                 |  |                            |
|  | Post Office         |  | Proposed Trail                    |  | Boardwalk                    |  |                              |  |                            |

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

### Map 6.2: Pedestrian Projects







## 7. BICYCLE NETWORK

The bicycle network includes on-street bicycle lanes (Class II) and shared routes (Class III) throughout the Valley. The strategy for building and sustaining this network consists of different projects, policies and programs presented in this chapter.



### PROJECTS

The entire bicycle network will consist of 56.5 miles of new bike routes throughout the Valley. This includes 34.9 miles of new Class II bike lanes, 6.8 miles of Class 2.5 bike boulevards and 14.8 miles of Class III shared routes (Table 7.1). The total cost to complete the entire bicycle network is approximately \$15.1 million. Map 7.1, Proposed Bicycle Network, shows the complete envisioned network. Map 7.2, Bicycle Projects, shows the location of all projects, which are summarized in Appendix B.

Table 7.1: Proposed Bicycle Network Summary

Total Projects <sup>1</sup>	Project Location	Project Type and Total Miles			Planning Level Cost Estimates
		Class II	Class 2.5	Class III	
89	City of Big Bear Lake	10.3	3.4	7.6	\$3,777,000
76	County of San Bernardino	24.6	3.4	7.2	\$11,347,822
<b>165</b>		<b>34.9</b>	<b>6.8</b>	<b>14.8</b>	<b>\$15,124,822</b>

<sup>1</sup> Total includes multiple segments of individual projects

Of all bicycle projects, approximately 54 percent are located within the City of Big Bear Lake. The remainder (46%) are located in unincorporated areas of the Valley.

### Prioritized Projects

There are several projects that will provide the greatest benefit when weighted against the evaluation criteria. Based on the total scoring of the criteria, the top 15 bicycle projects would add 10.23 miles of bike routes in and around the Valley. The total planning level cost estimate of the prioritized bicycle projects is approximately \$1.4 million (Table 7.2).

Table 7.2: Prioritized Bicycle Projects

Priority Ranking	Project Number	Project Name	Proposed Route Type	Length (Miles)	Planning Level Cost Estimate
#1	B201	Central Big Bear Boulevard Bike Lanes	Class II	3.98	\$389,000
#2	B309	Pine Knot Shared Route	Class III	0.02	\$1,000
#3	B209	North Shore Route	Class II	0.05	\$98,000
#4	B210	North Shore Route	Class II	1.16	\$114,000
#5	B202	E. Big Bear Boulevard Bike Lanes	Class II	1.37	\$134,000
#6	B203	Knickerbocker Road Bike Lanes	Class II	0.58	\$57,000
#7	B212	Stanfield Cutoff Bike Lanes	Class II	0.39	\$39,000
#8	B206	West Moonridge Loop	Class II	0.93	\$91,000
#9	B318	Thrush Drive Shared Route	Class III	0.36	\$25,000
#10	B250	South of Boulevard Bike Boulevard	Class 2.5	0.61	\$407,000
#11	B317	Moonridge Shared Route	Class III	0.27	\$19,000
#12	B205	Sandalwood Drive Bike Lanes	Class II	0.10	\$10,000
#13	B303	Pleasure Point Loop	Class III	0.06	\$4,000
#14	B315	Swan/Wren Shared Route	Class III	0.21	\$15,000
#15	B321	South Summit Shared Route	Class III	0.14	\$10,000
<b>Total</b>				<b>10.23</b>	<b>\$1,413,000</b>

## POLICIES

The following goals and objectives are necessary to guide the development and management of the bicycle network.

### **Goal B1: Create interconnected bicycle routes for transportation and recreation**

- 1-1. Connect parks and neighborhoods with a system of on and off-street bicycle routes.
- 1-2. Connect the Valley with the surrounding forest lands and Big Bear Lake by linking existing trail segments with new and continuous routes.
- 1-3. Prioritize improvements to school routes to increase safe connections to schools.
- 1-4. Create trail “spokes” that connect the Valley floor to the surrounding trail network by utilizing creek corridors, utility easements and other opportunities as they arise.
- 1-5. Improve on-streets facilities and intersections along Big Bear Boulevard and other state highways to allow for safer connections and crossings by cyclists and other users.
- 1-6. Formalize neighborhood access points and connect forest trails to create a seamless and interconnected network of trails, connecting to neighborhoods, parks, schools, employment centers and shopping.

### **Goal B2: Designate a bicycle classification hierarchy based on the intended function or use of each route**

- 2-1. Designate routes that provide the most direct and uninterrupted connections across the Valley as primary routes. These should be designed with separated bike lanes or wide off-street, bicycle boulevards multi-use paths made of a durable, hard surface with high visibility for cyclists and other road users.
- 2-2. Designate routes that provide additional connections between neighborhoods and primary routes as secondary routes. These should be designed primarily using shared routes, bicycle boulevards and unpaved trails.

- 2-3. Identify local routes to provide neighborhood level access to the lakes and surrounding forest with connections to neighborhood access points and larger trailheads.

**Goal B3: Provide bicycle routes and supporting facilities for a variety of users, aiming to increase the share of bike commuters to 2% by 2023**

- 3-1. Identify and promote bicycle loop routes with varying degrees of length, scenery and challenge. Designate routes for a range of abilities including experts, intermediate riders and beginners and families.
- 3-2. Provide end-of-trip facilities such as bike racks, covered lockers and bike corrals at trailheads, schools, government facilities, recreation facilities, transit stops and recreational areas.
- 3-3. Require bicycle parking for new development to increase the availability of bike parking, especially at commercial/retail sites and institutional uses (schools, post offices, etc.) that have the most potential to generate bike trips.
- 3-4. Encourage unique, but functional bicycle facility designs, such as artistically styled or thematic bike racks, decorative signage standards and artistic retaining walls that celebrate the Valley's outdoor lifestyle.

**Goal B4: Create sustainably designed, built and maintained off-street routes**

- 4-1. Minimize impacts to the surrounding environment when designing routes. New trails should avoid impacts to fish and wildlife habitat and other sensitive natural areas, with alignments located at habitat edges, through elevated boardwalks, pervious trail materials and by limiting stream and wetland crossings when possible.
- 4-2. Consider trail grade, cross-slope and trail surface type to minimize run-off and erosion and manage user speed.
- 4-3. Design trails and select materials with the consideration of long-term maintenance needs.

- 4-4. Use vegetated buffers, signage and fencing to separate users from sensitive habitat areas and provide privacy for adjacent neighbors.
- 4-5. Create maintenance plans that detail the specific needs of individual trails so that public agencies can budget accordingly.

**Goal B5: Provide improved bicyclist-specific signage and wayfinding**

- 5-1. Improve existing signage and pavement markings to notify all modes and minimize user conflicts.
- 5-2. Provide kiosks at trail heads, and intersections with a high volume of bicyclists with route information, interpretive displays and locations of nearby bike shops, shops and restaurants and Valley attractions.
- 5-3. Create a color coded route system that is easily recognizable by users.

**Goal B6: Promote safety in the design of the bicycle network**

- 6-1. Include traffic calming features where possible that slow traffic without decreasing the total through put of traffic, such as narrower travel lanes, landscaping, pavement markings and curb bump-outs.
- 6-2. Consider separated bike lanes, separated multi-use trails and/or parallel routes for sections of roadways with higher speeds and/or high traffic volume.
- 6-3. Include striping, painted markings or surface material changes that caution users of approaching stops, intersections, curves and other situations where speed should be reduced.
- 6-4. Coordinate with Caltrans and San Bernardino County to develop and implement an access management plan to reduce the number of access ways and curb-cuts along Big Bear Boulevard.

## **PROGRAMS**

Along with policies, the following bicycle-related programs will promote bicycling in the Valley, through education, tourism, encouragement and maintenance.

### **Bicycle Education**

- Provide bicyclist education and skill-building programs.
- Promote helmet usage, especially with area youth.
- Promote trail etiquette through educational campaigns, public safety classes and through communication with user groups.
- Create better route and trail maps, guides and route information. Consider providing free information for users at trail heads, retail shops and public facilities.
- Work with area schools to provide skill building programs for area youth that teach bicycle safety, basic bike handling and bike repair.

### **Bicycle Tourism**

- Work with tourism officials, user groups and businesses both within the Valley and throughout the region to promote the Valley as a premier on and off-road bicycle destination.
- Plan on- and off-road bike races, festivals and championship events in the Valley. Work with local businesses to provide special rates or incentives for race participants and organizers. Consider organizing multi-day, or 24-hour races and/or charity rides to encourage overnight visitors.
- Coordinate with Valley ski resorts to promote lift-accessible mountain biking for summer use.
- Create bicycle-related events and programs that attract families to the Valley.

### **Bicycle Encouragement**

- Work with the chamber of commerce and area partners to create an annual bicycle commute challenge among area students and employees.

- Promote and participate in annual Bike-to-Work day in May, in conjunction with the California bike-to-work week activities.
- Seek certification that acknowledges the Valley's extensive and diverse trail system to help promote these resources on a national level. The International Mountain Bike Association's "Ride Center" provides this type of recognition for mountain bike trails and is initiated on an invitation basis.
- Consider bike sharing and bicycle loaner programs.

### **Maintenance**

- Work with area partners and user groups to maintain trails used by mountain bikers. Consider developing maintenance agreements with partners for well-used trails to ensure a high standard of trail care.
- Integrate bicycle route maintenance into public agency maintenance programs. Coordinate routine and major capital projects and maintenance needs with federal, state, regional and local agencies involved with planning and providing transportation infrastructure in the Valley.





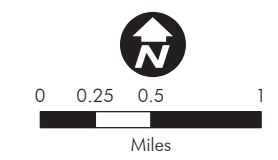
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|--|---------------------|--|-----------------------------------|--|-------------------------------|--|------------------------------|--|----------------------------|
|  | Campground          |  | Library                           |  | Existing Class 1 Route        |  | Major Road                   |  | Park/Open Space            |
|  | Trailhead           |  | Peak                              |  | Proposed Class 1 Route        |  | Local Road                   |  | Forest Service             |
|  | Potential Trailhead |  | Proposed Trailhead                |  | Proposed Class 2 Route        |  | Alley, Private or Other Road |  | Snow Recreation            |
|  | Picnic Site         |  | Proposed Forest Access            |  | Proposed Class 2.5 Route      |  | Lake/Pond                    |  | Snow Recreation Boundary   |
|  | Day Use Area        |  | Proposed Water Access             |  | Existing Class 3 Route        |  | Reservoir                    |  | Golf Course                |
|  | Water Access        |  | Proposed Separated Grade Crossing |  | Proposed Class 3 Route        |  | Swamp/Marsh                  |  | Village Specific Plan Area |
|  | Interpretive Site   |  | Boardwalk Planned                 |  | Existing County Class 3 Route |  | Stream/River                 |  | City Limits                |
|  | Hospital            |  | Pacific Crest Trail               |  | Trail                         |  |                              |  |                            |
|  | Post Office         |  | Proposed Trail                    |  | Boardwalk                     |  |                              |  |                            |

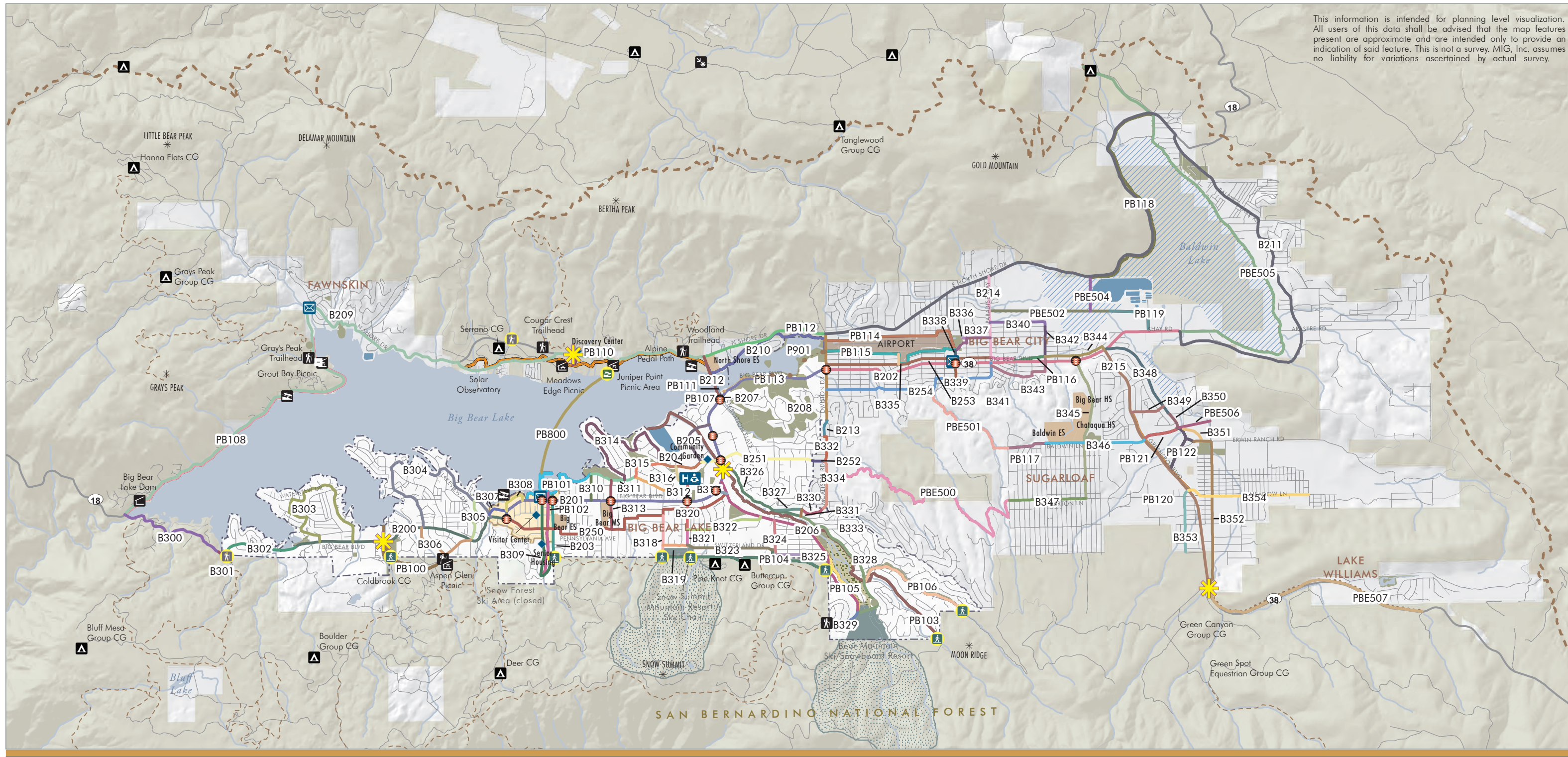
The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

## Map 7.1: Existing and Proposed Bicycle Network





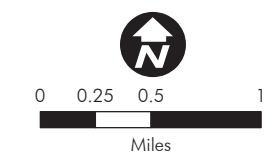
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|--|-----------------------------------|--|---------------------|--|------------------------------|--|----------------------------|
|  | Campground                        |  | Bicycle Projects    |  | Major Road                   |  | Park/Open Space            |
|  | Trailhead                         |  | Boardwalk Planned   |  | Local Road                   |  | Forest Service             |
|  | Potential Trailhead               |  | Pacific Crest Trail |  | Alley, Private or Other Road |  | Snow Recreation            |
|  | Picnic Site                       |  | Proposed Trail      |  | Lake/Pond                    |  | Snow Recreation Boundary   |
|  | Day Use Area                      |  | Trail               |  | Reservoir                    |  | Golf Course                |
|  | Water Access                      |  | Boardwalk           |  | Swamp/Marsh                  |  | Village Specific Plan Area |
|  | Interpretive Site                 |  |                     |  | Stream/River                 |  | City Limits                |
|  | Hospital                          |  |                     |  |                              |  |                            |
|  | Post Office                       |  |                     |  |                              |  |                            |
|  | Library                           |  |                     |  |                              |  |                            |
|  | Peak                              |  |                     |  |                              |  |                            |
|  | Proposed Trailhead                |  |                     |  |                              |  |                            |
|  | Proposed Forest Access            |  |                     |  |                              |  |                            |
|  | Proposed Water Access             |  |                     |  |                              |  |                            |
|  | Proposed Separated Grade Crossing |  |                     |  |                              |  |                            |

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

### Map 7.2: Bicycle Projects





## 8. EQUESTRIAN NETWORK

The equestrian network provides new and improved trailheads, staging areas, signage and trails for equestrians. The strategy for building and sustaining this network consists of different projects, policies and programs presented in this chapter.



### PROJECTS

The entire equestrian network will consist of 65 projects that span different areas of the Valley (Table 8.1). More than half of the projects (49 projects) are within the City of Big Bear Lake. The remainder (16 projects) are in unincorporated areas of the Valley including National Forest lands. Map 8.1, Proposed Equestrian Network, shows the complete envisioned network. Map 8.2, Equestrian Projects, shows the location of all projects, which are summarized in Appendix B.

Table 8.1: Proposed Equestrian Network Summary

Total Projects <sup>1</sup>	Project Type
City of Big Bear Lake Projects	
1	Trailheads and crossings
1	Staging Areas
47	Trails, Connections and Signage
County of San Bernardino Projects	
12	Trailheads and crossings
2	Staging Areas
2	Trails, Connections and Signage
<b>65</b>	

<sup>1</sup> Total includes multiple segments of individual projects

### Prioritized Projects

There are several projects that will provide the greatest benefit when weighted against the evaluation criteria. Based on the total scoring of the criteria, the top 15 equestrian projects would add a combination of new trails and trail improvements, new staging areas and trailheads and equestrian signage (Table 8.2).

Table 8.2: Prioritized Equestrian Projects

Priority Ranking	Project Number	Project Name	Project Type
#1	E200	Shay Neighborhood Trail	New Trail
#2	PBE50#	Baldwin Lake Route	New Trail
#3	E306	Switzerland Rd Signage	Signage
#4	M003	Erwin Ranch Rd	Recommended street connection
#5	E023	Erwin Lake Equestrian Staging Center	New Staging Area
#6	E304	Lakewood-Hatchery Signage	Signage
#7	E202	E Big Bear Blvd Neighborhood Trail	Recommended street connection
#8	M002	11th Ln. extension	Recommended street connection
#9	E503	Moonridge Eq. Connector	New Trail
#10	E304	Lakewood-Hatchery Signage	Signage
#11	E022	Bald Lake Trailhead	New Staging Area and Trailhead
#12	E302	Erwin Ranch Signage	Signage
#13	E302	Erwin Ranch Signage	Signage
#14	M001	Bramble Bush Trail	Recommended street connection
#15	M502	Bristlecone Equestrian Trail	New Trail

## POLICIES

The following goals and objectives are necessary to guide the development and management of the equestrian network.

### Goal EI: Develop a linked equestrian trail system

- 1-1. Provide a trail system which provides neighborhood connections as well as connections to trails of regional significance and regional destinations, such as the San Bernardino National Forest system of trails, the Pacific Crest National Scenic Trail and the Big Bear Valley Municipal and County Trail system.

- 1-2. Link trails to significant destinations such as equestrian-use trailheads, campgrounds, activity/event centers, historic locations, Discovery Center, interpretive information and cultural sites

**Goal E2: Make equestrian-use trails functional as an additional trail option where trails are located near commercial centers**

- 2-1. Provide continuous and direct routes for connections within Valley destinations, with minimal gaps.
- 2-2. Provide loops of various lengths to accommodate long and short trips within the Valley.
- 2-3. Provide facilities to accommodate and encourage equestrian use of approved streets and trails.
  - a. Equestrian-use mounting blocks or mounting ramps should be designed and provided at locations where mounting/dismounting of equines is required for public use of a facility.
- 2-4. Include the maintenance needs of equestrian trails and supporting infrastructure as part of public transportation maintenance planning.
  - a. Scheduled practices and procedures for the maintenance of developed equestrian trails, trailheads, campgrounds or other equestrian-use facilities should be designated as a function of life cycle planning for the preservation of these public assets.

**Goal E3: Integrate equestrian-use trails into an overall multi-modal system**

- 3-1. Provide linkages between trails and paved pathways, bike lanes, transit terminals, activity centers, shuttle and bus stops, and park & ride lots.
- 3-2. Provide informational signage on trail etiquette and use, as well as wayfinding elements to guide equestrians to multi-modal locations appropriate for the integration of equestrians with pedestrian and bicycle modes of transportation.
  - a. Signage should include information that equestrians, pack stock, and horse-drawn conveyances have the right-

of-way on any public trail or roadway; other users should yield to equestrian users.

- b. Informational signage should state the following:
  - Equines transported in/out of Big Bear Valley must be properly vaccinated per government regulations to protect the health and safety of other equines in the Big Bear Valley area.
  - Equestrians must comply with all laws, rules, and regulations established by government agencies on public lands, roadways, railways, and waterways in the use of equines, including land managers' equine feed and grazing regulations.
  - Equestrians must comply with land managers' guidelines for the appropriate securing of equines, including the tethering, management and control of equines being used on public lands.

**Goal E4: Identify regionally significant equestrian-use trails and destinations**

- 4-1. Create linkages from the Big Bear Valley to the Pacific Crest National Scenic Trail.
- 4-2. Make full use of regional and community corridors, such as Rathbun Creek, USDA Forest Service trails, scenic destinations, and open space preserves.

**Goal E5: Provide improved equestrian-specific signage and wayfinding and an organized and easily understood trail system**

- 5-1. Improve existing signage and pavement markings to notify all modes and minimize user conflicts.
- 5-2. Provide kiosks at trail heads and key crossings with route information, interpretive displays and locations of nearby shops, restaurants, and Valley attractions designed to be enjoyed by equestrians.



- 5-3. Create a hierarchy of trail classifications detailing the type of trail-riding experience, levels of difficulty, and potential for encountering vehicles and other types of trail users.
- 5-4. Make trail alignments simple and logical.

**Goal E6: Minimize the visual and environmental impacts of equestrian-use trails**

- 6-1. Distinguish between citywide/Valley-wide trails, trails of regional significance, and neighborhood trails.
- 6-2. Make use of already available or already disturbed land where possible for equestrian-use trail alignments and trailhead locations.
- 6-3. Design trails, trailheads, and campgrounds developed for equestrian use to minimize environmental impacts, including erosion, the protection of watersheds, water resources, native vegetation, native soils, fish and wildlife.
  - a. Recommended equestrian use of wet trails to be limited to not less than 48 hours following heavy rains or snow melt.
  - b. Lighting designed for equestrian-use public facilities should be fixtures in compliance with any dark skies ordinances in the Big Bear Valley area.
  - c. Public equestrian-use facilities in the Big Bear Valley should practice land manager approved dust abatement policies and procedures
  - d. Waste management practices and procedures for equestrian-use facilities in Big Bear Valley should provide appropriate disposal or composting of equine manure.
  - e. Rainwater harvesting should be implemented for equestrian use where appropriate at locations on trail systems, trailheads, or campgrounds.

**Goal E7: Provide a safe and quality trail experience for all users**

- 7-1. Enhance existing and develop new varieties of trail types.
- 7-2. Plan and develop safe trails and trailhead locations/access for equestrian use.

- a. Trails, trailheads, and campgrounds developed for equestrian use should provide appropriate safety elements including sight lines, trail etiquette guidelines, surfaces, design guidelines for dimensions, clearances, grades, and other design components as recommended in the master plan.
- 7-3. Maximize visibility and physical access to trails from streets and other public lands.
- 7-4. Minimize vehicular conflicts with equestrians and other non-motorized trail users.
- 7-5. Redesign street crossings to accommodate the unique safety needs of both horses and riders.

**Goal E8: Plan and design sustainable equestrian-use trails**

- 8-1. Utilize sustainable trail design guidelines to help reduce trail erosion and trail maintenance.

**PROGRAMS**

Along with policies, the following equestrian-oriented programs will enhance opportunities for equestrians in the Valley, through education, improved equestrian services for the public and community events.

**Education**

- Provide school and organizational activities and seminars.
- Work with partners to offer horseback riding lessons.
- Hold training for search and rescue groups, mounted police and military.
- Develop and promote an equestrian-based special events calendar.
- Provide opportunities for persons with disabilities, and consider holding an equestrian Paralympics.

**Events and Programs**

- Provide rental services for horseback/pony riding, carriage rides and sleigh rides.

- Collaborate with area partners to offer backcountry rides, outfitter services and combined user group tours.
- Hold a range of special events such as endurance riding competitions, conferences and shows, art exhibits, auctions and fundraisers.
- Develop an adopt-a-horse/burro program.



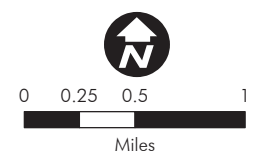
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|--|-------------------------------|--|-------------------|--|---|--|------------------------------|--|----------------------------|
|  | Campground                    |  | Day Use Area      |  | Proposed Separated Grade Crossing               |  | Major Road                   |  | Park/Open Space            |
|  | Equestrian Camp               |  | Water Access      |  | Neighborhood Forest Access Point                |  | Local Road                   |  | Forest Service             |
|  | Equestrian Facility (private) |  | Interpretive Site |  | Proposed Crossing with Equestrian Enhancements  |  | Alley, Private or Other Road |  | Snow Recreation            |
|  | Equestrian Trailhead          |  | Hospital          |  | Proposed Trailhead with Equestrian Enhancements |  | Lake/Pond                    |  | Snow Recreation Boundary   |
|  | Trailhead                     |  | Post Office       |  | Proposed Equestrian Staging Area                |  | Reservoir                    |  | Golf Course                |
|  | Potential Trailhead           |  | Library           |  | Pacific Crest Trail (Equestrian Use)            |  | Swamp/Marsh                  |  | Village Specific Plan Area |
|  | Picnic Site                   |  | Peak              |  | Trail   |  | Stream/River                 |  | City Limits                |
|  |                               |  |                   |  | Boardwalk                                       |  |                              |  |                            |

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

## Map 8.1: Existing and Proposed Equestrian Network





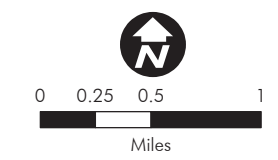
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|--|-------------------------------|--|-------------------|--|---|--|------------------------------|--|----------------------------|
|  | Campground                    |  | Day Use Area      |  | Proposed Separated Grade Crossing               |  | Equestrian Projects          |  | Park/Open Space            |
|  | Equestrian Camp               |  | Water Access      |  | Neighborhood Forest Access Point                |  | Major Road                   |  | Forest Service             |
|  | Equestrian Facility (private) |  | Interpretive Site |  | Proposed Crossing with Equestrian Enhancements  |  | Local Road                   |  | Snow Recreation            |
|  | Equestrian Trailhead          |  | Hospital          |  | Proposed Trailhead with Equestrian Enhancements |  | Alley, Private or Other Road |  | Snow Recreation Boundary   |
|  | Trailhead                     |  | Post Office       |  | Proposed Equestrian Staging Area                |  | Lake/Pond                    |  | Golf Course                |
|  | Potential Trailhead           |  | Library           |  | Pacific Crest Trail (Equestrian Use)            |  | Reservoir                    |  | Village Specific Plan Area |
|  | Picnic Site                   |  | Peak              |  | Trail   |  | Swamp/Marsh                  |  | City Limits                |
|  |                               |  |                   |  | Boardwalk                                       |  | Stream/River                 |  |                            |

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan

### Map 8.2: Equestrian Projects



January 2013 | Data Sources: City of Big Bear, San Bernardino County, USGS, USDA & Planning Project Stakeholders.





## 9. OUTDOOR RECREATION ECONOMY

This chapter provides an overview of the economic impacts of outdoor recreation, and presents a series of strategies that the City of Big Bear Lake can implement, in order to position itself to maximize local benefits from outdoor recreation. More detailed information compiled through several case studies and outcomes from meetings with the Recreation Industry Advisory Committee is provided in Appendix C: Economic Development Case Studies.



### THE OUTDOOR RECREATION ECONOMY

The Outdoor Industry Association (OIA), a national non-profit industry organization that represents outdoor oriented companies, defines the outdoor recreation economy as purchases of gear and services, vehicles, and dollars spent on trips and travel related to outdoor recreation. Based on their 2012 survey, the OIA estimates that the national outdoor recreation economy supports 6.1 million jobs and \$646 billion in spending, generating \$80 billion in tax revenue. Of the latter, about one-half is state and local tax revenue.

The survey estimates that, in the United States, trails-related recreation support more jobs (768,000) than there are lawyers (728,200). These economic impacts point to the importance of outdoor recreation as an economic driver on a national level. Considering this information, and considering the prominence of outdoor recreation within the Big Bear Valley economy, it should be evident that outdoor recreation is a major contributor to the vitality of the local economy.

A large portion of the economic activity related to outdoor recreation is generated by expenditures that outdoor recreation participants make in conjunction with trips and travel that is associated with their outdoor activities. The 2012 OIA survey estimates that approximately 81 percent of the \$646 billion in outdoor recreation spending is represented by trips and travel-related spending, including food/drink, transportation, entertainment/activities, lodging, and souvenirs/gifts/miscellaneous purchases. At a more local level, according to the California Travel Commission, in 2010, travel generated \$4 billion in spending within San Bernardino County, supporting 43,470 jobs, and generating \$52.5 million in local tax receipts.

The economic benefits of specific outdoor activities have also been well-documented, including studies of the economic benefits of mountain biking, road cycling, and equestrian activities, among others. Following are some highlights and excerpts from a number of studies:

### **Economic Impacts of Mountain Biking**

One component of the economic impact of trails for outdoor recreation is mountain biking. According to a report on mountain bike tourism by Tourism British Columbia indicated that bike park visitors (those using lift-served trails) spend between \$99 (CDN) and \$139 per day, translating to \$14 million in annual tourism revenue in the province. A 2006 study titled, "Sea to Sky Mountain Biking Economic Impact Study", which covered the North Shore, Squamish, and Whistler areas of British Columbia estimated that community mountain bike trails generated \$10.3 million for those three communities, and the figure jumped to \$38 million if the Whistler Bike Park and Crankworx Mountain Bike Festival are included.

### **Economic Impacts of Road Cycling**

Studies have quantified numerous economic benefits related to road cycling, including benefits for individual businesses, owners of property near bike paths, and local economies:

- In San Francisco, a survey of merchants along Valencia Street, found that two-thirds of merchants said that new bike lanes had a positive overall impact on their business and two-thirds of the merchants also supported more traffic calming measures on the street, while all of the merchants surveyed said they could be supportive depending on the project.<sup>1</sup> In 2006, Bikes Belong conducted a survey of bicycle retailers located near newly constructed bike paths and trails and found that almost 60% of bike shop owners surveyed said the "new bike paths and trails near their shops have had a positive impact on bike and

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<sup>1</sup> Drennen, Emily, "Economic Effects of Traffic Calming on Urban Small Businesses," San Francisco, CA.  
[http://www.bikewalk.org/2004conference/sessions/28\\_Business\\_calm/TrafficCalming\\_summary.pdf](http://www.bikewalk.org/2004conference/sessions/28_Business_calm/TrafficCalming_summary.pdf)

equipment sales at their stores.” Eighty-five percent of the respondents said “they believe that paths and trails increase bike and equipment sales at bike shops nationwide, and 45% believe sales increase dramatically in areas where new paths and trails are built.”<sup>2</sup>

- In a survey of businesses located along the Great Allegheny Passage, a 132-mile trail that connects Cumberland, MD to McKeesport, PA (near Pittsburgh, PA), business owners attributed an average of one quarter of their gross revenue directly to trail users, and two-thirds said that they saw some increase in gross revenue due to their proximity to the trail. Trail users were also surveyed, and researchers found that users came from 670 unique postal codes, including visitors from nearly every state in the continental United States and parts of Canada. The survey found that these overnight trail users spent \$98 a day in the trail communities on average, and more than one-third of the overnight trail users reported household incomes of \$100,000 or more.<sup>3</sup>
- In 2011, the National Bicycle Tour Directors Association (now known as the Bicycle Tour Network), conducted a pilot study of 11 large bicycling rides and events, and found that spending related to those events reached over \$32.5 million. This included \$14.5 million in event-related purchases, \$6.1 million in personal spending at the events, and \$2.1 million in support spending at the event. Further, the survey found that 57 percent of riders had household incomes over \$100,000.<sup>4</sup>
- The organization Bikes Belong found that more than 1 million Americans participated in recreational road riding events in 2008, and that revenue from these events exceeded \$240

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<sup>2</sup> <http://www.bikesbelong.org/resources/stats-and-research/research/trails-to-sales-survey/>

<sup>3</sup> Campos, Inc. "Great Allegheny Passage Economic Impact Study," 7/8/2009 <http://www.adventurecycling.org/routes/nbrn/resourcespage/GAPeconomicImpactStudy200809.pdf>

<sup>4</sup> National Bicycle Tour Directors Association, "Economic Impact Pilot Study," Presentation of Results, NBTDA Annual Conference, November 11, 2011.

million, including nearly \$140 million on food, lodging, and other purchases at these events.<sup>5</sup>

- A study of home values near the Monon Trail in Indianapolis, IN, which controls for variability in home features, found positive impacts on property values from proximity to bicycle trails. After controlling for variables like total square feet, bathrooms, bedrooms, and comparable garages and porches – a home within a half mile of the Monon Trail would sell for an average of 11 percent more than a home further away.<sup>6</sup> In another study of bicycle paths in Delaware, researchers found that properties within 50 meters of bike paths sell for \$8,800 more than other similar homes.<sup>7</sup>
- BicyclingInfo.Org, with the assistance of the University of North Carolina Highway Safety Research Center, hosts a web tool that can help local communities estimate the economic benefits of bicycle trails. This tool considers factors such as population density, length of trail, local bicycle travel mode share, and the nature of the local community (i.e., urban, suburban, rural). For a rural California community of Big Bear’s population density (770 persons per square mile), the tool estimates that the annual economic benefits of an approximately 1-mile trail, either off-street or on-street with adjacent parking, would include recreational activity value of approximately \$1.5 million per year, about \$31,000 in annual mobility benefits (benefits from perceived value of bicycling vs. driving a car), and \$52,800 per year in health benefits (savings on health costs due to improved fitness).<sup>8</sup>

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<sup>5</sup> Bikes Belong, “The Size & Impact of Road Riding Events,” November, 2009.  
<http://www.bikesbelong.org/assets/documents/uploads/recriidesummary.pdf>;  
<http://www.bikesbelong.org/assets/documents/uploads/fullrecriidereport.pdf>

<sup>6</sup> Lindsey et al, “Property Values, Recreation Values, and Urban Greenways,”  
*Journal of Park and Recreation Administration*, V22(3) pp.69-90

<sup>7</sup> Property Value/Desirability Effects of Bike Paths Adjacent to Residential Areas  
<http://128.175.63.72/projects/DOCUMENTS/bikepathfinal.pdf>

<sup>8</sup> <http://www.bicyclinginfo.org/bikecost/index.cfm>

### **Economic Impacts of Equestrian Activity**

According to the American Horse Council, there 698,000 horses in California, supporting a state horse industry that produces goods and services valued at \$4.1 billion per year, and directly supports 54,000 full-time equivalent jobs within the state. The total impact of the industry is \$7 billion per year, including an additional employment impact of 130,200 jobs within the California economy, after accounting for the multiplier effects of indirect and induced spending. According to the Council, these figures do not account for the off-site spending of spectators at horse events.

Information from all of the different sources cited paints a picture of outdoor activity as a powerful economic generator, and one that can generate a positive return on both public and private investments that support non-motorized activity. Further, the information puts a focus on the idea that local communities, such as Big Bear, stand to maximize the economic benefits of developing and promoting themselves as outdoor recreation destinations by catering to the travel-related needs of these destination visitors, in addition to ensuring that outdoor recreation experiences in the Big Bear area are as compelling, accessible, and enjoyable as possible, to as wide an audience as possible.

The quality of life improvements associated with a robust network of trails throughout the community can also help Big Bear to establish and market itself as a desirable location for businesses, and for residents and second home-owners, who would like to be associated with that image. In doing so, the City budget as well as individual property owners can enjoy the benefits associated with increased property values (and tax revenues) that come from proximity to trails.

## **THE LOCAL OUTDOOR RECREATION ECONOMY**

Evidence of the local outdoor recreation economy is clearly visible throughout the Big Bear Valley. Outdoor-related businesses, such bike shops and ski/snowboard shops are visible throughout the town's commercial areas. Marinas are scattered along the lakeside, and the Snow Summit and Bear Mountain ski resorts are visible on the mountains above town. In addition, it is clear that many lodging places and restaurants depend on visitors for a large portion of their business,

and it is likely that many other types of local retailers, service businesses, and private home rentals also depend upon visitors for income.

Table 9.1 (following page) shows information regarding the number of establishments, employees, and annual sales for select industry sectors within the Big Bear Lake Valley area. See Figure 1.1 (on Page 1-4) for a map of the area covered by the estimates in the table. The highlighted sectors are those that are most closely correlated with the outdoor recreation economy, including "Sporting Goods, Bicycle, and Gun Stores", "Miscellaneous Amusements & Recreational Services", and "Other Amusement & Recreational Services".

These categories generate about \$21 million in annual sales, and employ an estimated 342 people; however, what is more striking is how much more economic activity is captured in other industries that are very dependent upon the attraction of visitors to the area, such as "Hotels and Other Lodging Places" (127 establishments employing 3,284 people, and \$125 million in annual sales) and "Eating and Drinking Places" (84 establishments employing 885 people, and \$41.7 million in annual sales). Certainly, businesses in other categories, such as "Food Stores", "Auto Dealers & Gas Service Stations", and "Personal Services" also benefit from the expenditures of visitors, many of whom are attracted to the area to participate in outdoor recreation.

Table 9.1: Establishment, Employment, and Sales for Select Sectors, Big Bear Valley Area, 2012

	Big Bear Valley Area (a)			
	Establishments	Employees	Sales in Millions	Establishments w 20+ employees
<b>Retailing</b>				
Building Materials, Garden Supply & Mobile Homes	16	160	\$22.4	3
General Merchandise Stores	5	115	\$12.2	1
Food Stores	25	283	\$48.6	3
Auto Dealers & Gas Service Stations	12	114	\$23.1	1
Apparel & Accessory Stores	19	60	\$4.0	0
Home Furniture, Furnishings, and Equipment	27	72	\$11.2	0
Eating & Drinking Places	84	885	\$41.7	11
Sporting Good, Bicycle, & Gun Stores	22	112	\$6.3	1
Other Misc Retail	72	254	\$30.3	4
<b>Total Retail</b>	<b>282</b>	<b>2055</b>	<b>\$199.8</b>	<b>24</b>
<b>Services</b>				
Hotels and other Lodging Places	127	3,284	\$125.0	11
Personal Services	59	134	\$7.1	0
Business Services	70	291	\$44.0	3
Auto Repair Services and Parking	23	73	\$5.6	0
Misc Repair Services	14	26	\$3.2	0
Motion Pictures: Theaters and Video Rental	8	33	\$4.7	0
Commercial Sports	0	-	\$0.0	0
Misc Amusement & Recreational Services	30	218	\$13.3	3
Physical Fitness Facilities	9	55	\$3.8	1
Other Amusement & Recreational Services	1	12	\$1.0	0
<b>Total Services</b>	<b>341</b>	<b>4,126</b>	<b>\$207.7</b>	<b>18</b>

Source: Claritas Inc Business Facts Report by SIC Code, 2012; BAE, 2012

The information in Table 9.1 reinforces the idea from the Outdoor Industry Association's economic impact study that the greatest economic impacts from outdoor recreation are travel, lodging, and dining expenditures that participants make in conjunction with pursuit of their outdoor recreation activities. The implication of this is that in order to maximize the economic benefits in the local community from outdoor recreation activities, the City of Big Bear Lake must make sure that it offers visitors a full suite of lodging, dining, and other retail and services that will encourage them to stay in the community before, during, and after their recreational activities and spend money in local businesses. While businesses offering outdoor gear and services are critical to enhancing the experience of the outdoor recreationalists, visitors will have the greatest potential to stimulate the local economy if they are attracted to spend the night and eat in local restaurants.

### Transient Occupancy Tax Revenue Trends

Local hotels, motels, and vacation rentals are required to collect a transient occupancy tax (TOT) of eight percent on lodging rentals of 30

days or less. This is a good indicator of trends in visitor activity, although it does not account for the activity of visitors who stay in second homes that they own in the area and it does not account for the activity of people who visit the area for day trips or to stay over night in campgrounds.

*Table 9.2: Transient Occupancy Tax Revenue, City of Big Bear Lake, 2005-2013*

<b>Quarter</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>
July-September	\$494,297	\$519,284	\$504,991	\$550,824	\$514,410	\$488,762	\$548,876	\$595,657
Oct-December	\$637,109	\$669,290	\$726,717	\$663,390	\$659,248	\$648,857	\$717,037	
Jan-March	\$798,356	\$866,686	\$995,435	\$935,947	\$893,138	\$863,558	\$779,075	
April-June	\$422,842	\$396,736	\$344,018	\$318,212	\$288,819	\$306,339	\$339,538	
<b>Total FY</b>	<b>\$2,352,604</b>	<b>\$2,451,996</b>	<b>\$2,571,161</b>	<b>\$2,468,373</b>	<b>\$2,355,615</b>	<b>\$2,307,516</b>	<b>\$2,384,526</b>	

Source: City of Big Bear Lake, 2013.

Check these numbers. The seem relatively close, but not 100% consistent with what’s published on the City’s webiste

Add 2012-13 Oct.-Dec Revenues: \$717,414

Add 2012-13 Jan.-Mar Revenues: \$957,188

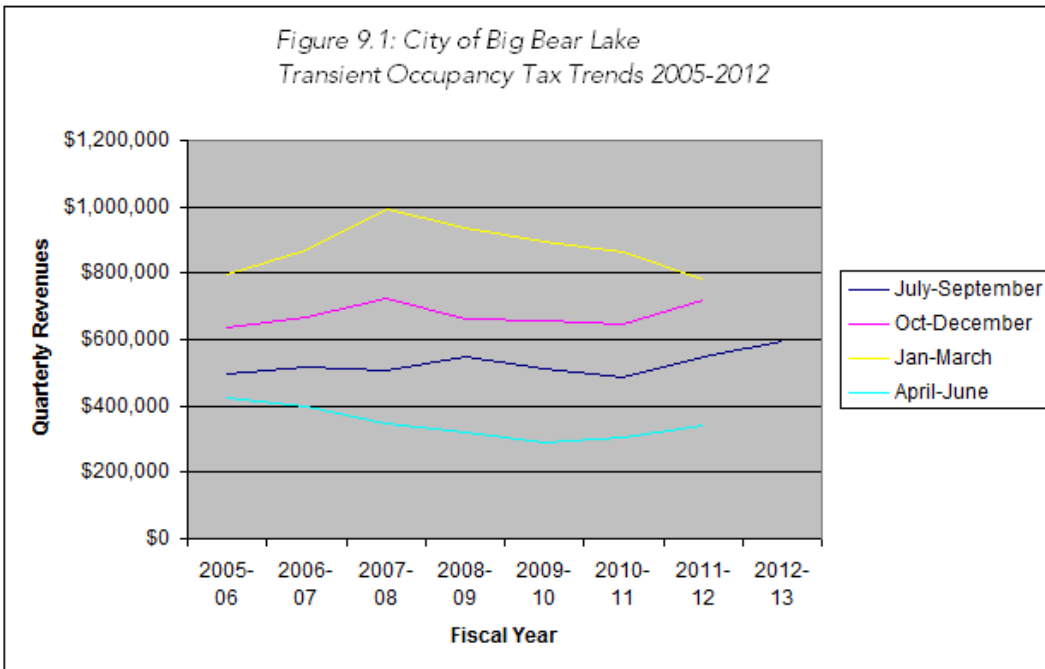
As shown in Table 9.2, Big Bear Lake’s annual TOT revenues have been fairly stable since prior to the recession and through the recession. Big Bear Lake’s TOT revenues peaked in 2007-08 (the beginning of the recession), and then declined slightly in 2009-10, hit bottom in 2010-11, and then began recovering in 2011-12. As of 2011-12, revenues were only about seven percent below the peak year revenues in 2007-2008.

During the 2005-06 to 2011-12 time period, the distribution of transient occupancy tax revenues has shifted somewhat. This is best understood by viewing the data graphically, in Figure 9.1, on the following page. As shown in the graph, the winter quarter, from January through March, has been the strongest period for TOT revenues throughout the seven year period; however, by 2011-2012, winter quarter revenues had declined by about 22 percent from the 2007-08 peak.

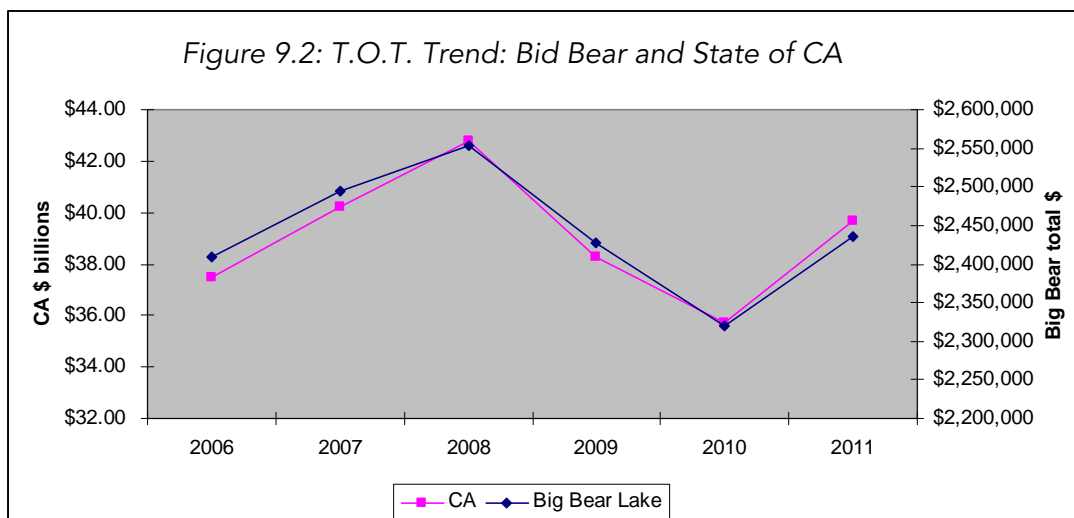
Meanwhile, fall quarter revenues in 2011-12 were only about two percent below the 2007-08 peak, meaning that fall quarter revenues were only about eight percent less than winter quarter revenues in



2011-2012. This compares to 2007-08, when fall quarter revenues were approximately 27 percent less than winter quarter revenues. As shown in the graph, if the trend continues, the fall quarter may soon overtake the winter quarter, in terms of TOT generation.



Big Bear Lake's T.O.T. trend closely mirror's that of the state over the last half-dozen years, as shown in Figure 9.2. This information suggests that Big Bear's fluctuations over the last several years have been more due to prevailing national economic conditions than due to local factors.



## LOCAL OPPORTUNITIES AND CONSTRAINTS

The initial step in developing strategies for the City of Big Bear Lake to leverage its trail system for economic development was to review local economic opportunities and constraints. After developing a basic understanding of the existing conditions in the local outdoor recreation economy, it was then useful to gather information from people familiar with the local economy regarding their perceptions of current opportunities to expand the local economy, and current constraints or challenges to maximizing those opportunities.

### **Stakeholder Interviews Key Findings**

As part of the process of understanding existing conditions in Big Bear, project team members interviewed several key local business representatives, including Coldwell Banker real estate brokerage, Pine Knot Marina, NationalCore, Big Bear Lake Resort Association, and Big Bear Lake Chamber of Commerce. A summary of key points raised by these local stakeholders is provided in Appendix C.

### *Opportunities*

Two main focal points of the community are the forest and the lake, and anything that can be done to connect the Village, the lake, and the forest will be a benefit. In addition, enhancing public access to the lake and to the forest is a great opportunity to better leverage Big Bear's natural assets to improve the value of the place, for residents, businesses, and visitors. Specific opportunities mentioned include:

- Knickerbocker Creek as a connector between lake and forest.
- Pine Knot Marina has an approved boardwalk plan that would improve public access.
- The north shore trail system gets a lot of use, but it is not connected well to the south shore or to the surrounding forest.
- Bear Valley Mutual Water Company has 17 acres along the lake between Community Church and the Fire Department and there is an opportunity for that agency to cooperate to provide better access; this area also seen as great potential location for an upscale resort.

A major opportunity is Big Bear's large market area, which extends from San Diego to Los Angeles, to Las Vegas and Phoenix. The proximity and size of the southern California population, and the fact that many people in the area are familiar with Big Bear is a real opportunity; however, they need to be better educated about what Big Bear has to offer and Big Bear also needs to improve its offerings. People get introduced to Big Bear as day trippers, but then they turn into repeat visitors and second home buyers.

The trails master plan is a tool that can be used to promote Big Bear Lake as an up-and-coming active living community where public and private investment , but there is a need to develop community consensus around this idea so that people willing to invest can see that the community is committed to this idea.

### ***Constraints***

One of the major themes relating to constraints to economic development was the challenges for businesses that operate in a tourist economy like Big Bear. Examples of such challenges shared by stakeholders included:

- The seasonal fluctuations in business activity, which make staffing and managing inventory difficult;
- Many businesses are short-lived, because people who vacation in the area see the crowds and want to start businesses, but don't realize the challenge of operating during the low seasons;
- The area is attractive to retirees, but they don't have the interest or energy in starting businesses. The corresponding opportunity is to pair the expertise, resources, and experience of retirees with the energy and ideas of young people;
- Past perceptions beleaguer the City and its efforts to support new business development. Though the City has made strides to overcome perceptions about favoritism, such misperceptions persist;
- Of Big Bear's 5 million visitors per year, most are day trippers who create relatively little economic impact, but create significant public service demands;

The overall quality of the Big Bear Lake visitor experience was another challenge that was mentioned. Several interviewees mentioned the need to upgrade the lodging and dining options in the area in order to be competitive for destination visitors, including the following points:

- Quality of lodging is one constraint – Big Bear lacks 4 and 5-star resort properties and is dominated by vacation rentals, which do not appeal to all visitors.
- Quality dining options are also limited.
- Need more “off-hill” entertainment options for people who are not skiers. For summertime, the area needs an 18-hole golf course and other recreation and entertainment options.
- One suggestion was to establish a permanent stage for outdoor performances.
- Transportation system is lacking; whereas, other resort communities have shuttle systems
- Fragmented ownership in the Village makes it difficult to create a cohesive district.

An additional constraint mentioned was opposition to change within the local community. One particular concern mentioned was a desire from some parts of the community to avoid having corporate businesses within the valley.

Lack of higher education opportunities for young people is another constraint. The area loses its talent because people have to go elsewhere to pursue education. The corresponding opportunity is to re-establish community college satellite courses using high school facilities, and also to coordinate programs with Redlands University so that students can transfer.

## **ECONOMIC DEVELOPMENT STRATEGY**

Based on outcomes from the RIAC meetings, the following provides a preliminary strategy framework for trails-based economic development. City staff and representatives from the Chamber of Commerce identified the entities that would be best positioned to take the lead on different recommendations. This strategy will also help to identify the

local partners who could best support the lead organization in implementing programs associated with each strategy.

### **Trail-Based Economic Development**

A series of strategies are recommended for the City of Big Bear Lake, the County of San Bernardino and other partners to follow, in order to best leverage Big Bear's developing trails network for economic benefits. The overall framework includes four main strategies:

- A. Branding and Marketing (Big Bear as an Active-Living Community and the Trails System as a Key Product Offering):
- B. Visitor Attracting (Emphasizing Trail-Based Recreation):
- C. Resident/Workforce Attraction (Leveraging Big Bear's Active Lifestyle)
- D. Business Expansion/Attraction Opportunities (Focusing on Trail-Based Recreation)

Each of these strategies includes a number of constituent actions or programs. For each action or program, the strategy framework identifies the type of organization that would be responsible to take the lead in implementation, the "deliverables" or activity to be completed, and the targeted outcomes from the actions. The various strategies and actions are displayed in the matrix shown on the following page.

<b>A. Branding and Marketing (Big Bear as an Active-Living Community and the Trails System as a Key Product Offering):</b>	<b>LEAD (Generic)</b>	<b>DELIVERABLE(S)</b>	<b>TARGETED OUTCOME</b>
1. Clearly define markets	Business Associations	Identification of users and understanding of how they get their information about how to spend their time and money.	Enable effective targeting of marketing efforts to core user groups.
2. Incorporate trails and active, outdoor living as part of Big Bear's Image	Business Associations	Marketing materials, including print, web/video, social media to use in marketing campaigns (see #8).	Redefine Big Bear's image to reflect the full range of the community's active living opportunities.
3. Broaden marketing materials so that Big Bear is known for more than snowboarding and skiing, but also a variety of outdoor and cultural activities.	** Business Associations	Print, radio, TV/Web materials to integrate into marketing campaign (see #8)	See above; build Big Bear's status as a "charismatic community" associated with active living.
4. Seek recognition as IMBA Ride Center and League of American Bicyclists Bicycle Friendly Community	Public	Progressive achievement of higher designations from IMBA and LAB, incorporate into marketing campaign (see #8)	Leverage the promotional efforts of national/international organizations to reach a wide audience of potential visitors.
5. Develop social media tools to connect with targeted markets, including tools (i.e., smartphone app) to help people use the trail system, as well as to promote the system and the community. For an example, see the Twitter feed for Boulder's Open Space and Mountain Parks system: <a href="https://twitter.com/boulderosmp">https://twitter.com/boulderosmp</a>	** Business Associations	Apps, web interfaces, social media presence, other tools as appropriate to integrate into marketing campaign (see #7)	Cost effective tools to help market Big Bear and to enhance the user experience for Big Bear visitors; promote Big Bear through visitors' own social networks.
6. Make periodic product announcements, previews, and product launches to keep core audiences informed of Big Bear's new offerings.	Business Associations	Press releases, launch "parties", and other activities to spotlight new offerings. Coordinate with larger marketing campaign (see #8)	Maintain "mindshare" through regular announcements and build "buzz" about what Big Bear is creating.
7. Establish one common design aesthetic relating to the Trails Master Plan throughout the community. Signage, public art, street furniture, fencing materials, and other elements for place-making that reflects the community's character both on-the-street and in promotional materials	City/County/Forest Service	Design standards in Trails Master Plan; common signage design and consistent street furniture theme along trails throughout the valley. Incorporate imagery into marketing campaign (see #8)	Create a memorable, charismatic place that is postcard worthy.
8. Implement a marketing program that coordinates the efforts of all players in relation to the Trails Master Plan; overcome fragmented marketing efforts and deliver a consistent message.	** Business Associations	Develop targeted marketing plan for Trails Master Plan and related activities, incorporating products of #1-7.	Coordinate the efforts of public, non-profit, and business partners to achieve the best results.

<b>B. Visitor Attracting (Emphasizing Trail-Based Recreation):</b>			
1. Create good, free maps for recreation.	Non-profit	Digital and printed guide materials	Enhance the user experience.
2. Broaden access to the wide variety of recreational options (snowshoeing, cross country skiing, rock climbing, back country horseback riding, yoga in the forest, stand-up paddle boarding on the lake, etc.	Public	Increased venues for participation in a wider range of outdoor activities.	Broaden the potential pool of visitors and increase their frequency/duration of visits by giving them more options for activities.
3. Expand offerings for guided activities, how-to classes for beginners, and training for more advanced participants.	Businesses	Expanded roster of activities to help visitors (and residents) better enjoy what Big Bear has to offer	Make Big Bear's activities more accessible to beginners and offer learning opportunities in order to keep attracting enthusiasts.
4. Expand events so that there are fewer one-day events and more multi-day festivals; reach out to bicycle and other "lifestyle" events relating to trail-based recreation.	Event Resource Office	Fill in events calendar, particular in spring and fall.	Generate more overnight stays and the increased spending on retail and restaurants associated with overnight visitors; expand events into mid-week days when occupancy is lower.
5. Promote Big Bear Lake as a location for adventure and cultural tourism, team building, art camps and lessons, fitness retreats, elite training, equestrian clinics, etc.	Non-profit	See Branding and Marketing, #8	Broaden the potential pool of visitors and increase their frequency/duration of visits by giving them more options for activities.
6. Promote Big Bear as a location for press camps and product launches.	Chamber/RA	See Branding and Marketing, #8	Build Big Bear's image through association with quality products and leading industry personalities.
7. Continuously make improvements to help Big Bear Lake achieve progressively higher levels of recognition from IMBA Ride Center program and from LAB Bicycle Friendly Community program. U.S. Olympic Committee guidelines for Olympic Training Center designation as a guide to develop Big Bear as a center for high altitude athletic training.	Public	Strategic plans for mountain biking, road biking, and high altitude athletic training development. Identify lead organization or steering committee for each.	Provide a road map for continuous improvement of Big Bear's product offerings.
8. Develop Moonridge/Rathbun Corridor as "Recreation Row"	Public	Develop Vision Plan or similar document to guide implementation actions. Adopt a Rathbun Corridor Sustainability Plan that establishes a) alignment and design for the multi-use trail, b) a watershed management strategy, and c) analyzes opportunities for and outdoor recreation center	Guide placemaking that will reinforce Big Bear's image as an active living destination and provide physical location opportunities for related businesses, including lodging and restaurants.

### Organizational Resources in Support of Trails-Based Economy

<b>C. Resident/Workforce Attraction (Leveraging Big Bear's Active Lifestyle)</b>			
1. Promote trails/active living as integral part of local quality of life. Promote Big Bear as a destination community.	Non-profit	See Branding and Marketing, #8	Attract more residents/workers who value active living.
2. Tap into internet based businesses and workers who can live anywhere.	Non-profit	See Branding and Marketing, #8	Use quality of life as a key selling point to attract business people who can choose to live anywhere.
3. Facilitate a career ladder so that Big Bear can retain the creative class.	Business Associations	Provide training programs (see #5 below) so that residents can develop their skills and advance their careers locally.	Retain Big Bear's human capital.
4. Develop tourism as a constant year round activity, so Big Bear has more year round jobs to support residents.	Business Associations	See all Visitor Attracting actions.	Provide more quality, year-round jobs in order to retain Big Bear's best and brightest.
5. Create post-secondary educational opportunities, especially those connected to the lake, forest, and health.	Public	Offer college courses in the valley so residents don't have to leave for higher education.	Provide higher education in Big Bear so Big Bear's talent doesn't have to leave in order to obtain education.

<b>D. Business Expansion/Attraction Opportunities (Focusing on Trail-Based Recreation)</b>			
1. Establish a "mobile" store program, working with existing bricks and mortar businesses	Public	Establish an ordinance to guide establishment and operation of mobile businesses.	Provide opportunities for local businesses to cost-effectively expand within the community, targeting seasonal activities.
2. Develop parking deck program as a business expansion opportunity. See the City of Oakland's pilot program as one example: <a href="http://www2.oaklandnet.com/Government/o/PBN/OurOrganization/PlanningZoning/parklets/index.htm">http://www2.oaklandnet.com/Government/o/PBN/OurOrganization/PlanningZoning/parklets/index.htm</a>	Public	Establish an ordinance to guide creation of parking decks in commercial areas.	Create public/private partnerships to encourage placemaking and create public amenities.
3. Develop master permitting program for forest-based business activities.	Public	Establish a streamlined process for businesses to get permission to operate on forest lands.	Facilitate start-up of trail-based businesses.
4. Target 2nd home owners who own businesses off the hill and invite them to open a business in Big Bear.	Non-profit	See Branding and Marketing, #8	Tap into the financial resources and expertise of 2nd homeowners to increase local business activity.
5. Target businesses whose owners and employees want to lead outdoor lifestyles.	Non-profit	See Branding and Marketing, #8	Leverage Big Bear's strengths to attract businesses and reinforce the local active living culture.



### **Development Strategy**

As mentioned above, the strategy matrix does not identify specific organizations that will be assigned responsibility to take the lead in implementing various recommended actions. This is due to the fact that additional coordination among local economic development stakeholders is required, in order to determine the most effective means of organizing local efforts.

Based on comments from the City Council, an Implementation Committee is recommended for the Master Plan (See Chapter 10). This multi-agency, multi-stakeholder organization should not only guide project construction, but also guide programming and the pursuit of the economic development strategies that appear in this Chapter.

### **Specific Business Targets**

During the course of discussions with stakeholders, RIAC meetings, interviews conducted as part of the case studies, and other research conducted for this project, a number of specific targeted business types that would fit with the trails-based economic development strategy were identified, as follows. This list is not intended to be exhaustive, but to provide initial ideas for business expansion, formation, and recruitment efforts.

- Rock climbing instruction/guiding
- Healthy grocery stores and restaurants
- Cross country ski and snowshoe retailer/outfitter
- Mountain bike trail guiding/outfitting
- Multi-day festivals/events
- Athletic training and sports medicine services and facilities
- Equestrian-related companies
- Water shuttle service – connecting the north and the south sides of lake
- Medical/health providers and facilities that can support physical therapy, athletic training, and the broader community health needs

### **Related Actions**

In refining the list of possible economic development opportunities identified in the second RIAC meeting at the third RIAC meeting, the group identified a number of actions that should be considered in

support of trails-based economic development, but which were not felt to be directly related to the trails-based economic development. These actions are summarized on below.

Related Actions	LEAD (Generic)	DELIVERABLE(S)
1. Help businesses obtain suitable, affordable leases by identifying and working with absentee land lords and establishing a "pop-up" store program operated in partnership between the City and landlords. See example of program operated by Pittsburgh Urban Renewal Authority: <a href="http://www.downtownpittsburgh.com/about-pdp/pdp-initiatives/project-pop-up">http://www.downtownpittsburgh.com/about-pdp/pdp-initiatives/project-pop-up</a>	City/Chamber	Develop inventory of available commercial space with owner/broker contacts; pilot a "pop-up" store program in cooperation with one to three property owners.
2. Provide small business support and services.	City/Chamber	Offer new programs or promote existing programs as part of broader economic development efforts.
3. Expand range of lodging options, especially adding 4- and 5-star resort hotel accommodations, and facilities to host retreats, conferences, training sessions.	City	Identify appropriate locations (e.g., identify site(s) in Moonridge Vision Plan (see Visitor Attracting, #7)
4. Expand facilities to accommodate the diverse needs of user groups: Indoor aquatic facility, indoor/outdoor running tracks, a covered equestrian arena, Outdoor Adventure Center, etc.	City/County/Schools	Develop long term recreational facilities master plan for valley.

## 10. IMPLEMENTATION

Implementation of the Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan requires clear directives and a logical strategy for phasing key improvements that will stimulate, frame, and complement new projects and the overall non-motorized network. Rather than establish one preferred scenario for implementation, the implementation methods delineated in this chapter provide clear direction with the flexibility to adjust to unforeseen challenges and opportunities.

This chapter outlines a methodology for implementation that is logical and deliberate, in addition to the criteria for prioritizing new projects presented in Chapter 4.

### PLAN ADMINISTRATION

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan consists of a vision for the physical and programmatic development of non-motorized networks throughout the Valley, planning principles, goals and policies, and design guidelines that will guide future development of pedestrian, bicycle and equestrian facilities.

Over the course of the planning process, the overall plan framework was developed to consider long term impacts and future needs. To this end, the plan should be continuously monitored and reviewed in the future to ensure that the policies and strategies remain relevant and effective. This is especially necessary to account for any significant changes in land use, demographics and funding. As inconsistencies are identified, the plan may require periodical updates through amendments.

### Planning and Interpretation

There are multiple documents that address planning and design of the transportation system in Big Bear Valley. A complete review of these is provided in the Design Guidelines Appendix. The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan is the first document that unifies these various planning and design efforts with solutions specifically tailored to the Valley. In addition to ensuring consistency with design standards and relevant policies, the Big Bear Valley



Pedestrian, Bicycle and Equestrian Master Plan follows the “best practice” of conforming to state and local regulations, unless clearly identified otherwise.

As the City and County carry out projects and improvements, a more detailed review, analysis and design should be conducted for each project to ensure conformance with the Plan vision, principles and design guidelines, as well as other State and Federal standards. Communication and coordination with Caltrans will also be critical.

## APPROACH

The implementation approach helps to organize the necessary steps and strategies that achieve the plan’s vision. The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan’s multi-faceted approach is based on the following considerations:

- *Uphold the foresight and planning principles that parallel the vision for the plan.* Planning recommendations and project phasing are based on identified planning and design goals and evaluation criteria that support the vision for this plan.
- *Employ a systems approach to network development that focuses on developing a “main line” armature for each network.* The primary armature of the system tends to include projects that are most visible and will serve the highest projected demand by residents and visitors alike. The approach recognizes that demonstrated and visible success will be critical to building ongoing support for network development and building the brand and identity of the Big Bear Valley as an active living community.
- *Expand the desired community character and identity by emphasizing the importance of well-designed and attractive non-motorized facilities that adhere to the design guidelines developed as an integral part of the Plan.* Design guidelines for new facilities reinforce the desired character of community while ensuring that new facilities are safe, effective and easy to maintain.
- *Phase key improvements that will catalyze or support new private investment in the community.*

- *Base the addition of new projects on the evaluation criteria and Plan vision and planning principles to ensure new projects meet user needs and complement the proposed network/s. The evaluation criteria facilitate rational decision-making, while allowing the necessary flexibility for as yet unknown opportunities.*
- *Ensure consistency with other planning documents reflecting the other planning efforts that affect the City, County and surrounding National Forest.*

## PROJECT PHASING

The Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan will be implemented over several years as funding allows. The City and County do not have the resources to meet all projected needs in the short term, nor can either entity implement all recommended projects immediately. Along with the priority projects identified in earlier chapters, suggested phasing will help to determine which projects should be implemented first to maximize the success of the plan. Projects should be organized into four time frames: 1) Immediate (Current); 2) Short-term (Year 1 to Year 5); 3) Mid-Term (Year 6 to Year 10); and 4) Long-Term (Year 11 and beyond).

*(Once agreement is reached on the relative values of the prioritized projects presented in Chapters 5 through 8, the project team will develop the preferred phasing strategy for each network based on the four-tiered phasing approach. This strategy will include a series of maps, depicting the phasing of each network.)*

## COSTS

Planning level cost estimates are provided for improvements to the multimodal, pedestrian and bicycle networks. These are rough costs for preliminary decision-making purposes to base decisions on the types of projects to be considered for further study. The costs estimated for each bicycle facility type include construction cost, design cost and contingency per mile. The design cost includes ten percent of the construction cost. Contingency cost includes twenty five percent of the total construction and design costs. For Class I and Class II facilities where widening occurs environmental cost was also included in the

total cost of each project. Sidewalk costs were not included for Class I and Class II with widening.

Class 2.5 (Bike Boulevards) are dependent on the type and amount of intersection treatments proposed, this cost estimate include moderate treatments along all bike boulevard facilities. Sidewalk cost included sidewalk construction, design, gutter and curb. Planning level cost estimates for each project are included in Appendix B.

The total annual maintenance cost of the bicycle network, as shown in Table 10.1, is estimated at approximately \$4.4 million per year when fully implemented. Bicycle facility maintenance costs are based on per mile estimates, which cover labor, supplies, and amortized equipment costs for weekly trash removal, monthly sweeping, and bi-annual resurfacing and repair patrols. Other maintenance costs include restriping bike lane lines, sweeping debris and tuning signals for bicycle sensitivity.

*Table 10.1: Annual Operations and Maintenance Cost Estimates for Recommended Bicycle Network*

Facility/Program	Unit Cost <sup>1</sup> (Annual Cost/Mile)	Miles	Cost	Notes
Class I Maintenance	\$17,000	178	\$3,026,000	Lighting and debris and vegetation overgrowth removal.
Class II and III Maintenance	\$2,000	547.1	\$1,094,200	Repainting lane stripes and stencils, sign replacement as needed.
Class II and 2.5 Maintenance	\$1,000	319	\$319,000	Sign and shared use stencil replacement as needed.
<b>Total</b>		<b>1044.1</b>	<b>\$4,439,200</b>	

<sup>1</sup> Source: Alta Planning + Design, February 2010. Notes: Unit costs based on Alta Planning + Design experience with similar bikeway systems, and "Trails for the 21st Century: Planning, Design and Management Manual for Multi-Use Trails," published by the Rails-to-Trails Conservancy, 2001.

As part of the normal roadway maintenance program, extra emphasis should be put on keeping the bike lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility or creeping into the roadway. The other typical maintenance costs for the bikeway network include the maintenance of signage, striping and stencils.

## **FUNDING SOURCES**

Potential funding sources for bicycle projects, programs and plans can be found at all levels of government. This section covers federal, state, regional and local sources of bicycle funding, as well as some non-traditional funding sources that may be used for bicycle projects. All the projects are recommended to be implemented over the next two to twenty years, or as funding is available. The more expensive projects may take longer to implement. In addition, many funding sources are highly competitive, and therefore it is impossible to determine exactly which projects will be funded by which funding sources.

### ***Federal Funding***

The primary federal source of surface transportation funding, including bicycle and pedestrian facilities MAP-21, the Moving Ahead for Progress in the 21st Century Act, was signed into law by President Obama on July 6, 2012. Funding surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005.

MAP-21 is a milestone for the U.S. economy and the Nation's surface transportation program. By transforming the policy and programmatic framework for investments to guide the system's growth and development, MAP-21 creates a streamlined and performance-based surface transportation program and builds on many of the highway, transit, bike, and pedestrian programs and policies established in 1991.

MAP-21 restructures core highway formula programs. Activities carried out under some existing formula programs – the National Highway System Program, the Interstate Maintenance Program, the Highway Bridge Program, and the Appalachian Development Highway System Program – are incorporated into the following new core formula program structure:

- National Highway Performance Program (NHPP);
- Surface Transportation Program (STP);
- Congestion Mitigation and Air Quality Improvement Program (CMAQ);
- Highway Safety Improvement Program (HSIP);
- Railway-Highway Crossings (set-aside from HSIP); and
- Metropolitan Planning

It creates two new formula programs:

- Construction of Ferry Boats and Ferry Terminal Facilities: Replaces a similarly purposed discretionary program.
- Transportation Alternatives (TA): A new program, with funding derived from the NHPP, STP, HSIP, CMAQ and Metropolitan Planning programs, encompassing most activities funded under the Transportation Enhancements, Recreational Trails, and Safe Routes to School programs under SAFETEA-LU.

These and other federal funding sources are summarized in the following sections.

#### ***Congestion Mitigation and Air Quality Improvement Program***

Congestion Mitigation and Air Quality (CMAQ) Improvement funds are programmed by the Federal transportation bill for projects that are likely to contribute to the attainment of a national ambient air quality standard, and congestion mitigation. These funds can be used for a broad variety of bicycle and pedestrian projects, particularly those that are developed primarily for transportation purposes. The funds can be used either for construction of bicycle transportation facilities and pedestrian walkways or for non-construction projects related to safe bicycle and pedestrian use (maps, brochures, etc.). The projects must be tied to a plan adopted by the State and SANBAG.

#### ***Recreational Trails Program***

The Recreational Trails Program of MAP-21 provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include bicycling, hiking, in-line skating, and equestrian use. In California, the funds are administered by the California Department of



Parks and Recreation. Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails; including unpaved trails;
- Acquisition of easements or property for trails;
- State administrative costs related to this program (limited to seven percent of a state's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

\$4.6 million dollars was available to California jurisdictions of through the Recreational Trails Program in 2009. More information is available at [www.fhwa.dot.gov/environment/rectrails/index.htm](http://www.fhwa.dot.gov/environment/rectrails/index.htm).

### ***Safe Routes to School (SRTS) Program***

Authorized under Section 1404 of SAFETEA-LU, the Safe Routes to School (SRTS) Program came into effect in August, 2005. Consistent with other federal-aid programs, each State Department of Transportation (DOT) is held responsible for the development and implementation of grant funds made available to the states through this new program throughout the life of SAFETEA-LU. Some expected outcomes of the program include:

- Increased bicycle, pedestrian, and traffic safety around schools;
- More children walking and bicycling to and from schools;
- Decreased traffic congestion around schools;
- Reduced childhood obesity;
- Improved air quality, community safety and security, and community involvement; and
- Improved partnerships among schools, local agencies, parents, community groups, and nonprofit organizations.

A minimum of 70 percent of each year's apportionment will be made available for infrastructure projects with up to 30 percent for non-infrastructure projects.

### ***SRTS Infrastructure Projects***

Infrastructure projects are engineering projects or capital improvements that will substantially improve safety and the ability of students to walk and bicycle to school. They typically involve the planning, design, and construction of facilities within a two mile radius from a grade school or middle school. The maximum funding cap for an infrastructure project is \$1 million. Caltrans does not set minimum caps. The project cost estimate may include eligible direct and indirect costs.

Eligible projects may include but are not limited to:

- New bicycle trails and paths, bicycle racks, bicycle lane striping and widening, new sidewalks, widening of sidewalks, sidewalk gap closures, curbs, gutters, and curb ramps. Also includes new pedestrian trails, paths, and pedestrian over and under crossings, roundabouts, bulb-outs, speed bumps, raised intersections, median refuges, narrowed traffic lanes, lane reductions, full or half-street closures, and other speed reduction techniques.
- Included in the category of traffic control devices are: new or upgraded traffic signals, crosswalks, pavement markings, traffic signs, traffic stripes, in-roadway crosswalk lights, flashing beacons, bicycle-sensitive signal actuation devices, pedestrian countdown signals, vehicle speed feedback signs, pedestrian activated upgrades, and all other pedestrian and bicycle-related traffic control devices.

Infrastructure projects should directly support increased safety and convenience for children in K-8 (including children with disabilities) to walk and bicycle to school.

### **SRTS Non-Infrastructure Projects**

Non-infrastructure projects are education/encouragement/enforcement activities that are intended to change community behavior, attitudes, and social norms to make it safer for children in Grades K-8 to walk and bicycle to school. Non-infrastructure projects should increase the likelihood of programs becoming institutionalized once in place. Deliverables from a non-infrastructure project must be clearly stated in the application and tangible samples must be attached to the final invoice or Progress Report; i.e., sample training materials or

promotional brochures. The funding cap for a non-infrastructure project is \$500,000. Multi-year funding allows the applicant to staff up and deliver their project over the course of four (4) years, thereby reducing overhead and increasing project sustainability.

### ***Transportation, Community, and System Preservation Program (TCSP)***

Implementation grants under the TCSP Program are intended to provide financial resources to states, metropolitan planning organizations, local governments and tribal governments to enable them to carry out activities that address transportation efficiency while meeting community preservation and environmental goals. Examples of such policies or programs include: spending policies that direct funds to high-growth regions of the country; urban growth boundaries to guide metropolitan expansion; green corridors" programs that provide access to major highway corridors for areas targeted for efficient and compact development.

### ***Land and Water Conservation Fund***

The Land and Water Conservation Fund allocates money to state and local governments to acquire new land for recreational purposes, including bicycle paths and support facilities such as bike racks. The Fund is administered by the National Parks Service and the California Department of Parks and Recreation and has been reauthorized until 2015.

Cities, counties and districts authorized to acquire, develop, operate and maintain park and recreation facilities are eligible to apply. Applicants must fund the entire project, and will be reimbursed for 50 percent of costs. Property acquired or developed under the program must be retained in perpetuity for public recreational use. The grant process for local agencies is competitive, and 60 percent of grants are reserved for Southern California. In 2009, approximately \$1.25 million was allocated to fund recommended projects in California.

### ***Rivers, Trails and Conservation Assistance Program***

The Rivers, Trails and Conservation Assistance Program (RTCA) is a National Parks Service program which provides technical assistance via direct staff involvement, to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only

for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based upon criteria which include conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation and focusing on lasting accomplishments.

### ***Transportation Enhancement (TE) Activities***

Transportation Enhancement (TE) Activities are a subset of federal Surface Transportation Program funds whose aim is to help expand travel choice and enhance the transportation experience. Included in the list of activities eligible for funding are the provision of pedestrian and bicycle facilities and the provision of pedestrian and bicycle safety and educational activities. California's annual allocation of TE funds through the end of the SAFETEA-LU bill was \$74.5 million. In 2007, about \$6.7 million dollars of federal TE funds were spent in the San Diego region, mostly on pedestrian and bicycle projects.

### ***Regional Surface Transportation Program***

The Regional Surface Transportation Program (RSTP) is a block grant program established by the State of California utilizing federal funding made available for surface transportation projects. Though most of this funding gets earmarked for highway and transit projects, pedestrian and bicycle projects are still eligible to receive funds from this source. In California, \$225 million (76%) of RSTP funds are allocated annually to California's 11 largest urbanized areas with populations greater than 200,000 people. Under the RSTP, the San Bernardino Association of Governments (SANBAG) is authorized to prioritize and approve projects that receive RSTP funds in the San Bernardino region. Agencies can transfer funding from other federal transportation sources to the RSTP program in order to gain more flexibility in the way the monies are allocated.

### **State Funding Programs**

This section summarizes the primary state bicycle project and planning funding sources.

### ***Bicycle Transportation Account***

The State of California Bicycle Transportation Account (BTA) is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. Available as grants to local jurisdictions, the emphasis is on projects that benefit bicycling for commuting purposes. As of 2009, the BTA makes \$7.2 million available each year. The local match is a minimum of 10% of the total project cost. BTA projects are intended to improve safety and convenience for bicycle commuters, and can include, but are not limited to, any of the following:

- New bikeways serving major transportation corridors;
- New bikeways removing travel barriers to potential bicycle commuters;
- Secure bicycle parking at employment centers, park-and-ride lots, rail and transit terminals, and ferry docks and landings;
- Bicycle-carrying facilities on public transit vehicles;
- Installation of traffic control devices to improve the safety and efficiency of bicycle travel;
- Elimination of hazardous conditions on existing bikeways;
- Planning; and
- Improvement and maintenance of bikeways

Eligible project activities include: project planning, preliminary engineering, final design, right-of-way acquisition, and construction and/or rehabilitation.

### ***Environmental Enhancement and Mitigation Program (EEMP)***

Environmental Enhancement and Mitigation Program (EEMP) Funds are allocated to projects that offset environmental impacts of modified or new public transportation facilities including streets, mass transit guideways, park-n-ride facilities, transit stations, tree planting to equalize the effects of vehicular emissions, and the acquisition or development of roadside recreational facilities, such as trails. State gasoline tax monies fund the EEMP, which annually allocates \$10 million for mitigation projects.

### ***Office of Traffic Safety (OTS) Grant***

Office of Traffic Safety Grants (OTS) fund safety programs and equipment. Bicycle and Pedestrian Safety is a specifically identified priority. This category of grants includes enforcement and education programs, which can encompass a wide range of activities, including bicycle helmet distribution, design and printing of billboards and bus posters, other public information materials, development of safety components as part of physical education curriculum, or police safety demonstrations through school visitations. The grant cycle typically begins with a request for proposals in October, which are due the following January. In 2006, OTS awarded \$103 million to 290 agencies.

### ***Recreational Trails Program (RTP)***

The Recreational Trails Program provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized as well as motorized uses. Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails;
- Development and rehabilitation of trailside and trailhead facilities and trail linkages;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails (with restrictions for new trails on federal lands);
- Acquisition of easements or property for trails;
- State administrative costs related to this program (limited to seven percent of a State's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

### ***Safe Routes to School (SR2S) Program***

Established in 1999, the State-legislated Safe Routes to School (SR2S) program came into effect with the passage of AB 1475. In 2001, SB 10 was enacted which extended the program for three additional years. In

2004, SB 1087 was enacted to extend the program three more years. And in 2007, AB 57 was enacted to extend the program indefinitely. Seven (7) cycles of the SR2S program have been completed. The list of awarded projects is typically announced in the fall.

The goals of the program are to reduce injuries and fatalities to school children and to encourage increased walking and bicycling among students. The program achieves these goals by constructing facilities that enhance safety for pedestrians and bicyclists, primarily students in grades K-12 who walk or bicycle to school. By enhancing the safety of the pathways, trails, sidewalks, and crossings, the likelihood of attracting and encouraging other students to walk and bicycle increases.

The SR2S program is primarily a construction program. Projects funded by the program are intended to improve the safety of students who walk or bicycle to school. Construction improvements must be made on public property. Improvements can be made on public school grounds providing the cost is incidental to the overall cost of the project. The program typically provides approximately \$25 million annually statewide. The maximum reimbursement percentage for any SR2S project is ninety percent. The maximum amount of SR2S funds that will be allocated to any single project is \$900,000.

Eligible project elements include bicycle facilities, traffic control devices and traffic calming measures. Up to 10% of funding provided for an individual project can be used for Outreach, Education, Encouragement, and/or Enforcement activities. Regarding funding projections, the 2008 cycle is anticipated to provide \$48.5 million in funding. A letter from the Safe Routes to School National Partnership to the California Air Resources Board recognized that awards were part of "the volatile state budget process."

This California SR2S program should not be confused with the Federal Highway Administration's (FHWA) Safe Routes to School (SRTS) program authorized under SAFETEA-LU. Although both programs have similar goals and objectives, their funding source, local funding match requirements and other program requirements are different (see following section).

## **Regional Funding Sources**

Regional bicycle grant programs come from a variety of sources, including MAP-21, the State budget, vehicle registration fees, tolls and local sales tax. Most regional funds are allocated by regional agencies such as SANBAG.

### ***Measure I Central***

Measure I is the half-cent sales tax collected throughout San Bernardino County for transportation improvements. San Bernardino County voters first approved the measure in November 1989 to ensure that needed transportation projects were implemented countywide through 2010. In 2004, San Bernardino County voters overwhelmingly approved the extension of the Measure I sales tax, with 80.03% voting to extend the measure through 2040.

SANBAG administers Measure I revenue and is responsible for determining which projects receive Measure I funding, and ensuring that transportation projects are implemented. Measure I funds are allocated based on a strategic plan. The Big Bear Valley is in the Mountains Sub-Area for Measure I funding.

### ***Regional Improvement Program (RIP)***

The Regional Improvement Program (RIP) is funded from 75 percent of the funds made available for transportation capital improvement projects under the STIP. This program targets urban projects that are needed to improve transportation within the region. SANBAG recommends to the California Transportation Commission (CTC) the selection of these projects, which can include state highway improvements, local roads, public transit, intercity rail, grade separations, and more. Each region receives a share of funds. San Bernardino County's share is about 4.7% of the total funds available from the STIP statewide.

## **Local Funding**

### ***New Construction***

Future road widening and construction projects are one means of providing bike lanes and sidewalks. To ensure that roadway construction projects provide these facilities where needed,



appropriate and feasible, it is important that an effective review process is in place so that new roads meet the standards and guidelines presented in this Plan.

### ***Measure Y Funds***

Measure Y is a local funding source based on an increase in the local Transient Occupancy Tax. The measure increased the rate of the City's Transient Occupancy Tax charged to guests of private home rentals and any other overnight lodging facility from 6% to 7% as of January 1, 2009, and 7% to 8% as of January 1, 2010. Measure Y was approved by with 59.8% of the vote.

Measure YY was an additional advisory-only vote regarding the Measure Y funds. It said, "If the City's Transient occupancy Tax (also known as Hotel Tax) is increased from 6% to 8%, should the City solely allocate the additional revenue to rebuild and renovate infrastructure, streets, parks, trails, lake access points and other public facilities, and prohibit the additional revenue from being used for general City operations?" Advisory Measure YY was approved with over 78% of the vote.

### ***Development Impact Fees***

The City of Big Bear Development Impact Fees include those for circulation, storm drainage collection systems, public use facilities, and parkland and open space. Some of these fees may be used for non-motorized trail improvements if they can be found consistent with the Master Facilities Plan. Although non-motorized transportation projects may not typically be associated with stormwater, storm drain modifications are often necessary to accommodate trails and habitat projects. Therefore, if such projects are designed and engineered together, storm drain collection facilities may cover the cost of stormwater and trails projects.

### ***Other Sources***

Local sales taxes, fees, and permits may be implemented, requiring a local election. Parking meter revenues may be used according to local ordinance. Volunteer programs may substantially reduce the cost of implementing some of the proposed bikeways. Local schools or community groups may use the bikeway or pedestrian project as a project for the year, possibly working with a local designer or engineer. Work parties may be formed to help clear the right of way where

needed. A local construction company may donate or discount services. A challenge grant program with local businesses may be a good source of local funding, where corporations “adopt” a bikeway and help construct and maintain the facility. Other opportunities for implementation will appear over time, which may be used to implement the system.

## **RESPONSIBILITIES AND STRATEGIC PARTNERSHIPS**

As discussed, the Master Plan will require a commitment of additional funds and resources. It will also require an organization and management structure with the tools needed to carry out the program. There is a range of public and private management responsibilities involved in the implementation of the Master Plan, as well as in ongoing management of the non-motorized network. The future non-motorized network management needs are identified as follows:

- Oversee and direct implementation of the Master Plan;
- Coordinate project feasibility and design for the capital improvement projects;
- Oversee the construction of capital projects;
- Work with affected property owners impacted by improvements; and
- Assist private developers interested in contributing to the network adjacent to their properties.

### **Implementation Committee**

The existing organizational structure can meet only a portion of the organization and management needs of the area and the Plan based on the capabilities of existing organizations. The Project Team created several Advisory Committees to participate in the development of the Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan. A similar committee should also participate in overseeing the implementation of the Plan. This Implementation Committee should provide additional representation of relevant agencies and organizations. It can function as an advisory panel to the City Council and County Board of Commissioners as they consider implementation and funding strategies.

## **APPENDICES**



## APPENDIX A: DESIGN GUIDELINES

### INTRODUCTION

The Big Bear Valley is a home and destination that leaves a lasting impression on residents and visitors alike. Future infrastructure projects must be carefully planned and designed to ensure consistent and attractive development that reflects and reinforces the unique character of our Valley communities.

#### **Intent**

The design guidelines provide direction for designing future non-motorized network facilities and features. The guidelines are based on the Big Bear Valley Pedestrian, Bicycle and Equestrian Master Plan vision, planning principles and goals. The result is an organized and representative set of guidelines that address how the non-motorized networks in the Valley should look, function, and feel.

The design guidelines are not intended to serve as a rigid set of prescriptive standards. Rather, guidelines allow a degree of flexibility that support the design principles, and unique needs of individual design locations and contexts. This flexibility allows for the unique character, and opportunities and challenges of each project. Where there is a question related to how a guideline should be applied, or the guideline is not practicable for a certain design proposal, the intent of each corresponding section should be used to provide further direction.

### DESIGN OBJECTIVES

The design guidelines presented in this document have been created, compiled and customized for the Big Bear Valley. Specific design features, treatments and approaches were selected to maximize six design objectives.

#### **Accommodate All Users**

The non-motorized transportation network should be designed to accommodate all users, regardless of age, ability and comfort level. While not all facilities and route amenities will be universally accessible, various aspects of the system should cater to all user types.

#### **Support Transportation and Recreation**

The non-motorized network should be developed for both transportation and recreation to support a sustainable and healthy community.

#### **Improve Safety and Visibility**

The non-motorized network should be designed to maximize safety for all transportation and recreation network users. Facilities should be designed to increase visibility of pedestrians, bicyclists and equestrians to each other and to motorists.

### **Provide Clear Communication**

Network facilities and amenities should be designed to clearly communicate the rules of the road and proper usage.

### **Enhance Image and Identity**

The non-motorized network should be designed in a manner that supports community character. Incorporating a high level of design and artistic features into the design of network facilities and amenities will help to establish image and identity.

### **Promote Consistency and Legibility**

The non-motorized network should promote consistency and legibility as a means of supporting several of the other objectives, including safety, communication, image and identity. Similar facility types should be designed similarly across the Valley to promote network simplicity and understanding.

## **REGULATORY AND DESIGN FRAMEWORK**

Several accepted design documents provide the framework for street design as well as bicycle and pedestrian facility design throughout the State of California. To prepare design guidelines that conform to this myriad of standards and guidelines, the most critical frameworks are listed and described below.

### **California Manual on Uniform Traffic Control Devices (MUTCD)**

The 2012 CA MUTCD is amended from the Federal Highway Administration's (FHWA's) 2009 MUTCD Publication. Published by the State of California's Department of Transportation, the CA MUTCD provides uniform standards and guidance for all official traffic control devices, in accordance with Section 21400 of the California Vehicle Code. The direct relationship between the CA MUTCD and State Law restricts deviation in the design, use and implementation of traffic control devices.

In regards to the pedestrian, bicycle and equestrian design guidelines for Big Bear Valley, the CA MUTCD provides direct provisions for pedestrian and bicycle signage, lane markings, signal operations, and refuge islands.

### **NACTO Urban Bikeway Design Guide**

Based on the experience of premier cycling cities around the globe, the purpose of the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide is to provide guidance to cities in providing state-of-the-practice solutions for complete streets for the safe enjoyment of bicyclists. Due to the inherent need for innovative solutions in an urban environment, the majority of these designs are not directly found in either the AASHTO Green Book or the CA MUTCD; however the Federal Highway Administration has recently posted information regarding the approval status of various bicycle related treatments not

covered in the MUTCD. Additionally, all treatments found within this design guide are in use both internationally and in many cities around the United States, thus providing example guidelines for use within the Big Bear Valley.

### **AASHTO Green Book**

The American Association of State and Highway Transportation Officials' Green Book is a source of guidance for geometric design issues such as street width, lane width, shoulder width, medians, and other street features. The majority of technical material is detailed or descriptive design information for freeways, arterials, collectors and local roads for both urban and rural settings. While these design guidelines are written with the intent to provide operational efficiency, comfort, safety and convenience, they are merely guidelines, not standards, and do not replace the need for sound design principles.

In regards to the pedestrian, bicycle and equestrian design guidelines for Big Bear Valley, the Green Book provides guidance for pedestrian and bicycle facilities under these varied roadway classifications.

### **California Vehicle Code**

The California Vehicle Code, as well as the California Streets and Highways Code include laws that must be followed in reference to street design, bicycle facility design, pedestrian facility design and provide the regulatory framework for the California Manual on Uniform Traffic Control Devices.



### **Caltrans Highway Design Manual**

The Caltrans Highway Design Manual (HDM) was prepared by the State of California Department of Transportation for use with the California State Highway System. In regards to the State Highway System, these guidelines apply to highways and bikeways within local jurisdictions. Similar to the AASHTO Green Book, these guidelines are not standards, and may be adopted by local jurisdictions for application through all local streets. In regards to these pedestrian, bicycle and equestrian guidelines, the Caltrans Highway Design Manual provides guidance for pedestrian and bicycle facilities for highways and bikeways in the Big Bear Valley

### **San Bernardino County Non-Motorized Transportation Plan**

In 2011, the San Bernardino Association of Governments (SANBAG) completed a whole sale upgrade of the 2006 San Bernardino County Non-Motorized Transportation Plan (NMTP) focusing on an improved interconnected bicycle system, and an improved walking environment. The plan itself consists of regional system overviews, goals, objectives and policies, bicycle and pedestrian planning regionally, design guidelines and plan implementation. For the purposes of this master plan, these design guidelines must be in compliance with the San Bernardino NMTP.

## MULTI-MODAL FACILITIES

M.1 Paved Multi-Use Path (Class I)	
Facility Description	
<p>A shared use, paved path allows for two-way, off-street bicycle and pedestrian use and also may be used by skaters, wheelchair users, joggers and other non-motorized users. Shared use paths can also include amenities such as lighting, signage, and fencing (where appropriate). Class 1 paths should be used to serve corridors not served by streets and highways or where wide right of way exists, permitting such facilities to be constructed away from the influence of parallel streets.</p>	
Recommended Design	
	
Design Considerations	Design Example
<ul style="list-style-type: none"> <li>• The minimum width of two-way paths is eight feet.</li> <li>• Ten-foot wide paths are usually best for accommodating all uses, and better for long-term maintenance and emergency vehicle access.</li> <li>• Twelve-foot wide paths are preferred and should be constructed when feasible.</li> <li>• If trees are adjacent to the path, a root barrier should be installed along the path to avoid root uplift.</li> <li>• A minimum 2-foot wide shoulder composed of the same pavement material as the path or all weather surfaces, free of vegetation, shall be provided adjacent to the traveled way of the path when not on a structure.</li> <li>• The minimum separation between the edge of pavement of a one-way or a two-way bicycle path and the edge of travel way of a parallel road or street shall be 5 feet plus the standard shoulder width.</li> </ul>	
Maintenance Considerations	Additional Design Guidance
<ul style="list-style-type: none"> <li>• Thicker surfacing and a well-prepared sub-grade will reduce deformation over time and reduce long-term maintenance costs.</li> <li>• Paths should be designed with sufficient surfacing structural depth for the sub-grade soil type to support maintenance and emergency vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>• Caltrans Highway Design Manual (Chapter 1000 Section 1003.1(1) and (2), and 1003.5)</li> <li>• AASHTO Guide for the Development of Bicycle Facilities, Chapter 2</li> <li>• California MUTCD Chapter 9B. Signs Guidelines for Accessible Public Rights-of-Way</li> </ul>

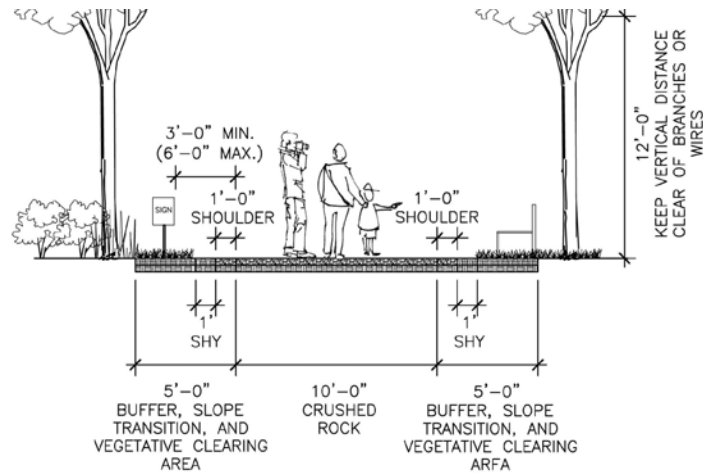


## M.2 Unpaved Trail

### Facility Description

The unpaved trail is suitable for equestrians, hikers and mountain bikers of all types depending on the intended trail location, and whether the trail is intended for a single user group or multiple users. Multi-user trails should be wider to allow multiple users. Narrower single track trails can also be used by multiple users but should have adequate sight distances, trail “chokes” or grade changes to reduce speeds and signage to reduce user conflicts.

### Recommended Design



### Design Considerations

- Unpaved trail surfaces range in width depending on the intended users. Multi-purpose trails should be no less than 10' wide with 2 x 1' shoulders, 2 x 1' shy distance next to the shoulders and include additional area needed for slope and fill maintenance;
- Minimum clearance is 12' in height to the first tree- limb, guy-wire or other object;
- Multi-purpose trail surfaces should be constructed of crushed gravel, compacted earth or similar material;
- Unless otherwise required by regulation, shoulders should allow for machine maintenance of the vegetation as needed; and
- Placement of benches and other trail amenities should allow for machine maintenance of the vegetation with at least 8' of clearance around any feature and not interfere with equestrian users when applicable.

### Design Example



Source: singletracks.com

### Maintenance Considerations

- Conduct routine monitoring through the aid of user groups. Repair and/or close hazardous sections of trail.
- Conduct seasonal maintenance in the spring to repair drainage issues and irregular and/or hazardous surfaces.

### Additional Design Guidance

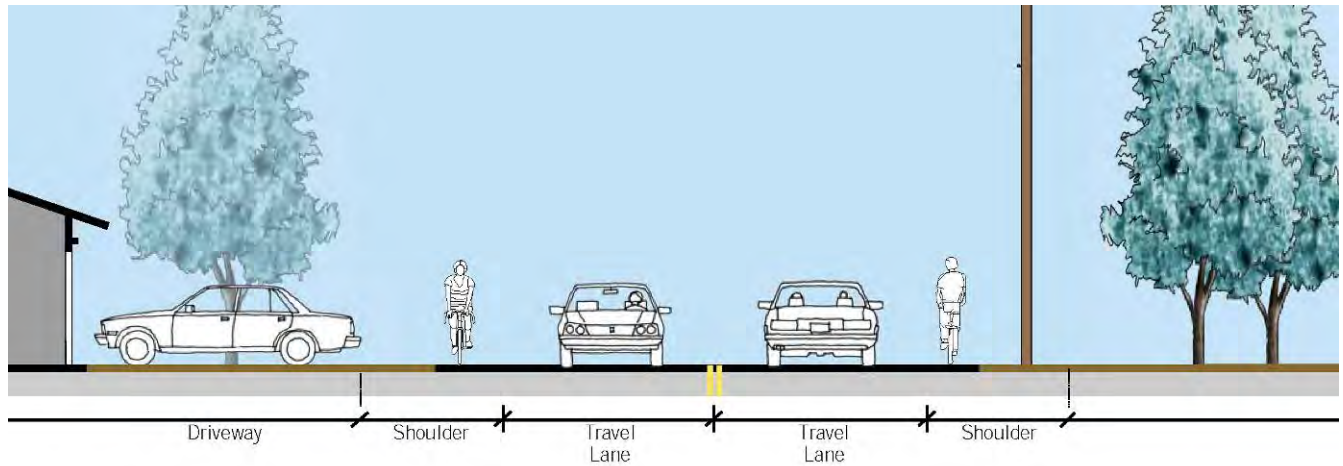
- Trails for the 21st Century, Planning, Design and Management Manual for Multi-Use Trails (Rails-to-Trails Conservancy)
- Trail Solutions: IMBA's Guide to Building Sweet Singletrack (International Mountain Bicycling Association)

### M.3 Paved Shoulder

#### Facility Description

On roadways that lack curb and gutter, most often found in either county or state roads or highways, in a rural, unincorporated or developing area, paved shoulders provide an avenue for bicycle and pedestrian use as well as a breakdown lane for motor vehicles.

#### Recommended Design



#### Design Considerations

- Paved shoulders range in width from 2 feet to 12 feet.
- Where bicyclists and pedestrians are to be accommodated on the shoulders, a minimum usable shoulder width of 4 feet should be used.
- In difficult terrain and on low-volume highways, the minimum shoulder width of 2 feet should be considered and a 5.9 feet to 7.8 feet width would be preferable.
- Shoulders should be continuous such that drivers have a safe refuge to pull off the traveled way and for the continuous use for bicycles and pedestrians.
- Minimal shoulders between 2 and 4 feet are preferable to no shoulders.
- On ascending grades where less than 4 feet shoulders are provided, consideration should be given to providing several short sections of 4 feet or wider shoulder as turnouts for bicycle passing.

#### Design Example



Source: Eye on Michigan

#### Maintenance Considerations

- In general, to prevent ponding, and damage due to run off, bituminous or concrete-surfaced shoulders should be sloped from 2-6 percent.
- Due to gravel and debris swept naturally to shoulders, they must be maintained on a routine basis to be usable by bicyclists

#### Additional Design Guidance

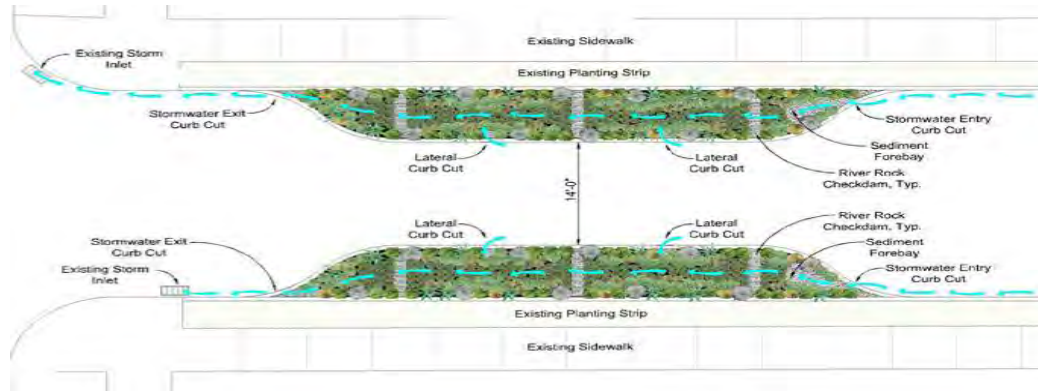
- AASHTO Geometric Design of Highways and Streets. Chapter 4. Page 312 - 318
- San Bernardino County Non-Motorized Transportation Plan. 6.2.11 Shoulder Width. Page 268-269.

## M.4 Green Street Design

### Facility Description

A Green Street is a street right-of-way that, through a variety of design and operational treatments, gives priority to pedestrian circulation and open space over other transportation uses. Treatments may include sidewalk widening, landscaping, storm water mitigation, traffic calming and other pedestrian-oriented features.

### Recommended Design



Source: American Society of Landscape Architects

### Design Considerations

- The design should emphasize pedestrians and open space over other street functions. Green streets function as pedestrian corridors connecting different activity areas as well as pedestrian gathering places.
- Green streets should provide an inviting, attractive and safe streetscape for pedestrians, bicyclists, and transit patrons.
- The design should complement and enhance adjacent land uses.
- The design should encourage keeping traffic speeds and volumes low. They are typically designated on non-arterial streets
- The design should respond to site specific conditions. A unique unified design concept that reflects or embellishes unique characteristics of a site should be encouraged. This allows the opportunity to reinforce historic buildings and street features, or develop "green infrastructure" that promotes sustainability.
- The inclusion of trees, planting strips, and other landscaping as a street design standard can be incorporated for aesthetic purposes as well as storm water runoff mitigation.
- Infiltration basins, bioswales, landscaped curb extensions, permeable pavement, gravel interceptors, and underdrains can also be incorporated as storm water treatment devices.

### Design Example



Photo: Ellen Greenberg, Arup



Nevue Ngan Associates

### Maintenance Considerations

- Sidewalks with special paving treatments must be designed so that it retains its integrity over time.
- Color used on sidewalks has the potential to fade and cause inconsistencies as new sections are applied.
- Street sweeping, debris removal, landscape maintenance and the repair and replacement of all auxiliary street design elements of the Green Street (i.e. fixture replacement, replacing tree grates, paver repair, repair or replacement of benches and planters.), will be needed on a regular basis.

### Additional Design Guidance

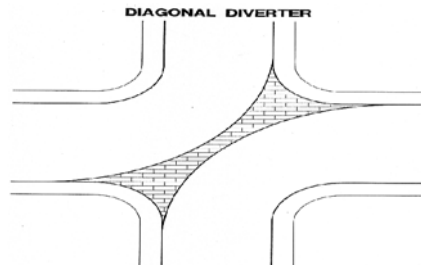
- City of Seattle Right-of-Way Improvements Manual. Chapter 6 Section 2 and Chapter 6 Section 4.
- San Bernardino County Non-Motorized Transportation Plan. Pg. 323.
- "Street Design: Part 2 – Sustainable Streets." *Public Roads*. Federal Highway Administration. Vol. 74. No. 5 March/April 2011. FHWA-HRT-11-003.

**M.5 General Traffic Calming**

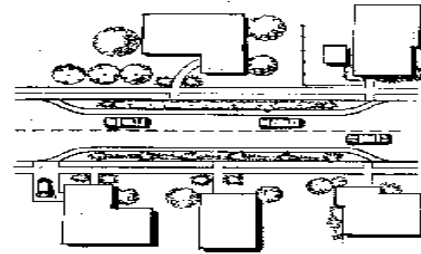
**Facility Description**

Traffic calming involves changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut-through volumes, in the interest of street safety, livability and other public purposes.

**Recommended Design**



Source: Alameda County.



Source: Institute of Transportation Engineers (ITE)

**Design Considerations**

- Volume management traffic calming devices include: channelized right-in/right-out islands, half closures (with potential curb extensions), diagonal diverters, full closures and median barriers.
- For volume management devices, an absolute minimum of 10 feet of clear space shall be maintained between bollards or features for emergency vehicle access. Presence of mountable curbs, collapsible objects, etc. may reduce space requirements.
- Volume management treatments shall provide bicycle access, either through a 4-foot min contra-flow bike lane or a 5-6 foot opening between vertical curbs.
- Appropriate signs should be used to prohibit undesired automobile movements and promote desired bicycle access.
- Volume control measures should not be used along primary emergency response routes.
- Traffic volumes on other parallel non-arterial streets should be monitored to determine impacts to volumes which may require further mitigation.
- Speed management traffic calming devices include: vertical treatments (i.e. speed lumps, speed humps, textured pavement, raised crosswalks and intersections) and horizontal treatments (i.e. chicanes, median islands, neighborhood traffic circles, pinch points, neckdowns, and chokers).
- When using horizontal treatments a minimum clear width of 12 feet for travel shall be maintained.
- Speed limits shall comply with local restrictions and shall only be established on the basis of an engineering study that has been performed in accordance with traffic engineering practices (MUTCD 2B.13).
- Vertical deflection features should be placed regularly along a corridor to reduce speeds.
- Horizontal speed control measures should not infringe on bicycle space.

**Design Example**



Speed Bump  
Source: City of Stockton



Traffic Circle  
Source: City of Madison

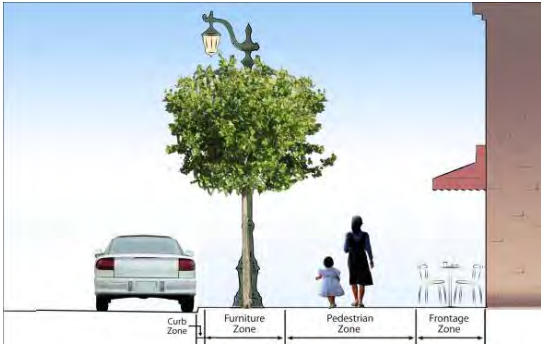
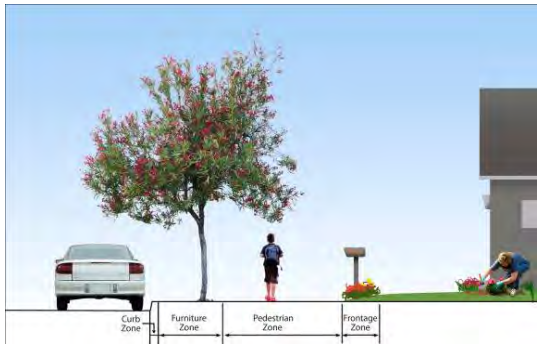

**Maintenance Considerations**

- Development of an emergency response route classification map at the onset of the planning process should be considered so that emergency services are in sync with the local transportation plan.

**Additional Design Guidance**

- NACTO Urban Bikeway Design Guide.
- FHWA Course on Bicycle and Pedestrian Transportation. Lesson 11 – "Traffic Calming."

## PEDESTRIAN-SPECIFIC FACILITIES

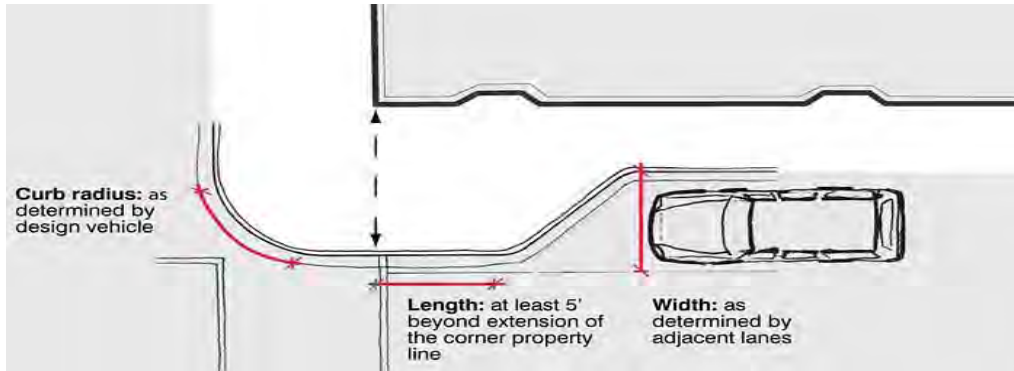
<b>P.1 Sidewalk</b>	
<b>Facility Description</b>	
<p>Sidewalks should provide a comfortable space for pedestrians between the roadway and adjacent land uses. Sidewalks along city streets are the most important component of pedestrian mobility. They provide access to destinations and critical connections between modes of travel, including automobiles, transit, and bicycles. . Within the pedestrian zone, the Pedestrian Access Route (PAR) is the path that provides continuous connections from the public right-of-way to building and property entry points, parking areas, and public transportation. This pathway is required to comply with ADA guidelines and is intended to be a seamless pathway for wheelchair and white cane users. The pedestrian zone, situated between the frontage zone and the furniture zone, is the area dedicated to walking and should be kept clear of all fixtures and obstructions.</p>	
<b>Recommended Design</b>	
 <p style="text-align: center;">Downtown Core/Main Street</p>	 <p style="text-align: center;">Low/Medium Density Residential</p>
<p>Sidewalks include four distinct zones: the frontage zone, the pedestrian (aka walking) zone, the furniture zone, and the curb zone. The minimum widths of each of these zones vary based on street classifications as well as land uses.</p>	
<b>Design Considerations</b>	<b>Design Example</b>
<ul style="list-style-type: none"> <li>• The pedestrian zone route should be firm, stable, and slip-resistant, and should comply with maximum cross slope requirements (2 percent grade). Aesthetic textured pavement materials (e.g. brick and pavers) are best used in the frontage and furniture zones, rather than the PAR. The PAR should be a minimum of 4 feet, but preferably at least 5 feet in width to provide adequate space for two pedestrians to comfortably pass or walk side by side. All transitions (e.g., from street to ramp or ramp to landing) must be flush and free of changes in level. The engineer should determine the pedestrian zone width to accommodate the projected volume of users. In no case will this zone be less than the width of the PAR.</li> </ul>	
<b>Maintenance Considerations</b>	<b>Additional Design Guidance</b>
<ul style="list-style-type: none"> <li>• Snow, ice, and rain create slippery conditions for all users. Strategies should be in place to promptly remove snow from critical pedestrian passages.</li> <li>• Sidewalk sweeping, repair and obstacle removal, such as tree branches, should be a scheduled maintenance duty.</li> </ul>	<ul style="list-style-type: none"> <li>• Los Angeles County Model Design Manual for Living Streets, Chapter 6</li> </ul>

**P.2 Bulb-outs (i.e., Curb Extensions)**

**Facility Description**

A bulb-out is an extension of the sidewalk into the roadway when there is marked on-street parking. They provide queuing space and shorten crossing distances, thereby reducing pedestrian conflict time with mainline traffic. By placing the pedestrian entry point closer to traffic, bulb-outs improve visibility between motorists and pedestrians.

**Recommended Design**

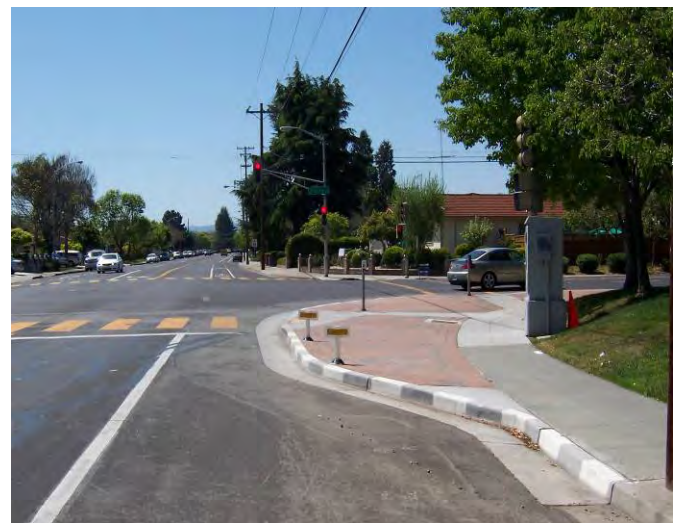


Source: Grand Valley State University

**Design Considerations**

- Should only be placed on routes with posted speeds 35 mph or less.
- Corner curb radii should be the minimum needed to accommodate the design vehicle.
- Bulb-outs should be placed at all corners of an intersection. At mid-block locations, they should be used on both sides of the street.
- The curb face of the bulb-out shall be setback from the edge of traveled way such that there is a minimum of 3 feet measured from the edge of traveled way to the joint between the shoulder pavement and the gutter pan or 3 feet to curb face without gutter pan.
- Available width for bicyclists should not be reduced along the curb face of the bulbout.

**Design Example**



Source: City of Los Altos, CA

**Maintenance Considerations**

- The turning needs of larger vehicles such as school buses need to be considered in the design.
- Street sweeping will be a part of regular maintenance along bulb-outs.

**Additional Design Guidance**

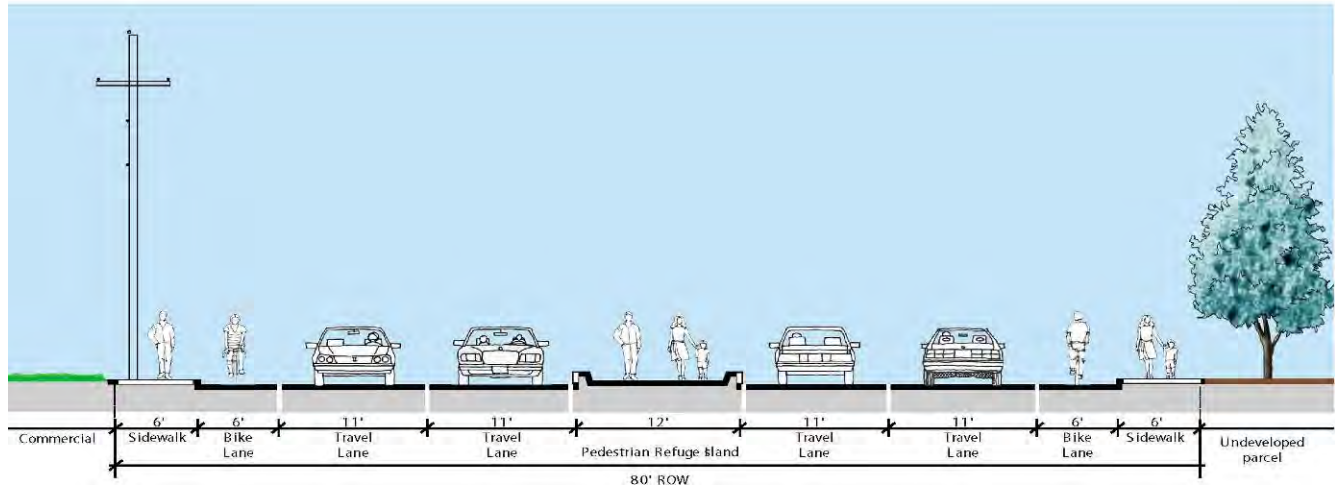
- Caltrans Highway Design Manual. 303.4.
- San Bernardino County Non-Motorized Transportation Plan. 6.5.2 Traffic Calming.

### P.3 Pedestrian Refuge Island

#### Facility Description

A refuge island for pedestrians is one at or near a crosswalk or bicycle path that aids and protects pedestrians and bicyclists who cross the roadway. They allow pedestrians to cross fewer lanes at a time while judging conflicts separately. They also provide a refuge so slower pedestrians can wait for a gap in traffic.

#### Recommended Design



#### Design Considerations

- Traffic islands used as pedestrian refuge should be large enough to provide a minimum of 6 feet in the direction of pedestrian travel.
- All traffic islands placed in the path of a pedestrian crossing must be accessible.
- Detectable warning surfaces should be constructed on each ramp entering the traveled vehicular way. These specifications can be found in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)."

#### Design Example



#### Maintenance Considerations

- Should be configured so that maintenance personnel do not have to work in traffic.
- Different paving used for refuge island must be designed to retain its integrity over time.

#### Additional Design Guidance

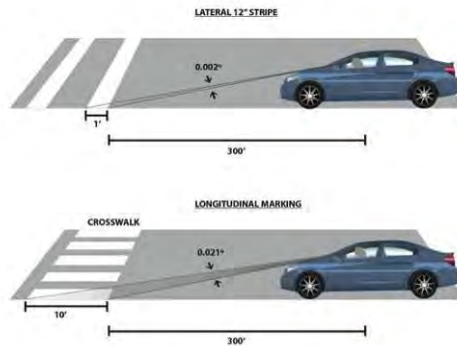
- AASHTO Geometric Design of Highways and Streets. 2004. Page 626.
- Caltrans Highway Design Manual. 403.7.
- California MUTCD Chapter 31.06

## P.4 Crosswalk

### Facility Description

Walking requires two important features in the built environment: people must walk along streets and they must get across streets. Crossing a street should be easy, safe, convenient, and comfortable. Well designed crosswalks used by alert pedestrians offer relatively safe passage across streets.

### Recommended Design



High Visibility Crosswalks

Because of the low approach angle at which pavement markings are viewed by drivers, the use of longitudinal stripes in addition to or in place of transverse markings can significantly increase the visibility of a crosswalk to oncoming traffic. While research has not shown a direct link between increased crosswalk visibility and increased pedestrian safety, high-visibility crosswalks have been shown to increase motorist yielding and channelization of pedestrians, leading the Federal Highway Administration to conclude that high-visibility pedestrian crosswalks have a positive effect on pedestrian and driver behavior.

### Design Considerations

- Ideally, uncontrolled crossing distances should be no more than 21 feet, which allows for one 11-foot lane and one 10-foot lane. Ideally, streets wider than 40 feet should be divided (effectively creating two streets) by installing a median or two crossing islands.
- Raised medians can be used to reduce risk.
- Signals or other treatments should be considered where there are many young and/or elderly pedestrians.
- Seasonal street furniture and planter boxes are used in many tourist friendly towns.

### Design Example




### Maintenance Considerations

- Maintain clear sight lines, trim vegetation, keep debris out of drainage areas.
- Snow removal should be a priority in high volume pedestrian areas.

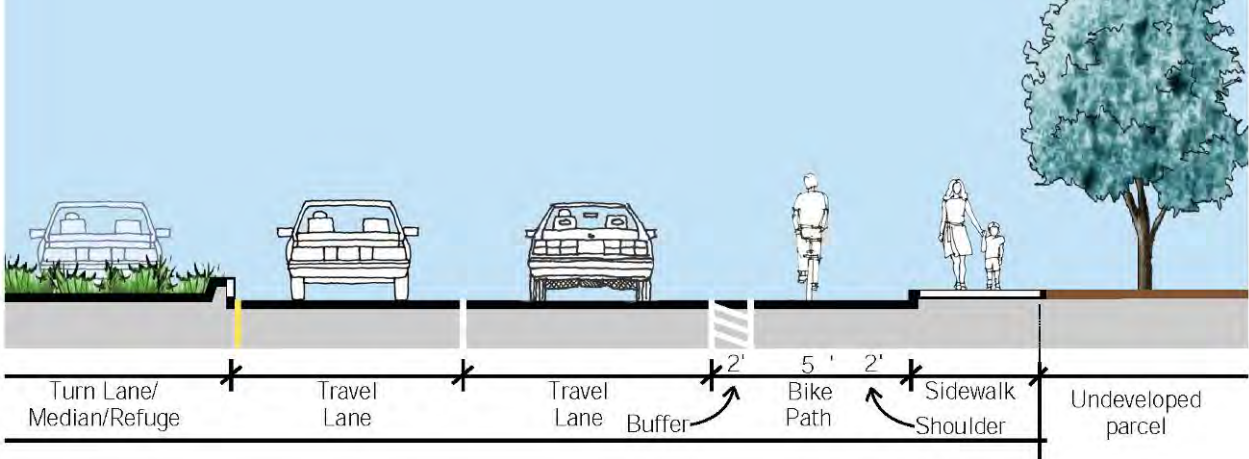

### Additional Design Guidance

- Los Angeles County Model Design Manual for Living Streets, Chapter 7
- FHWA's Designing Sidewalks and Trails for Access



P.5 Pedestrian Signals	
Facility Description	
<p>A pedestrian signal is installed at signalized locations and is designed to direct pedestrian traffic in a safe and controlled manner. A pedestrian hybrid beacon is a special type of hybrid beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk.</p>	
Design Considerations	Design Example
<ul style="list-style-type: none"> <li>• Pedestrian signal heads provide special traffic signal indications exclusively intended for controlling pedestrian traffic. Signal design shall provide for or prohibit pedestrian movements. These signal indications consist of the illuminated symbols of a WALKING PERSON (symbolizing WALK) and an UPRAISED HAND (symbolizing DON'T WALK).</li> <li>• Pedestrian signal head indications should be conspicuous and recognizable to pedestrians at all distances from the beginning of the controlled crosswalk to a point 10 feet from the end of the controlled crosswalk during both day and night.</li> <li>• For crosswalks where the pedestrian enters the crosswalk more than 100 feet from the pedestrian signal head indications, the symbols should be at least 9 inches high.</li> <li>• Pedestrian hybrid beacons shall be used in conjunction with signs and pavement markings to warn and control traffic at locations where pedestrians enter or cross a street or highway.</li> <li>• Pedestrian hybrid beacons will only be installed at marked crosswalks.</li> <li>• The pedestrian hybrid beacon should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk.</li> </ul>	 <p>Source: Econolite</p>
Additional Design Guidance	
California MUTCD Chapter 4E and 4F.	

## BICYCLE-SPECIFIC FACILITIES

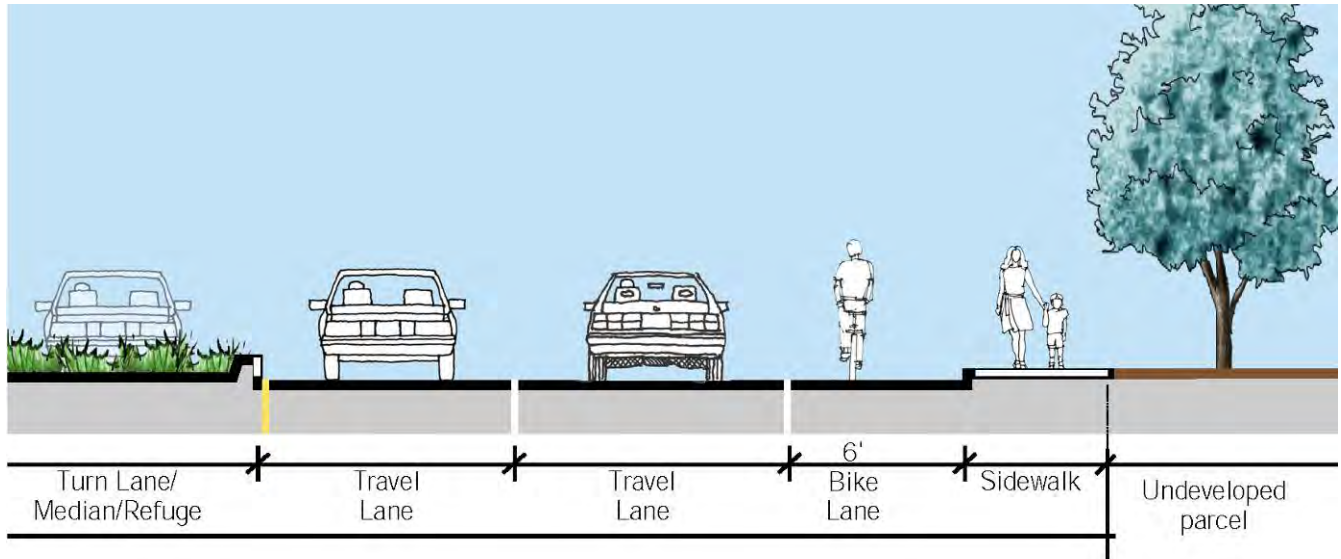
<b>B.1 Protected Bicycle Lane (Class II)</b>	
<b>Facility Description</b>	
Physically separated bike facility from vehicular traffic and pedestrian facilities. Cycle tracks can be one-way or two-way at either sidewalk level or street level.	
<b>Recommended Design</b>	
 <p>The diagram illustrates a cross-section of a Protected Bicycle Lane (Class II) from left to right. It shows a Turn Lane/Median/Refuge, two Travel Lanes, a 2-foot Buffer, a 5-foot Bike Path, a 2-foot Sidewalk Shoulder, and an Undeveloped parcel. A tree is shown on the right side of the sidewalk.</p>	
<b>Design Considerations</b>	<b>Design Example</b>
<ul style="list-style-type: none"> <li>• One-way cycle tracks range from 5 feet to 7 feet in width. The minimum paved width of travel way for a two-way bike path shall be 8 feet, 10-feet is preferred.</li> <li>• A 2 feet shoulder of the same material as the bikeway, free of vegetation should be provided on both sides in areas where no other structures are present. However, in areas where other structures are present a 3 feet parking buffer should be provided to avert door collisions.</li> </ul>	 <p>A photograph showing a protected bicycle lane on a city street. A cyclist is riding in the lane, and a child is riding a smaller bicycle nearby. A car is visible in the adjacent travel lane.</p>
<b>Maintenance Considerations</b>	<b>Additional Design Guidance</b>
<ul style="list-style-type: none"> <li>• Special street sweeping and snow removal equipment may be required</li> <li>• Snow removal procedures should avoid creation of snow banks on buffer areas. In order to simplify snow removal, the cycle track may be constructed at sidewalk level.</li> </ul>	<ul style="list-style-type: none"> <li>• Caltrans Highway Design Manual (Chapter 1000 Section 1003.1)</li> <li>• Bicycle boulevards are not defined as bikeways by Caltrans Highway Design Manual</li> <li>• AASHTO Guide for the Development of Bicycle Facilities, Chapter 2</li> <li>• California MUTCD Section 9B.01</li> <li>• NACTO pages 59-74</li> </ul>

## B.2 Bike Lane (Class II)

### Facility Description

A Class II bike lane is defined as a portion of the roadway that has been designated by striping, signage and pavement markings for the preferential or exclusive use of bicyclists. They enable bicyclists to ride at their preferred speed without interference from prevailing traffic conditions and facilitate predictable behavior and movements between bicyclists and motorists.

### Recommended Design



### Design Considerations

- The minimum class II bike lane width shall be 4 feet.
- Where adjacent to on-street parking, the minimum bike lane width should be 5 feet.
- Where posted speeds are greater than 40 mph, the minimum bike lane width should be 6 feet.
- On highways with concrete curb and gutter, a minimum width of 3 feet measured from the bike lane stripe to the joint between the shoulder pavement and the gutter shall be provided.
- As grades increase, downhill bicycle speeds increase, warranting the need for increases in bicycle lane width.

### Design Example



Source: New York City

### Maintenance Considerations

- Bike lane striping should be maintained to be legible
- Bike lanes should be cleared of snow, glass, potholes and other hazardous materials
- If utility cuts are needed, they should be filled back to the same grade and smoothness as the original surface.

### Additional Design Guidance

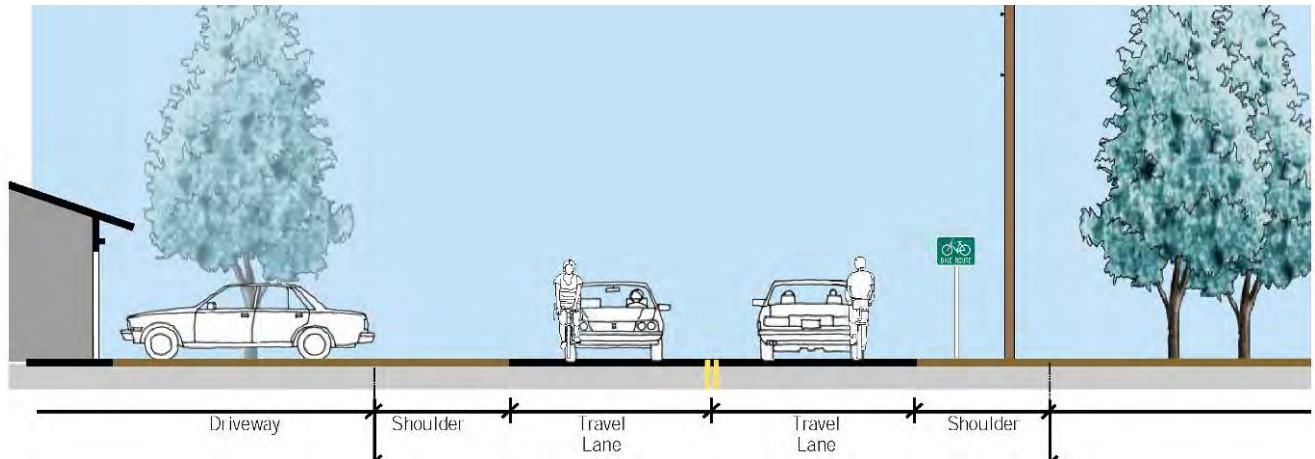
- NACTO pages 5-57
- Highway Design Manual, Chapter 300
- California MUTCD, Section 9C.04.

### B.3 Bike Boulevard (Class 2.5)

#### Facility Description

A bike boulevard is a shared bicycle facility on a residential or local street enhanced with traffic calming treatments that slows traffic, reduces cut through traffic and where bicycle traffic is given priority.

#### Recommended Design



#### Design Considerations

- Bike Boulevards are designed to promote bicycle travel by maintaining low vehicular speeds and volumes by incorporating traffic calming treatments such as roundabouts, pop-outs, pavement markings and signage.
- The route provides through and direct travel in bicycle-demand corridors.
- Shared lane markings can be used as a standard element in the development of bicycle.

#### Design Example



#### Maintenance Considerations

- The smoothness of the riding surface affects the comfort and safety of bicyclists. As pavements age it may be necessary to fill joints or cracks or overlay the pavement to maintain a suitable and even cycling surface

#### Additional Design Guidance

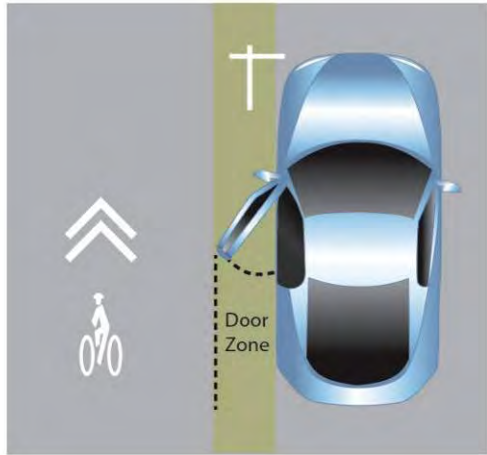
- AASHTO Guide for the Development of Bicycle Facilities, Chapter 2
- Bicycle boulevards are not defined as bikeways by Caltrans Highway Design Manual

### B.4 Shared Route (Class III)

#### Facility Description

A Class III Shared Route is designed to guide cyclists and to inform motorists of cyclist's use of the road or travel lane. Can be marked with "sharrows" and signs that read "Bicyclists May Use Full Lane".

#### Recommended Design



#### Design Considerations

- Sharrows installed next to parallel parking should be a minimum distance of 11 feet from the curb. Installing farther than 11 feet from the curb may be desired in areas with wider parking lanes or in situations where the sharrow is best situated in the center of the shared travel lane to promote cyclists taking the lane.
- On low speed rural roads without shoulders, sharrows may be used to inform drivers of shared road conditions.

#### Design Example



#### Maintenance Considerations

- Placing the sharrow between vehicle tire tracks increases the life of the markings and decreases long-term maintenance costs.

#### Additional Design Guidance

- Los Angeles County Model Design Manual for Living Streets, Chapter 8
- MUTCD Chapter 9C

### B.5 Bicycle Merging Signage and Signalization

Signage and electronic notice to motorists indicating bicyclists merging from shoulder to travel lane on rural roads. As seen in the photo below, this application is designed for use on rural roads where the shoulder is intermittent or there exists short sight distances for motorists due to turns or elevation change and use by bicyclists is legal.

#### Facility Description

#### Recommended Design



Mounted on a single pole is a solar panel on top, yellow bike sign, a yellow flashing beacon, sign below reads "BIKES IN ROAD WHEN LIGHTS FLASH SPEED 30", and a motion sensor targeting a space on the shoulder marked for cyclists to ride across that reads, "RIDE HERE TO ACTIVATE WARNING LIGHT".

#### Design Considerations

- Signs are placed along rural roads where the shoulder is intermittent and/or there exists short sight distances for motorists due to turns or elevation change
- Beacon timing is set to allow sufficient time for cyclists to clear the shared travel lane and return to shoulder riding.
- Sharrows should be considered along these routes where no shoulder exists and the speed limit is 35 or under.

#### Design Example



#### Maintenance Considerations

- Bicyclist detection zone should be kept free of debris

#### Additional Design Guidance

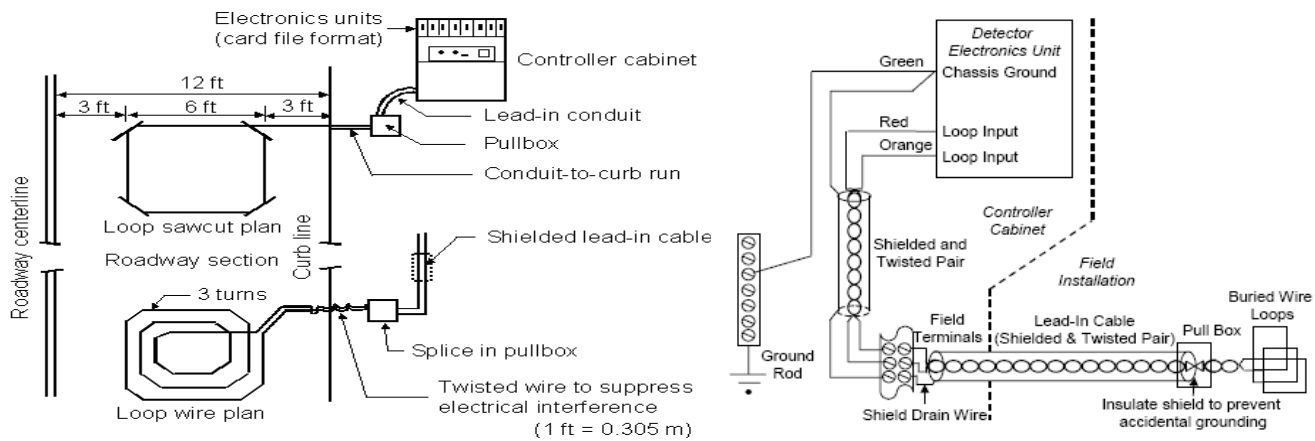
- CAMUTCD

## B.6 Bicycle Detection at Signalized Intersections

### Facility Description

Bicycle signals and beacons facilitate bicyclist crossings of roadways. Bicycle signals make crossing intersections safer for bicyclists by clarifying when to enter an intersection and by restricting conflicting vehicle movements. Bicycle detection at traffic signals is used at actuated signals to alert the signal controller of bicycle crossing demand on a particular approach.

### Recommended Design



Source: Federal Highway Administration

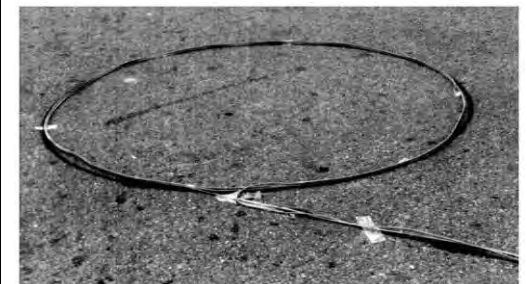
### Design Considerations

- The sensitivity of standard video, microwave, and in-pavement loop detectors shall be adjusted to ensure that they detect bicyclists.
- Due to magnetic field symmetry, the center of inductive loops is the most sensitive location for detection for both diagonal slashed detectors and quadropole loop detectors. Square and unmodified circle detectors are most sensitive at their edge.
- If not provided within a dedicated bike lane, shoulder or cycle track, bicycle signal detection shall be visible to bicyclists through signs and/or stencils so that bicyclists know that the intersection has detection and where to position their bicycle to activate the signal.
- If provided, push button activation shall be located so bicyclists can activate the signal without dismounting. If used, push buttons should have a supplemental sign facing the bicyclist's approach to increase visibility.
- On streets with bike lanes or bikeable shoulders, bicycle detectors shall be located in the bike lane or shoulder. Detection shall be located where bicycles are intended to travel and/or wait. If leading signal detection is provided, it shall be located along a bike lane or in the outside travel lane. Detection at signals shall be placed where bicyclists wait, either in the center of a bike box or immediately behind the stop bar in the bike lane.

### Design Example



Source: Bike Long Beach



Source: Federal Highway Administration

### Additional Design Guidance

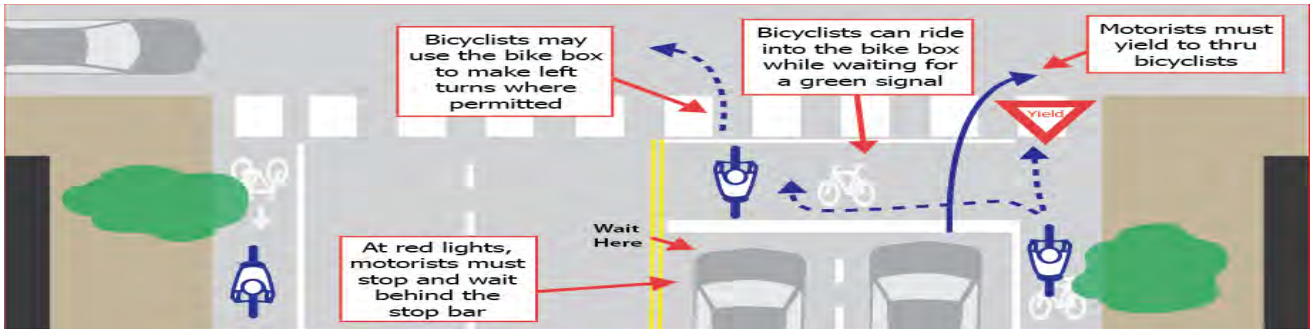
- California MUTCD Chapter 9.
- NACTO Urban Bikeway Design Guide. Page 215-220.

## B.7 Bike Boxes

### Facility Description

A bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase.

### Recommended Design



Source: City of Minneapolis, MN

### Design Considerations

- A box formed by transverse lines shall be used to hold queuing bicyclists typically 10-16 feet deep.
- Stop lines shall be used to indicate the point behind which motor vehicles are required to stop in compliance with a traffic control signal. MUTCD 3B.16
- Pavement markings shall be used and centered between the crosswalk line and the stop line to designate the space as a bike box. The marking may be a Bike Symbol (MUTCD 9C-3A) or a Helmeted Bicyclist Symbol (MUTCD 9c-3B).
- In cities that permit right turns on red signal indications, a “No Turn on Red” sign shall be installed overhead to prevent vehicles from entering the Bike Box. (MUTCD R10-11, R10-11a, or R10-11b)
- A “Stop Here on Red” sign should be post mounted at the stop line to reinforce observance of the stop line (MUTCD R-10-6a).
- Colored pavement should be used as a background color for the bike box, encouraging motorist compliance.
- An ingress lane should be used to define the bicycle space. Colored pavement may be used. When color is used, the length shall be 25 to 50 feet to guarantee bicycle access to the box.
- An egress lane should be used to clearly define the potential area of conflict between motorists and bicyclists in the intersection when intersection is operating on a green signal indication.
- A “Yield to Bikes” sign should be post-mounted in advance of and in conjunction with an egress lane to reinforce that bicyclists have the right-of-way going through the intersection (MUTCD R10-15, 9C-3B, R1-5, R1-5a).

### Design Example



Source: Bike Portland

### Maintenance Considerations

- Colored pavement surface may be costly to maintain, especially in climates prone to snow/ice.
- Placement of markings between tire tracks will reduce wear.

### Additional Design Guidance

- NACTO Urban Bikeway Design Guide page 106-121.



## B.8 Bicycle Parking

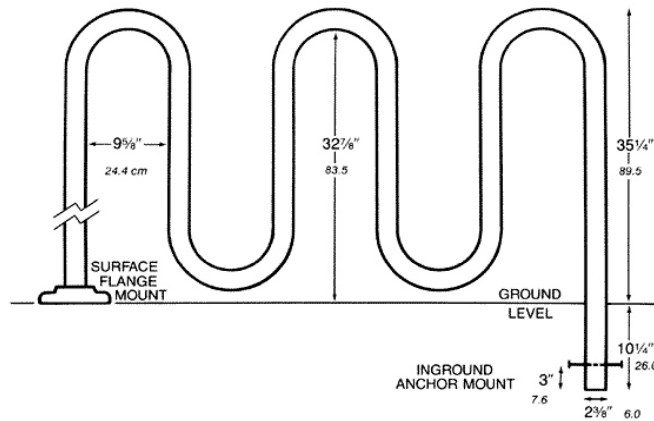
### Facility Description

Secure and convenient bicycle parking is necessary for a successful bicycle network. Neighborhood business districts install bike racks to encourage bicycling for short trips and errands. The racks provide safe and convenient bicycle parking.

Aside from the fact that a single on-street bike rack can accommodate many more bicyclists than a typical bike rack, pedestrians also benefit from the reduced clutter along increasingly-encumbered sidewalks. Installing on-street bike racks near intersections or driveways can also enhance sight distance for motorists—a safety enhancement for all users of the transportation network.

Consider installing on-street bike parking upon the request of the adjacent business owner. Converting a motor vehicle parking space to on-street bike parking is typically warranted in locations where bicycle parking demand is high and sidewalks are constrained—for example, outside of restaurants with sidewalk cafes or in neighborhoods with narrow sidewalks flanked with tree pits and assorted street furniture.

### Recommended Design



Source: McGraw Hill Construction

### Design Considerations

- Bike racks and corrals should be located as close as possible to the destination’s desired entrance without impeding pedestrian access.
- In business districts racks and corrals should be placed in well-lit locations and frequently spaced for convenience.
- Racks can be installed in bus stops or loading zones only if they do not interfere with boarding or loading patterns and there are no alternative locations.
- Bike racks should be unobtrusive, have no sharp edges or moving parts, and require little maintenance.

### Design Example



### Maintenance Considerations

- Racks installed on sidewalks generally do not effect routine sidewalk cleaning. Corrals installed on-street require occasional hand sweeping.

### Additional Design Guidance

- Los Angeles County Model Design Manual for Living Streets, Chapter 8
- Seattle Bike and Pedestrian Program

## EQUESTRIAN-SPECIFIC FACILITIES

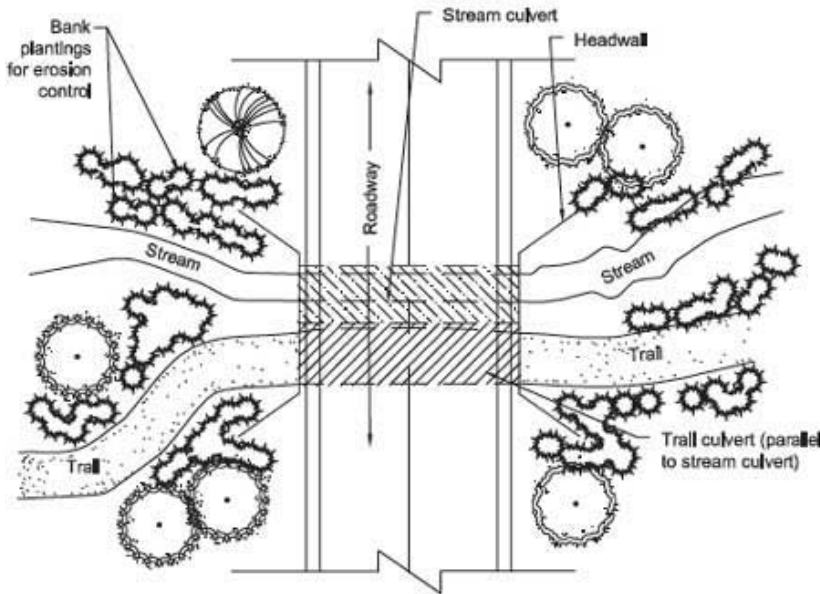
E.1 Equestrian Parking and Staging	
Facility Description	
Trailheads and other parking and staging areas designated for equestrian use	
Recommended Design	
<p>The diagram illustrates the required parking dimensions for horse trailers. A 28-foot wide parking space is divided into four sections: 4 feet, 8 feet, 12 feet, and 4 feet. The length of the parking space is either 55 feet or 78 feet. A 15-foot minimum unloading space is indicated at the end of the trailer. Two views of a truck and trailer are shown: one with a 2-horse trailer and one with a 4-horse trailer.</p>	<p>A 19-foot (5.8-meter) pickup truck towing a bumper pull, two-horse trailer would require a total length of 55 feet (16.8 meters) to park and unload safely. This includes a 15-foot (4.6-meter) unloading area plus walking space at both ends of the vehicle.</p> <p>A four-horse gooseneck trailer drawn by a 19-foot pickup truck would need 78 feet (23.8 meters) for parking and loading. A 78-foot-long parking space covers most parking and loading needs. Forty-two-foot (12.8-meter) motorhomes pulling six-horse trailers with interior living quarters may need a space 110 feet (33.5 meters). If these long trailers are common or expected in the facility, provide several longer spaces for them. If local riders commonly use two-horse trailers, provide some 55-foot- (16.8-meter) long spaces for them.</p> <p>Minimum outside turning radius required into and within trailhead parking area is 25 feet, with designated turning lanes for safer entry/exit both into/out of trailhead from paved highway due to slower speeds of vehicles turning with horse trailers. Ideal parking space width is 28 feet.</p>
Design Considerations	Design Example
<ul style="list-style-type: none"> <li>• Suitability of Trailhead Location:                             <ul style="list-style-type: none"> <li>A. Publicly managed access location</li> <li>B. Adequate acreage</li> <li>C. Generally Flat Topography</li> <li>D. Ease of Roadway Access</li> <li>E. Appropriate sightlines for safe access/egress</li> <li>F. Adequate roadway and trailhead signage</li> <li>G. Appropriate parking area surface treatment</li> </ul> </li> <li>• Access to water source with drain features</li> <li>• Perimeter fencing and equestrian gate design</li> <li>• Conflicting user groups near trailhead (target shooting, model airplanes, hot air balloons, etc.)</li> <li>• Dark skies compliant lighting fixtures</li> <li>• Mounting blocks and/or mounting ramps</li> </ul>	<p>A photograph showing a white horse trailer parked in a lot. A horse is standing next to the trailer. The trailer has a ramp extended to the ground.</p>
Maintenance Considerations	Additional Design Guidance
<ul style="list-style-type: none"> <li>• Establish land manager agreements regarding the removal of manure, trailhead surface maintenance, seasons of use, and appropriate closures to use.</li> <li>• Possible closure due to snow, ice and snow removal to provide a safer recreational experience</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Equestrian Design Guidebook for Trails, Trailheads and Campgrounds</i>, Federal Highway Administration, U.S. Department of Transportation; 2009</li> <li>• <i>Safe Fencing for Horses</i>, Kevin Kline, Ph.D. University of Illinois; 2005</li> </ul>

**E.2 Below-Grade Trail Crossings**

Facility Description

Below-grade equestrian trail user roadway crossings and wildlife corridor

Recommended Design



A culvert shared by a stream and the trail. When flooding occurs, both courses channel floodwater.

Graphic illustrates a culvert that carries water and also includes a trail. Inside the culvert, a channel along the outer edge of the trail carries water out of the culvert.

Abutments direct the water to a recessed, reinforced catchment area below the trail tread for erosion control and to reduce water damage to the trail tread.

Design Considerations

- Culvert a minimum of 8 feet clear in width and 10 feet in height, with 14-foot height preferred
- Raised trail corridor at north and south culvert approaches with decomposed granite or other natural stabilized surface material
- Trail inside culvert flush with base of culvert
- Trail tread approach to and inside culvert to be natural soils or textured with water-washed concrete aggregate surface or concrete grooves at right angle to travel direction of equestrian users
- Mounting blocks at each end of a culvert should be provided for equestrian use
- Provide lighting at approaches to and inside culvert
- Water abutments to deflect water into catchment area to slow water flow to help reduce scouring and other water flow damages to trail surface

Design Example



Maintenance Considerations

- Regular maintenance to maintain trail tread surface, removal of vegetative and rock material that may flow into the culvert, and replacement of materials washed away from the catchment pond area.
- Repair and replacement of any lighting installed in the culvert area.

Additional Design Guidance

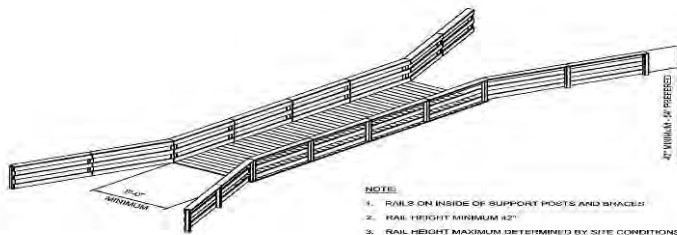
- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009
- U.S. Department of Defense, Army Corps of Engineers – “*Recreation Planning and Design Criteria*,” 2004

### E.3 Above-Grade Trail Crossing

#### Facility Description

Above-grade equestrian trail user roadway crossing and wildlife corridor bridge

#### Recommended Design



- NOTE:**
1. RAILS ON INSIDE OF SUPPORT POSTS AND BRACES
  2. RAIL HEIGHT MINIMUM 42"
  3. RAIL HEIGHT MAXIMUM DETERMINED BY SITE CONDITIONS
  4. CROSS TIMBER, WOOD DESIGN LUMBER WITH MAXIMUM SEPARATION OF 36" BETWEEN LUMBER
  5. MINIMUM LOAD CAPACITY TO BE DETERMINED BY STRUCTURAL ENGINEER IN CONSULTATION WITH AGENCY AND INTENDED USE AND USERS.
  6. MINIMUM WIDTH 8'-0", DESIRED WIDTH 12'-0"
  7. BRIDGE APPROACH OF NATURAL SOILS / NATURAL MATERIALS (I.E. D.G., SAND, WOOD CHIPS, ETC.)
  8. 2" x 8" MINIMUM SIZE LUMBER FOR RAILINGS
  9. NO PAINT ON WOOD BRIDGE, BEST PAINT COLOR ON METAL BRIDGE TO BLEND WITH SURROUNDING ENVIRONMENT
  10. WOOD COMPONENTS SHALL BE FACTORY TREATED WITH WOOD PRESERVATIVES
  11. TAPER RAILINGS AT BEGINNING AND END OF BRIDGE



(Refer to engineering drawings developed for the site conditions at above-grade trail crossing locations)

#### Design Considerations

- Above grade crossing with natural materials on bridge trail surface, vegetation, and walls suitable to wildlife habitat in area (see top photo at right)
- Bridge connects trail systems between east and west or north and south
- Bridge to be a minimum of 8 feet in width; 12 feet in width preferred, with 12-foot height clearance
- Bridge design to include approach rails or "wings" when possible to guide horses and pack stock at trail entrance to bridges to help reduce equine resistance
- Camber of bridge not to exceed 5% if possible, with sightlines to both ends of bridges if possible
- Bridge to have railings at least 42-54 inches in height, with rub rails at 30-36 inches in height to keep stock packs, panniers, horse saddles, riders' stirrups, and other equipment from snagging on bridge posts.
- Bridge design must be developed by engineers and built to specifications suitable to the site and the loads anticipated with equestrian use
- Provide signage informing users of right-of-way guidelines

#### Design Example



#### Maintenance Considerations

- All aspects of the bridge must be maintained regularly based upon the design and materials used in the construction of the bridge
- Bridge approaches may experience soil erosion over time; geosynthetic materials installed under soils at bridge approaches can help hold the soils in place and the trail tread flush with bridge surface

#### Additional Design Guidance

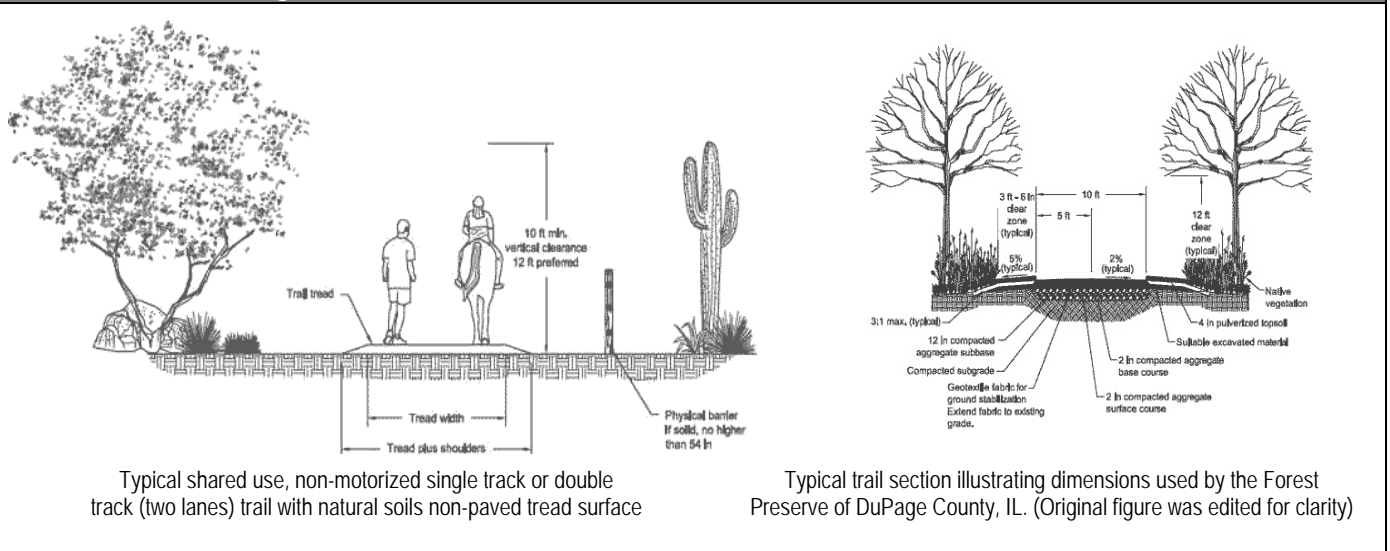
- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009
- *Standard Specifications for Highway Bridges* (AASHTO 1996) is available from the U.S. Department of Transportation, Washington D.C.

## E.4 Trail System Equestrian Corridors

### Facility Description

Trail treads and trail corridors for equestrian use designed to accommodate other non-motorized trail users

### Recommended Design



### Design Considerations

- Maintain minimum trail corridor and trail tread design dimensions for non-motorized trail users
- Maintain trail envelope guidelines for trimming vegetation for horizontal and vertical clearances
- Follow contour lines on elevation changes in trail corridor with an average of 5-10% grade or less
- Provide climbing turns and switchbacks with a minimum of 5 to 8-foot radius
- Avoid toxic vegetation to animals on trail routes
- Provide fenceline gates with a minimum of 5-foot widths for pack stock trail users
- Avoid steps in trail tread; if steps are installed the landing should be 5-feet deep and risers under 8 inches in height
- Install grade reversals, rolling grade dips, knicks, rock and vegetative swales and outslopes to help prevent tread erosion from water runoff on trail
- Use geosynthetics or other soil stabilization techniques to support unstable tread soils
- Provide 8-foot wide trail tread for two-way trail users and horse-drawn carts or carriages

### Design Example



### Maintenance Considerations

- Reduce erosion of trail tread through the use of sustainable trail design practices and the regular replacement of soils in trenched trail tread areas
- Seasonal trimming of vegetation and removal of deadfall to create a safer horseback riding, pack stock, and carriage or sleigh trail-use corridor

### Additional Design Guidance

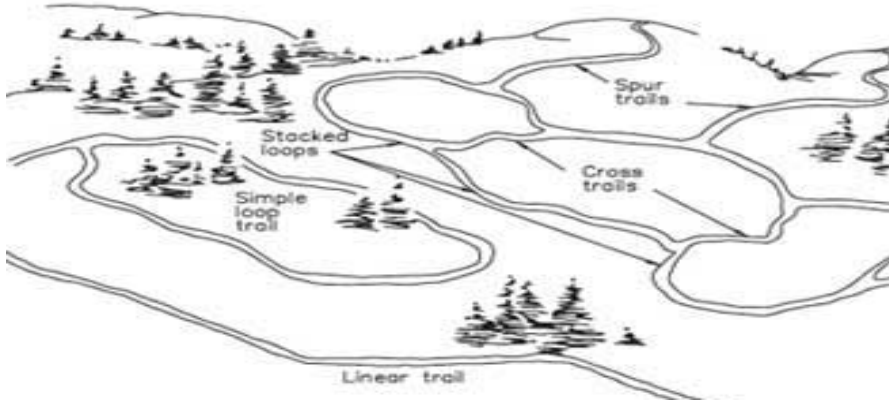
- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009
- *Horse Owners Field Guide to Toxic Plants*, Berger, 1996

### E.5 Equestrian Trail Linkages and Loop Trail System

Facility Description

Link existing trails and provide stacked loop trail opportunities

Recommended Design



Linked loop trails are preferred by equestrians. Trail lengths of 3-5 miles or more are appealing to equestrians. See table of estimated equine travel speeds in Equestrian Design Guidebook listed in Resources below.

Design Considerations

- Link existing trails and plan new trails to link to existing and new city equestrian areas
- Prioritize linking existing trails and trail corridors to high-use trail locations and trails leading to high demand destinations
- Provide linkages to federal, state, county, and city trail systems
- Plan trails and trail links to achieve a preferred 5-mile length or more for optimum equestrian recreational enjoyment
- Connect existing and new trails with the purpose of creating loop trail systems of varying lengths and user experiences
- Provide stacked loop trails with options for differing levels of difficulty when appropriate
- Provide mounting blocks at trail locations requiring equestrians to dismount, such as at gate locations.
- Climbing turns require a minimum 5-foot radius with a preferred minimum radius of 6-8 feet
- Plan trail alignments along land contour lines for trail sustainability and provide equestrian sightlines to enhance trail user safety

Design Example

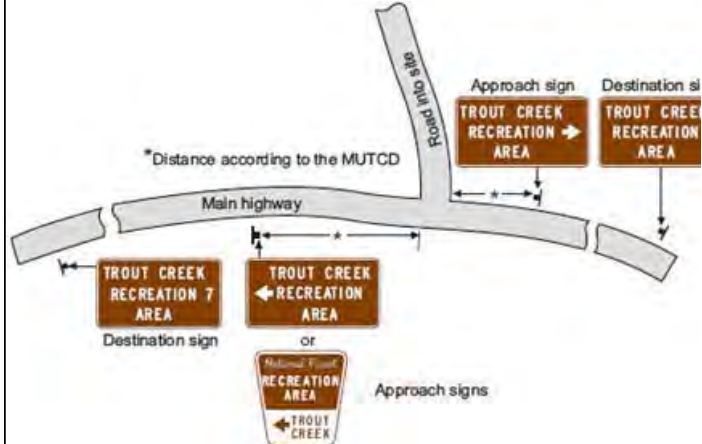




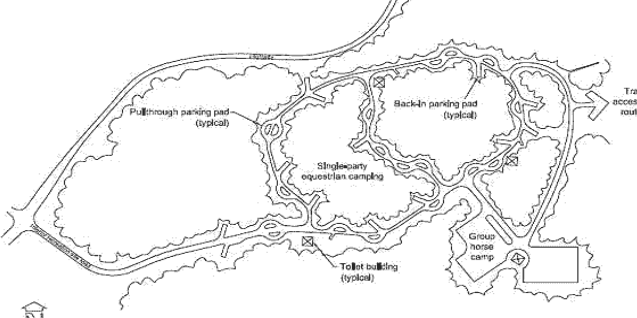
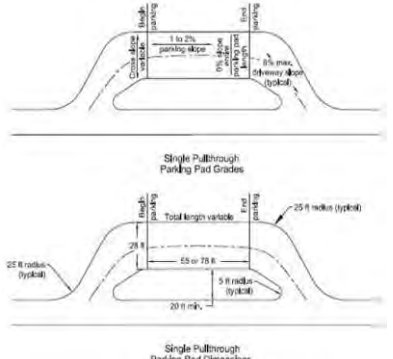

Maintenance Considerations

- Plan and design trails with sustainable trail treads to reduce land manager maintenance
- Trim vegetative growth that extends and limits clearances in the trail corridor envelope
- Consider trail closures when trail areas are wet from snow melt or rain to help reduce trail tread damage from equestrian use

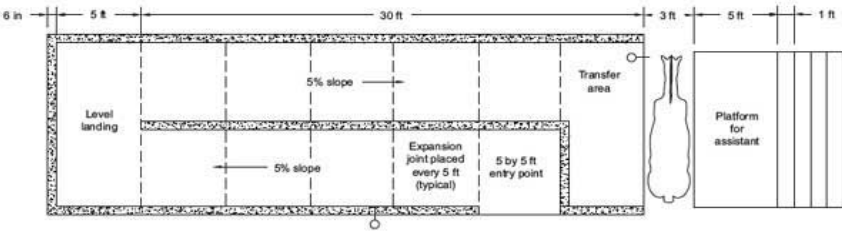


Additional Design Guidance

- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009
- American Trails Website- [www.AmericanTrails.org](http://www.AmericanTrails.org): "[Recommended Standardized Trail Terminology for Use in Colorado](#)" (COTI 2005)

E.6 Equestrian-Use Trail, Interpretive and Wayfinding Signs	
Facility Description	
Highway signs, roadway crossing signs, interpretive signs and wayfinding signs	
Recommended Design	
	
Design Considerations	Design Example
<ul style="list-style-type: none"> <li>• Engineers, land managers, highway departments and landscape architects should collaborate to determine how best to sign roads, trailheads, campgrounds, and in many cases, trails</li> <li>• Develop a sign plan to provide the framework for an effective sign program following MUTCD guidelines</li> <li>• Highways and roads should have regulatory, warning, and guide or wayfinding signs</li> <li>• Recreation sites (non road signs) should have local emergency contact numbers at information stations</li> <li>• Trailheads should have regulatory, warning, and guide signs; site identification signs, interpretive signs, and signs at visitor information stations</li> <li>• Provide maps, signs, or handouts to help trail users make informed recreation site choices</li> <li>• Standard posted trail information includes trail name, number, destination, elevation, and distance</li> <li>• Accessibility information to include maximum trail grade, minimum trail width, typical and maximum trail slope, type and firmness of trail surface, and any major obstacle(s) existing on the trail route</li> </ul>	
Maintenance Considerations	Additional Design Guidance
<ul style="list-style-type: none"> <li>• Reevaluate existing and planned signs annually to create an action plan for sign replacement, repair, graffiti removal, etc.</li> <li>• Provide signage with "Leave No Trace" guidelines</li> <li>• Remove dated sign information promptly</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Equestrian Design Guidebook for Trails, Trailheads and Campgrounds</i>, Federal Highway Administration, U.S. Department of Transportation; 2009</li> <li>• FHWA - Manual on Uniform Traffic Control Devices 2004A found at <a href="http://muted.fhwa.dot.gov">http://muted.fhwa.dot.gov</a></li> </ul>

E.7 Equestrian Campground/Recreation Site	
Facility Description	
Overnight camping and recreation sites may have more amenities than day use only recreational facilities	
Recommended Design	
 <p>Houston Mesa Horse Camp Payson Ranger District Toronto National Forest</p> <p>No Scale</p>	 <p>Single Pullthrough Parking Pad Grades</p> <p>Single Pullthrough Parking Pad Dimensions</p>
Design Considerations	Design Example
<ul style="list-style-type: none"> <li>• Camp units are designed for overnight use and can provide spaces for both riders and their stock</li> <li>• Campground must have perimeter fencing</li> <li>• Camp units can include ways to confine stock, such as a corral, hitching post, or highline, which should be level and drain away from living areas.</li> <li>• Parking pad space in a camp unit provides a space for a towing vehicle and horse trailer and it must be level or not more than a 1 to 2 percent grade</li> <li>• Parking spaces can be configured for pulling in, backing in, or the preferred pull-through design</li> <li>• Campground facilities can provide many amenities, including access to trails, water sources such as hydrants and troughs, round pens, wash racks, utilities, lighting, manure disposal sites, and various structures such as toilet and shower buildings, shelters, picnic tables, lantern posts, and fire rings</li> <li>• Prevailing wind should not carry smoke and odors into campsite and stock areas of campsite</li> <li>• All surfaces in campground should be horse friendly and ribbon curbing should be utilized</li> <li>• Camping sites can be designed for individual, shared, or large group camping areas</li> <li>• Restroom and shower buildings should be located on the perimeter of the campground roadways</li> </ul>	
Maintenance Considerations	Additional Design Guidance
<ul style="list-style-type: none"> <li>• Control of manure and flies is important to the comfort of campers and stock; provide instructions to campers on how they are to handle manure</li> <li>• Refrain from the use of wood for corrals, hitching posts, and protect trees from highline damage</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Equestrian Design Guidebook for Trails, Trailheads and Campgrounds</i>, Federal Highway Administration, U.S. Department of Transportation; 2009</li> <li>• Published "Leave No Trace" and "Tread Lightly" User Guidelines available from these organizations</li> </ul>



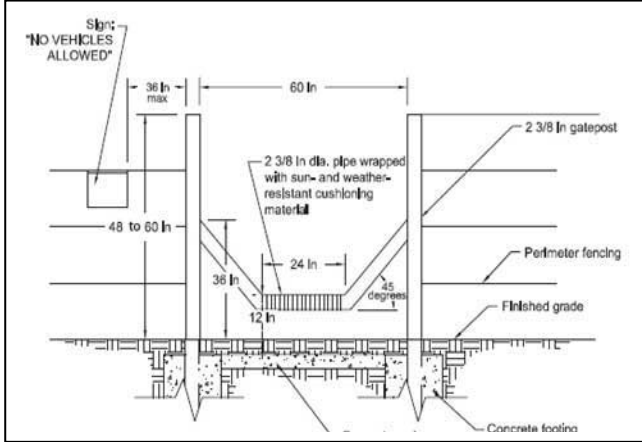
E.8 Accessibility Accommodations for Equestrians with Disabilities	
<p>Facility Description</p> <p>Public sites offering recreational opportunities can provide accessibility amenities for equestrians</p>	
<p>Recommended Design</p>	
 <p>Typical ramp design for equestrians with disabilities illustrating position of horse at the mounting location</p>	
<p>Design Considerations</p> <ul style="list-style-type: none"> <li>• Persons with disabilities can readily experience the recreational opportunities associated with riding horses and mules on public lands through the assistance of mounting blocks and ramps available at trailhead and campground locations</li> <li>• The design and location of mounting-assisted riding amenities should be separate from other active facility areas to provide a safer, quiet environment</li> <li>• On trails with moderate-to-heavy use that include riders with disabilities, increase the size of pull-off areas to 12 feet deep by 15 feet long, allowing trail users to pass or reverse direction when necessary</li> <li>• Riders with disabilities frequently need side walkers who provide assistance if necessary, so trail areas requiring fording streams or topography challenges for side walkers should be noted on trail signage</li> <li>• Site-specific design considerations to accommodate equestrians with disabilities can often be addressed by therapeutic organizations, programs, equipment and training opportunities available from accredited sources worldwide</li> </ul>	<p>Design Example</p> 
<p>Maintenance Considerations</p> <ul style="list-style-type: none"> <li>• Construction and maintenance of special use facilities and structures to accommodate equestrians with disabilities must be professionally planned and installed</li> <li>• Trail corridors must have vegetation trimmed to provide side walkers with a clear pathway to accompany a rider with disabilities, an additional 3-4 feet wider than the standard trail corridor</li> <li>• Repairs to structures providing access to persons with disabilities must be executed immediately if there is a maintenance concern relating to the safety of the equestrian or animal being ridden</li> </ul>	<p>Additional Design Guidance</p> <ul style="list-style-type: none"> <li>• <i>Accessibility Guidebook for Outdoor Recreation and Trails</i> (Zeller and others 2006) describes the history of accessibility guidelines, discusses tools for planning accessible recreation opportunities, and provides practical information for applying the FSORAG and FSTAG to recreation features.</li> <li>• <i>Equestrian Design Guidebook for Trails, Trailheads and Campgrounds</i>, Federal Highway Administration, U.S. Department of Transportation; 2009</li> <li>• PATH International program guidelines and facility specifications available at <a href="http://www.pathIntl.org">www.pathIntl.org</a></li> </ul>

## E.9 Securing Horses and Mules

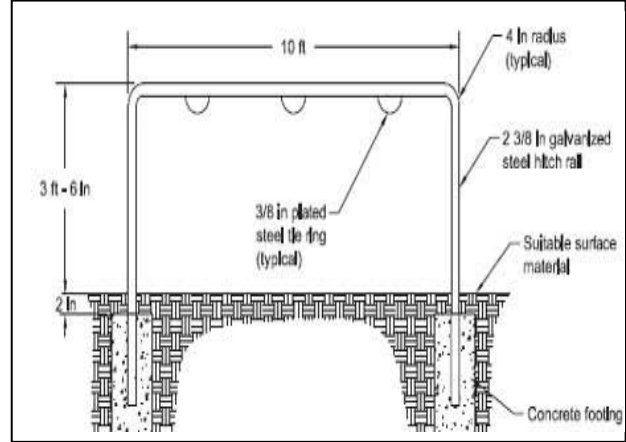
### Facility Description

Perimeter Fencing, Gates and Latches, and Tethering Devices

### Recommended Design



Step-over gate design



Hitch rail design

### Design Considerations

- Equestrian Trail, Trailhead and Campground locations:
  - A. Perimeter fencing recommended for safety
  - B. Fence materials and construction to meet suitability recommendations for equine-use materials, size, number of rails, and height
  - C. Trail fence gates to allow minimum of 60 inches of clear space for pack stock
  - D. Equestrian gates required at cattle guards
  - E. Gate latches preferred that provide ease of operation for mounted equestrians
  - F. Step-over gates to be minimum of 60 inches wide above 3 feet in height for pack stock, with 8-12 inches in height at bottom crossbar gate
  - G. Hitch rails, high-lines, picket lines and corrals to be constructed and installed with guidelines for safety and sustainability
  - H. Gates to offer accessible design for riders with disabilities where appropriate

### Design Example



### Maintenance Considerations

- Construct fences, gates, tethering devices and equine enclosures of sustainable materials; avoid wood as equines will eat wood
- Gates require monitoring of hinges and latches to maintain functional operation
- Step-over gates require stabilized surface under step-over cross bar to prevent trenching

### Additional Design Guidance

- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009
- Kline, Kevin H., Ph.D. 2005. *Safe fencing for horses*. Urbana, IL: University of Illinois. Available: <http://www.trail.uiuc.edu/horsenet/paperDisplay.cfm?ContentID=6727>

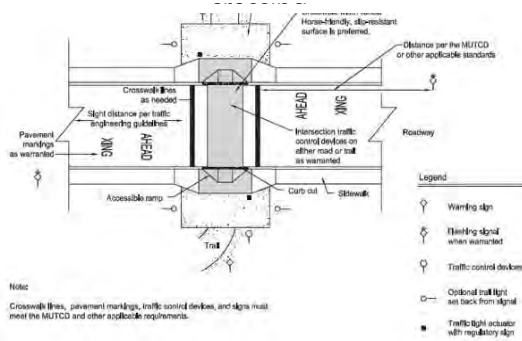
<h2 style="background-color: #2c5e8c; color: white; padding: 5px;">E.10 Plant and Landscape Materials</h2>	
<p><b>Facility Description</b></p>	
<p>Trail, trailhead, and campground non-toxic plant materials and plants dangerous to horses and mules</p>	
<p><b>Recommended Design</b></p>	
<p><b>Design Considerations</b></p>	<p><b>Design Example</b></p>
<ul style="list-style-type: none"> <li>• Plants that encroach on the recommended height and width of trail corridors should be trimmed on a seasonal basis to provide a safe envelope of space</li> <li>• Numerous plants are toxic to equines and should be removed from trail corridors, trailheads, and campgrounds used by equestrians</li> <li>• Trail corridors should be designed to have minimum impact on plants identified for protection</li> <li>• Plants posing a safety hazard to equines should be inventoried and considered for relocation rather than destroyed, where feasible</li> <li>• Plants native to the trail, trailhead, and campground areas are preferred</li> <li>• Trees, shrubs, cacti and succulents, groundcovers and vines, and flowering plants known to be hazardous to horses and mules should be listed on maps and information provided on websites, in apps, and at user locations, including trailhead and campground signage.</li> <li>• Follow guidelines for plant species that are toxic to equines provided in the published resources listed under Additional Design Guidance below.</li> <li>• Land managers to provide grazing restrictions</li> </ul>	
<p><b>Maintenance Considerations</b></p>	<p><b>Additional Design Guidance</b></p>
<ul style="list-style-type: none"> <li>• Regular trimming of vegetation encroaching on the trail corridor should be trimmed; deadfall should be removed as soon as possible</li> <li>• Trimming of vegetation should follow guidelines that do not expose stock animals or riders to sharp branches that are not trimmed back to the limb</li> <li>• Plants toxic to equines should be removed from immediate areas accessible to equines on trail corridors, and in trailheads and campgrounds.</li> <li>• Notify land manager if an invasive, noxious plant species has been observed in equine areas.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Equestrian Design Guidebook for Trails, Trailheads and Campgrounds</i>, Federal Highway Administration, U.S. Department of Transportation; 2009</li> <li>• Burger, Sandra M. 1996. <i>Horse owner's field guide to toxic plants</i>. Millwood, NY: Breakthrough Publications. 230 p.</li> <li>• EQUUS, eds. Ten most poisonous plants for horses. June 2004. Available: <a href="http://www.equisearch.com/horses_care/feeding/feed/poisonousplants_0411_05">http://www.equisearch.com/horses_care/feeding/feed/poisonousplants_0411_05</a></li> </ul>

**E.11 At-Grade Hard Surface Roadway and Railway Crossings**

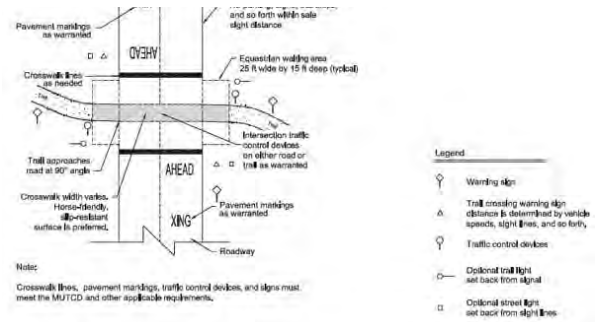
**Facility Description**

Surface treatments, sightlines, signalized crossings, trail alignment, and waiting areas  
 Recommended Design

Actuator-signalized hard surface roadway trail



Non-actuator signalized hard surface roadway



**Design Considerations**

- Hard surface roadways should have textured surfaces that add stability for horses and mules when crossing at-grade locations
- Sightlines for horseback riders should follow all highway standards for trail crossings for pedestrians and bicycles
- Install equestrian traffic signal actuators at 72 inches high
- Provide a waiting or “gathering area” with setback from roadway to accommodate size of horses; trail crossing at 90-degree angle to roadway
- Provide horse sharrows, roadway signage, and when sightlines are reduced, install blinking lights to alert motorized traffic of a horse crossing area
- Install traffic signals that provide a countdown of seconds remaining for roadway crossings
- Wide boulevard or double lane/divided highways may require a refuge area for equestrians in the middle of the roadway
- If equestrian trails cross railroad tracks the tread should be level and the gaps filled according to railroad requirements.

**Design Example**






**Maintenance Considerations**

- Paved roadways with textured surfaces for equestrians tread can require periodic cleaning to remove buildup of mud, dirt, and ice off the surface to restore the texture.
- Regular street and intersection crossing can require maintenance on traffic lighting and signal actuators.
- Trim vegetation to maintain sightlines for trail users crossing roadways on horseback

**Additional Design Guidance**

- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009
- British Horse Society. 2005a. Horse crossings. Advisory Statement No. 13. Kenilworth, Warwickshire, UK: The British Horse Society Access and Rights of Way Department.
- Cross Alert Systems: <http://www.crossalert.com>

E.12 Equine Water Amenities at Recreational Facilities	
Facility Description	
Water fixtures appropriate for horses and mules installed at equestrian-use recreational facilities	
Recommended Design	
	
Design Considerations	Design Example
<ul style="list-style-type: none"> <li>• Horses are most comfortable drinking from water fixtures that are below their chest level and do not prevent them from seeing in all directions</li> <li>• Horses can burn themselves on metal materials associated with water trough designs where the sun can heat the metal</li> <li>• Cement troughs are a sturdy and sustainable type of material for equine-use watering</li> <li>• Water troughs that are filled and left with standing water invites insects and larvae that can be harmful to equines</li> <li>• Proper drainage of water used to fill water troughs is required to prevent muddy conditions</li> <li>• Equestrians are generally equipped with buckets that can be used at convenient spigot locations where the carrying of water long distances is avoided</li> </ul>	
Maintenance Considerations	Additional Design Guidance
<ul style="list-style-type: none"> <li>• Maintenance of water troughs requires regular inspection of the site to determine if there are any problems with the water source or the drainage of the watering trough.</li> <li>• Standing water in water troughs invites insects and larvae that can produce mosquitoes that may transmit West Nile Virus, which can be lethal to horses and humans.</li> <li>• The location of water troughs and water spigots in equestrian-use recreational sites is best serviced when adjacent to roadways at the site</li> <li>• Seasonal frozen water can damage water troughs</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Equestrian Design Guidebook for Trails, Trailheads and Campgrounds</i>, Federal Highway Administration, U.S. Department of Transportation; 2009</li> </ul>

### E. 13 Equestrian Use Round-Pens and Equine Corrals

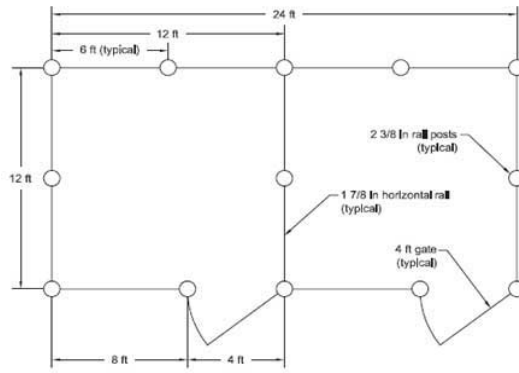
#### Facility Description

Equestrian recreational facilities frequently install amenities to exercise animals and pens designed and installed to safely secure equines

#### Recommended Design



Typical 60-foot diameter portable panel round pen. Gaps can trap hooves and tails of animals



Typical single corral set for two horses situated side-by-side with minimum 12- by 12-foot corral size



Typical 3-rail panel corral with preferred dimensions of 12- by 16-foot in size

#### Design Considerations

- Round pens require a minimum 60-foot diameter to properly accommodate the average sized horse
- Portable panels should be installed to minimize gaps between panels for safety of users
- Corrals should be a minimum of 12- by 12-foot in size with a preferred size of 12- by 16-foot to provide greater equine safety and comfort
- Corral panels are typically available in 3-rail styles in widths of 4-feet for gates, 8-feet, 10-feet, 12-foot and 16-feet
- Groups of two-horse corrals should be installed with a 10-foot minimum of space between corral sets to help reduce animals' aggressive behavior
- Corral gate designs are typically supported by an upper rail 9-feet in height
- Corral gates should swing to outside of corral
- Portable corrals are less secure than tubular steel corrals and many are not anchored in cement
- Corrals should not be installed on sloped land or land areas that drain into human use areas

#### Design Example



#### Maintenance Considerations

- Corral panels, gates and hinges can become worn and perform improperly and should be repaired by trained equestrian facility maintenance personnel to prevent injury to animals and equestrians
- Proper management of manure in round pens and corrals must be planned for recreational sites
- Natural surface material replacement required

#### Additional Design Guidance

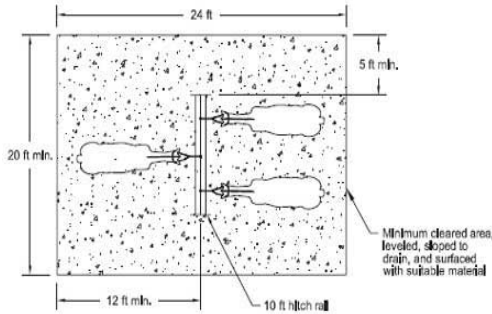
- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009
- *The Equine Arena Handbook: Developing a User-Friendly Facility* (Malgren 1999). Available at book outlets

**E.14 Restrooms Installed at Equestrian-Use Facilities**

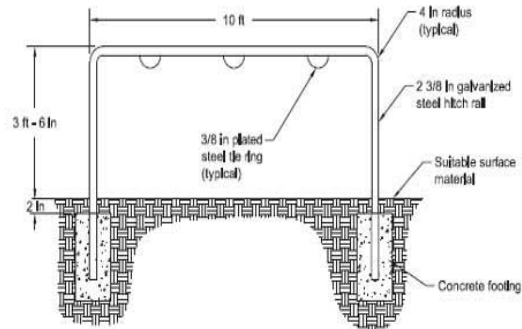
**Facility Description**

Equestrian-use recreational facilities require tethering amenities for animals at restroom locations with level area around the hitch rail location. Tie rings on the hitch rail help prevent lead ropes from sliding off the rail.

**Recommended Design**



The minimum level wearing surface free of vegetation or other obstacles at hitch or rails



Typical dimensions of a hitch rail illustrating the importance of deep anchoring with concrete

**Design Considerations**

- Restrooms for equestrians' use require some type of hitch rail for securing animals when an equestrian is using the facilities.
- The hitch rail must be sturdy and preferably of metal material, approximately 2-3/8 galvanized tubular steel, at a height of approximately 3-feet – 6-inches. Wood materials should not be used for hitch rails.
- The hitch rail will need a minimum wearing surface of 20-by 24-feet to provide enough space for an equestrian to tie animals on both sides of the rail
- Surface of the hitch rail area should be level and covered with aggregate or sand that reduces the maintenance for manure and urine management
- If the restroom is used at hours after dark, low impact lighting should be installed to illuminate the restroom building and hitching post areas. Restroom roofs can be utilized for rain harvesting purposes for optional animal water bucket supply.
- The hitch rail requires a design that does not allow the lead rope of an animal to slide from the horizontal rail to the vertical upright posts.
- Tie rings can be installed on the horizontal rail to add greater security from an animal getting loose.
- The hitch rail must be anchored in a concrete footing to a depth equal to 1/3 the height of the rail

**Design Example**



**Maintenance Considerations**

- Restroom maintenance is essential to the proper performance of the facility, and regular removal of manure from the hitch post area is required
- Restroom area lighting must be monitored and maintained

**Additional Design Guidance**

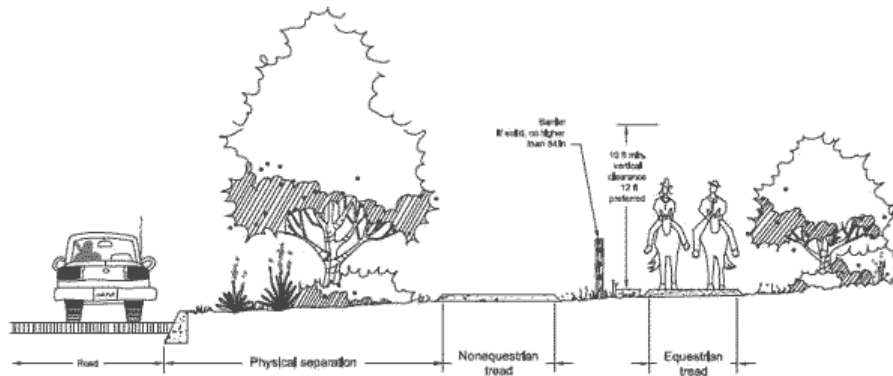
- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009

### E.15 Equestrian Trail Corridor Adjacent to Motorized Roadways or Railways

#### Facility Description

Equestrian trail corridors are frequently located adjacent to roadways with motorized vehicles. In addition, the corridor may require sharing a trail with other non-motorized users. The equestrian-use trail tread in a multiple tread trail corridor should be located furthest away from the motorized roadway. Solid barriers and/or vegetative barriers may help prevent user conflicts or reduce hazards.

#### Recommended Design



#### Design Considerations

- Equestrian tread should be located furthest from the motorized roadway in a shared or unshared corridor.
- When barriers are provided, the height of the barrier should not exceed 54 inches to permit the horse’s peripheral vision and sense of security by having a clear view of the corridor.
- Barriers can be fencing, low walls, and railings.
- Vegetative barriers must be non-toxic to equines, and vegetation should be trimmed for horizontal clearances recommended in Design Guideline 11.7.4 in this Master Plan.
- Barriers improve safety for all trail users and can prevent a scared animal from running into the path of other trail users or roadway traffic.
- Barriers should be designed to prevent the animal’s pack load, as well as the saddle stirrups and a rider’s legs and foot from being caught in the barrier.
- These guidelines do not apply to railroad corridors; railroads have different regulations regarding trails adjacent to railway corridors. Contact railroad agency for specific guidelines regarding trails along railway corridors.

#### Design Example



Horses and riders can be forced to use roadways when there is no adjacent trail tread provided

#### Maintenance Considerations

- Trail corridors must be cleared of vegetation that would limit the visibility of the equestrian and/or encroach on the envelope of space required for equestrian-use trails. (See 11.7.4)
- Replace soils that may be displaced through trail use before the trail tread becomes trenched.

#### Additional Design Guidance

- *Equestrian Design Guidebook for Trails, Trailheads and Campgrounds*, Federal Highway Administration, U.S. Department of Transportation; 2009
- Federal Railroad Administration: <http://www.fra.dot.gov>

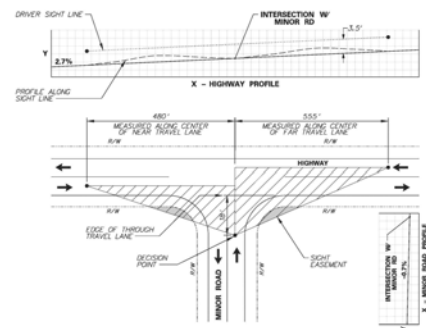


**E.16 Equestrian Ingress and Egress from Parking and Staging Locations**

**Facility Description**

Vehicles pulling horses and mules in horse trailers must slow considerably when making turns and entering equestrian parking and staging areas. The roadways must provide a left turn lane, as well as a separate lane for making a right turn into a parking or staging area. In addition, vehicles pulling horses and mules leaving a parking and staging area must make the turn on the roadway and accelerate at slow rates of speed, requiring an auxiliary lane that merges vehicles and horse trailers into the regular flow of traffic. Signage on highways in both directions should indicate the location of an upcoming equestrian trailhead. Sightlines for leaving or entering an equestrian parking and staging area must be open and clear of any highway hills, curves, encroaching structures, and vegetation that may grow into the sightline envelope.

**Recommended Design**



**Sightlines Design Example:**

2 lane highway with highway Grade = 2.7%

Minor Road Approach Grade = 0.7%

Posted Speed = 45 MPH

Find left turn (case B1) and right turn (case B2) departure sight distances for a passenger car. Prepare a profile along driver's line of sight to verify no obstructions to the driver's view.

Source: AASHTO "Green Book," 2011, 6th edition, Chapter 9 and AASHTO 5th Edition, 2004

**Design Considerations**

- The design of roadway auxiliary lanes are very site specific due to highway speeds, grades, sightlines and many other factors that must be determined through engineering analysis.
- Turns into and out of equestrian parking and staging areas must provide a turning radius to accommodate a pulling vehicle and horse trailer length.
- Highway signage must be provided indicating the entrance and exit of an approaching equestrian parking and staging area at a distance determined by highway design guidelines. Horse sharrows can be painted on paved roadways to alert drivers approaching the equestrian parking and staging location.
- Clear sightlines are site specific and must be determined through engineering analysis.
- Animals being transported in trailers are vulnerable to sudden stops and sharp, fast turns and they can lose their footing/balance and fall down in a trailer.
- Pulling vehicle and trailer lengths can exceed 45 feet.

**Design Example**



**Maintenance Considerations**

- Managing jurisdiction or agency must monitor and remove any vegetation that grows into the sightline areas leading into and out of the equestrian parking and staging area, and repair/replace any damaged highway signage or paint.

**Additional Design Guidance**

- California Department of Transportation Highway Design Manual, <http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm>



Project Number	Project Description				Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
	Project Name	Location	Length			Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost-Benefit	Total	
			Feet	Miles												
Boardwalk: Routes on elevated/raised surfaces such as wooden planking.																
P900	Stanfield Marsh Route (Existing)	Big Bear Lake	2,758.3	0.5	-	-	-	-	-	-	-	-	-	-	-	N/A
P901	Stanfield Marsh Route	Big Bear Lake	3,401.3	0.6	\$ 408,000	1	3	3	3	3	0	2	2	3	20	N/A
	Boardwalk Total		6,159.6	1.2	\$ 408,000											
Paved Pathway: Routes with a paved surface.																
PB100	Aspen Glenn Route	Big Bear Lake	3,259.0	0.6	\$ 1,170,000	0	2	0	3	3	0	1	1	1	11	M.1
PB100	Aspen Glenn Route	South of North Shore Dr	2,804.8	0.5	\$ 1,007,000	-	-	-	-	-	-	-	-	-	-	M.1
PB101	Marina Route	Big Bear Lake	7,409.8	1.4	\$ 2,661,000	0	2	0	3	3	3	3	1	1	16	M.1
PB102	Knickerbocker Creek Route	Big Bear Lake	4,462.0	0.8	\$ 1,602,000	2	3	0	3	3	3	2	1	2	19	M.1
PB103	Rathbone Creek Route	Big Bear Lake	20,449.0	3.9	\$ 7,343,000	1	3	0	3	3	0	2	1	1	14	M.1
PB104	Snow Summit Route	Big Bear Lake	8,656.3	1.6	\$ 3,108,000	0	2	0	3	2	0	0	1	1	9	M.1
PBE105	Rathbone Creek Route	Big Bear Lake	4,867.3	0.9	\$ 1,748,000	0	3	0	3	3	3	0	1	1	14	M.1
PBE106	Sand Canyon Route	Big Bear Lake	5,753.0	1.1	\$ 2,066,000	0	2	0	3	0	0	0	1	1	7	M.1
PB107	Stanfield Marsh Route	Big Bear Lake	277.8	0.1	\$ 100,000	2	2	0	3	3	0	0	1	3	14	M.1
PB108	North Shore Drive Route	North Shore Dr	15,962.1	3.0	\$ 5,732,000	0	1	0	3	3	3	1	1	1	13	M.1
PB109	Alpine Pedal Path (Existing)	North Shore Dr	13,305.0	2.5	-	-	-	-	-	-	-	-	-	-	-	M.1
PB110	Alpine Pedal Path	North Shore Dr	877.6	0.2	\$ 315,000	0	2	0	3	0	0	3	1	3	12	M.1
PB111	Stanfield Cutoff	South of North Shore Dr	1,009.2	0.2	\$ 362,000	3	2	0	3	2	0	0	1	3	14	M.1
PB112	Stanfield Marsh Route	South of North Shore Dr	7,431.0	1.4	\$ 2,668,000	3	2	3	3	2	0	2	1	1	17	M.1
PB113	Stanfield Marsh Route Connector	South of North Shore Dr	444.3	0.1	\$ 160,000	0	2	0	2	3	0	2	1	3	13	M.1
PB114	Airport Loop Route	South of North Shore Dr	7,282.0	1.4	\$ 2,615,000	0	2	0	2	2	0	3	1	1	11	M.1
PB115	Airport Loop Route	South of North Shore Dr	7,299.1	1.4	\$ 2,621,000	0	3	0	2	3	0	2	1	1	12	M.1
PB116	Country Club Route	South of North Shore Dr	1,600.6	0.3	\$ 575,000	1	2	0	0	3	0	1	1	2	10	M.1
PB117	Saw Mill Route	South of North Shore Dr	2,311.7	0.4	\$ 830,000	3	1	0	1	0	0	0	1	1	7	M.1
PB118	Baldwin Lake Route	North Shore Dr	12,083.8	2.3	\$ 4,339,000	0	0	0	3	0	0	0	1	1	5	M.1
PB119	West Baldwin Lake Route	South of North Shore Dr	2,860.4	0.5	\$ 1,027,000	0	1	0	3	0	0	0	1	1	6	M.1
PB120	Greenspot Route	South of North Shore Dr	4,707.9	0.9	\$ 1,691,000	1	2	0	2	3	0	0	1	1	10	M.1
PB121	Erwin Ranch Route	South of North Shore Dr	1,801.4	0.3	\$ 647,000	0	2	0	1	2	0	0	1	1	7	M.1
PB122	Erwin Ranch Route	South of North Shore Dr	2,965.4	0.6	\$ 1,065,000	0	1	0	2	3	0	0	1	1	8	M.1
	Paved Pathway Total		139,880.4	26.5	\$ 45,452,000											
Natural Surface Trail: Routes with a natural, unpaved surface.																
PBE500	Canyon Route	South of North Shore Dr	14,280.3	2.7	\$ 714,000	0	2	3	3	0	0	0	1	2	11	M.2
PBE501	Saw Mill Route	South of North Shore Dr	5,933.2	1.1	\$ 297,000	1	2	3	2	2	0	1	1	3	15	M.2
PBE502	West Baldwin Lake Route	South of North Shore Dr	5,682.9	1.1	\$ 284,000	0	2	0	2	2	0	1	1	3	11	M.2
PBE504	Baldwin Lake Route	South of North Shore Dr	1,596.9	0.3	\$ 80,000	0	1	0	3	1	0	0	1	3	9	M.2
PBE505	Baldwin Lake Route	North Shore Dr	4,039.6	0.8	\$ 202,000	0	0	0	3	0	0	0	1	2	6	M.2
PBE505	Baldwin Lake Route	South of North Shore Dr	19,009.0	3.6	\$ 950,000	-	-	-	-	-	-	-	-	-	-	M.2
PBE506	Erwin Ranch Route	South of North Shore Dr	1,612.1	0.3	\$ 81,000	0	1	0	2	1	0	0	1	3	8	M.2
PBE507	Lake Williams Route	South of North Shore Dr	11,743.2	2.2	\$ 587,000	0	0	0	3	0	0	0	1	1	5	M.2
	Natural Surface Total		63,897.2	12.1	\$ 3,195,000											
Water Trail: Routes using water bodies.																
PB800	Big Bear Lake Ferry Route	Big Bear Lake	5,889.5	1.1	NA	1	1	3	3	2	0	2	3			N/A

Project Description					Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
Project Number	Project Name	Location	Length			Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost-Benefit	Total	
			Feet	Miles												
	Water Trail Total		5,889.5	1.1	NA											
	Pacific Crest Trail															
PE600	Pacific Crest Trail	North Shore Dr	495,189.3	93.8	NA	0	0	0	3	0	0	0	1	-	M.2	
PE600	Pacific Crest Trail	South of North Shore Dr	663,617.2	125.7	NA	0	0	0	3	0	0	2	1	-	M.2	
	Pacific Crest Trail Total		1,158,806.6	219.5	NA											
<b>Multimodal Routes Total</b>			<b>1,374,633.4</b>	<b>260.3</b>	<b>\$ 49,055,000</b>											

Project Description					Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
Project Number	Project Name	Length (Feet)	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost-Benefit	Total	
City of Big Bear Lake																
P100	Big Bear Blvd	3,810.2	0.7	11	\$ 1,905,000	0	3	3	2	3	3	0	1	1	16	P.1
P101	Big Bear Blvd	3,851.4	0.7	17	\$ 1,926,000	0	3	0	3	3	3	1	1	1	15	P.1
P102	Big Bear Blvd	439.9	0.1	2	\$ 220,000	1	3	0	2	3	3	1	1	3	17	P.1
P102	Village Dr	24.4	0.0	1	\$ 12,000	-	-	-	-	-	-	-	-	-	-	P.1
P103	Paine Rd	328.3	0.1	1	\$ 164,000	1	2	0	2	3	2	1	1	3	15	P.1
P104	Spruce Rd	815.5	0.2	3	\$ 408,000	1	2	0	2	3	2	1	1	3	15	P.1
P104	Spruce Spr	92.4	0.0	1	\$ 46,000	-	-	-	-	-	-	-	-	-	-	P.1
P104	Talmadge Spr	5.9	0.0	1	\$ 3,000	-	-	-	-	-	-	-	-	-	-	P.1
P105	Spruce Rd	1,203.6	0.2	3	\$ 602,000	1	2	0	3	3	3	1	1	3	17	P.1
P106	Lakeview Dr	932.7	0.2	2	\$ 466,000	0	2	0	3	3	3	1	1	3	16	P.1
P107	Paine Rd	569.2	0.1	2	\$ 285,000	1	2	0	3	3	3	1	1	3	17	P.1
P108	Simonds Dr	1,083.3	0.2	2	\$ 542,000	1	2	0	3	3	3	2	1	3	18	P.1
P109	Big Bear Blvd	1,814.4	0.3	7	\$ 907,000	2	2	3	2	3	3	3	1	3	22	P.1
P110	Beaver Ln	1,215.9	0.2	6	\$ 608,000	2	3	0	2	3	3	3	1	3	20	P.1
P111	Lynn Rd	552.2	0.1	1	\$ 276,000	1	2	0	2	3	3	2	1	3	17	P.1
P112	Badger Ln	605.2	0.1	1	\$ 303,000	1	2	0	2	3	3	2	1	3	17	P.1
P113	Cottage Ln	601.9	0.1	1	\$ 301,000	2	2	0	2	3	2	2	1	3	17	P.1
P114	Squirrel Ln	314.8	0.1	1	\$ 157,000	2	3	0	2	3	3	3	1	3	20	P.1
P115	Cottage Ln	502.9	0.1	1	\$ 251,000	2	2	0	2	3	3	2	1	3	18	P.1
P115	Croft Ln	249.9	0.0	2	\$ 125,000	-	-	-	-	-	-	-	-	-	-	P.1
P116	Bartlett Rd	258.4	0.0	1	\$ 129,000	2	2	0	3	3	3	3	1	3	20	P.1
P117	Pedder Rd	513.9	0.1	2	\$ 257,000	3	3	3	2	3	2	2	1	3	22	P.1
P118	Maryland Rd	139.6	0.0	1	\$ 70,000	2	3	0	2	3	3	3	1	3	20	P.1
P118	Stocker Rd	770.8	0.1	1	\$ 385,000	-	-	-	-	-	-	-	-	-	-	P.1
P119	Cameron Dr	242.6	0.0	2	\$ 121,000	2	3	0	3	3	3	3	1	2	20	P.1
P119	Knickerbocker Rd	819.3	0.2	1	\$ 410,000	-	-	-	-	-	-	-	-	-	-	P.1
P119	Pine Knot Ave	1,944.5	0.4	2	\$ 972,000	-	-	-	-	-	-	-	-	-	-	P.1
P119	Unnamed road segment 1	84.1	0.0	1	\$ 42,000	-	-	-	-	-	-	-	-	-	-	P.1
P120	Knickerbocker Rd	267.1	0.1	1	\$ 134,000	2	3	0	3	3	3	2	1	3	20	P.1
P121	Foothill Ln	447.2	0.1	3	\$ 224,000	2	2	0	2	3	3	2	1	3	18	P.1
P122	Foothill Ln	1,022.5	0.2	2	\$ 511,000	2	2	0	2	3	3	2	1	3	18	P.1
P123	Alden Rd	1,142.9	0.2	6	\$ 571,000	2	3	0	3	3	3	2	1	3	20	P.1
P124	Bear Park Dr	164.7	0.0	1	\$ 82,000	2	2	0	2	3	3	1	1	3	17	P.1

Project Description					Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
Project Number	Project Name	Length (Feet)	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost-Benefit	Total	
P125	Unnamed road segment 2	700.5	0.1	1	\$ 350,000	2	2	0	2	3	3	1	1	3	17	P.1
P126	Unnamed road segment 3	381.4	0.1	1	\$ 191,000	2	3	0	2	3	3	1	1	3	18	P.1
P127	Mountaineer Ln	262.6	0.0	1	\$ 131,000	3	3	0	2	3	2	0	1	3	17	P.1
P128	Georgia St	268.3	0.1	1	\$ 134,000	3	3	0	1	3	3	0	1	3	17	P.1
P129	B St	476.4	0.1	1	\$ 238,000	3	2	0	2	3	3	2	1	2	18	P.1
P129	Main St	639.1	0.1	2	\$ 320,000	-	-	-	-	-	-	-	-	-	-	P.1
P129	Marin Rd	489.7	0.1	1	\$ 245,000	-	-	-	-	-	-	-	-	-	-	P.1
P129	Pennsylvania Ave	754.0	0.1	2	\$ 377,000	-	-	-	-	-	-	-	-	-	-	P.1
P129	School St	464.4	0.1	2	\$ 232,000	-	-	-	-	-	-	-	-	-	-	P.1
P129	Unnamed road segment 4	127.0	0.0	1	\$ 63,000	-	-	-	-	-	-	-	-	-	-	P.1
P130	Knight Ave	729.2	0.1	2	\$ 365,000	2	3	0	2	3	3	1	1	3	18	P.1
P131	Jeffries Rd	1,325.5	0.3	1	\$ 663,000	3	3	0	1	3	2	0	1	2	15	P.1
P132	Oak St	512.4	0.1	2	\$ 256,000	3	2	0	2	3	2	0	1	3	16	P.1
P133	Georgia St	1,378.8	0.3	4	\$ 689,000	3	3	0	2	3	3	0	1	3	18	P.1
P134	Wren Dr	666.1	0.1	2	\$ 333,000	2	2	0	1	3	3	1	1	3	16	P.1
P135	Thrush Dr	257.7	0.0	1	\$ 129,000	1	3	0	0	3	3	1	1	3	15	P.1
P136	Garstin Dr	2,573.1	0.5	4	\$ 1,287,000	0	3	0	1	3	2	3	1	2	15	P.1
P137	Sandalwood	1,352.7	0.3	1	\$ 676,000	0	2	0	2	3	2	2	1	2	14	P.1
P137	Sandalwood Dr	428.5	0.1	1	\$ 214,000	-	-	-	-	-	-	-	-	-	-	P.1
P138	Fox Farm Rd	675.6	0.1	2	\$ 338,000	0	2	0	1	3	2	2	1	3	14	P.1
P139	Elm St	817.6	0.2	4	\$ 409,000	0	3	0	2	3	2	0	1	3	14	P.1
P140	Fir St	497.9	0.1	3	\$ 249,000	0	3	0	2	3	1	0	1	3	13	P.1
P141	Birch St	181.1	0.0	1	\$ 91,000	0	2	0	2	3	1	0	1	3	12	P.1
P142	Stanfield Cutoff	128.6	0.0	1	\$ 64,000	2	3	0	3	3	2	0	1	3	17	P.1
P142	Starvation Flats Rd	413.4	0.1	1	\$ 207,000	-	-	-	-	-	-	-	-	-	-	P.1
P143	Big Bear Blvd	5,579.5	1.1	6	\$ 2,790,000	2	3	3	3	3	3	3	1	1	22	P.1
P144	Division Dr	1,179.4	0.2	5	\$ 590,000	0	3	3	2	2	3	2	1	2	18	P.1
P144	N Division Dr	874.8	0.2	4	\$ 437,000	-	-	-	-	-	-	-	-	-	-	P.1
City of Big Bear Lake Total		50,966.7	9.7	148.0	\$ 25,483,000											
North of North Shore Drive (outside of City)																
P145	N Shore Dr	2,855.3	0.5	7	\$ 1,428,000	0	3	3	3	2	1	3	1	2	18	P.1
P146	Rim of the World Dr	2,480.4	0.5	7	\$ 1,240,000	0	3	0	3	2	0	3	1	1	13	P.1
P147	N Shore Dr	891.6	0.2	2	\$ 446,000	3	1	0	3	1	3	0	1	3	15	P.1
P148	Stanfield Cutoff	2,085.1	0.4	5	\$ 1,043,000	3	2	0	3	2	2	0	1	2	15	P.1
North of North Shore Drive (outside of City) Total		8,312.4	1.6	21.0	\$ 4,156,000											
South of North Shore Drive (outside of City)																
P149	E Big Bear Blvd	5,772.2	1.1	12	\$ 2,886,000	1	3	3	2	2	3	3	1	1	19	P.1
P149	W Big Bear Blvd	6,559.9	1.2	14	\$ 3,280,000	-	-	-	-	-	-	-	-	-	-	P.1
P150	Shore Dr	1,435.9	0.3	6	\$ 718,000	1	3	0	0	2	2	0	1	2	11	P.1

Project Description					Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
Project Number	Project Name	Length (Feet)	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost-Benefit	Total	
P151	Maple Ln	2,767.4	0.5	3	\$ 1,384,000	3	2	0	0	1	3	0	1	1	11	P.1
P152	Baldwin Ln	3,390.5	0.6	8	\$ 1,695,000	3	3	0	0	2	1	0	1	1	11	P.1
P152	S Maple Ln	1,415.3	0.3	1	\$ 708,000	-	-	-	-	-	-	-	-	-	-	P.1
P153	Greenspot Blvd	3,621.6	0.7	9	\$ 1,811,000	0	2	0	2	2	1	0	1	1	9	P.1
South of North Shore Drive (outside of City) Total		24,962.8	4.73	53.0	\$ 12,481,000											

Project Description					Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines	
Project Number	Project Name	Length (Feet)	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost-Benefit	Total		
Intesections																	
P201	N Shore Dr	-	-	-	\$ 550,000	0	0	0	2	2	0	0	1	1	6	P.2, P.4, P.5, B.5, B.6	
P202	N Shore Dr	-	-	-	\$ 550,000	0	0	0	3	1	1	0	1	2	8	P.2, P.4, P.5, B.5, B.6	
P203	N Shore Dr at Rim of the World Dr	-	-	-	\$ 550,000	0	2	0	2	2	0	3	1	2	12	P.2, P.4, P.5, B.5, B.6	
P204	N Shore Dr at Cherokee St	-	-	-	\$ 550,000	0	2	0	2	2	1	2	1	2	12	P.2, P.4, P.5, B.5, B.6	
P205	N Shore Dr at Canyon Rd	-	-	-	\$ 550,000	0	0	0	2	1	3	0	1	2	9	P.2, P.4, P.5, B.5, B.6	
P206	Big Bear Blvd at Blue Jay Rd (Brier Trail)	-	-	-	\$ 550,000	0	2	3	2	3	3	0	1	3	17	P.2, P.4, P.5, B.5, B.6	
P207	Big Bear Blvd at Cienega Rd	-	-	-	\$ 550,000	0	3	3	2	3	2	0	1	3	17	P.2, P.4, P.5, B.5, B.6	
P208	Big Bear Blvd at Edgemoor Rd	-	-	-	\$ 550,000	0	2	3	2	3	3	0	1	3	17	P.2, P.4, P.5, B.5, B.6	
P209	Big Bear Blvd at Temple Ln	-	-	-	\$ 550,000	0	2	3	2	3	3	0	1	3	17	P.2, P.4, P.5, B.5, B.6	
P210	Big Bear Blvd at Simonds Dr	-	-	-	\$ 550,000	1	2	3	2	3	3	2	1	3	20	P.2, P.4, P.5, B.5, B.6	
P211	Big Bear Blvd at Bartlett Rd	-	-	-	\$ 550,000	2	2	3	2	3	3	3	1	3	22	P.2, P.4, P.5, B.5, B.6	
P212	Big Bear Blvd	-	-	-	\$ 550,000	2	3	3	2	3	2	2	1	3	21	P.2, P.4, P.5, B.5, B.6	
P213	Big Bear Blvd at Bear Park Dr	-	-	-	\$ 550,000	2	2	3	2	3	3	1	1	3	20	P.2, P.4, P.5, B.5, B.6	
P214	Big Bear Blvd at Mountaineer Ln	-	-	-	\$ 550,000	3	3	3	1	3	2	0	1	3	19	P.2, P.4, P.5, B.5, B.6	
P215	Big Bear Blvd at Wren Dr	-	-	-	\$ 550,000	2	2	3	0	3	3	1	1	3	18	P.2, P.4, P.5, B.5, B.6	
P216	Big Bear Blvd at Thrush Dr	-	-	-	\$ 550,000	1	3	3	0	3	3	1	1	3	18	P.2, P.4, P.5, B.5, B.6	
P217	North Shore Dr at Woodland Rd	-	-	-	\$ 550,000	2	0	0	3	0	1	0	1	2	9	P.2, P.4, P.5, B.5, B.6	
P218	North Shore Dr at Stanfield Cutoff	-	-	-	\$ 550,000	3	1	0	2	1	2	0	1	2	12	P.2, P.4, P.5, B.5, B.6	
P219	Stanfield Cutoff at	-	-	-	\$ 550,000	3	1	0	2	1	2	0	1	2	12	P.2, P.4, P.5, B.5, B.6	
P220	Moonridge Rd at Elm St	-	-	-	\$ 550,000	0	3	3	1	3	2	0	1	3	16	P.2, P.4, P.5, B.5, B.6	
P221	Moonridge Rd at Club View Dr	-	-	-	\$ 550,000	0	2	3	1	3	1	0	1	2	13	P.2, P.4, P.5, B.5, B.6	
P222	Goldmine Dr at Club View Dr	-	-	-	\$ 550,000	0	3	0	2	0	3	0	1	2	11	P.2, P.4, P.5, B.5, B.6	
P223	Big Bear Blvd	-	-	-	\$ 550,000	0	2	0	2	3	1	3	1	3	15	P.2, P.4, P.5, B.5, B.6	
P224	North Shore Dr at N Division Dr	-	-	-	\$ 550,000	0	1	0	2	2	1	1	1	2	10	P.2, P.4, P.5, B.5, B.6	
P225	W Big Bear Blvd at Hillen Dale Dr	-	-	-	\$ 550,000	0	2	0	1	2	2	1	1	2	11	P.2, P.4, P.5, B.5, B.6	
P226	W Big Bear Blvd at Pine View Dr	-	-	-	\$ 550,000	0	2	0	0	2	2	1	1	2	10	P.2, P.4, P.5, B.5, B.6	
P227	W Big Bear Blvd at W Aeroplane Blvd	-	-	-	\$ 550,000	0	2	0	1	2	2	0	1	2	10	P.2, P.4, P.5, B.5, B.6	
P228	E Big Bear Blvd at Big Tree Dr	-	-	-	\$ 550,000	0	3	0	1	2	2	1	1	2	12	P.2, P.4, P.5, B.5, B.6	
P229	E Big Bear Blvd at Saw Mill Dr	-	-	-	\$ 550,000	0	3	0	0	2	1	2	1	2	11	P.2, P.4, P.5, B.5, B.6	
P230	W Country Club Blvd at Greenway Dr	-	-	-	\$ 550,000	0	2	0	0	2	1	3	1	2	11	P.2, P.4, P.5, B.5, B.6	
P231	W North Shore Dr at Anita Dr	-	-	-	\$ 550,000	0	2	0	2	0	2	1	1	2	10	P.2, P.4, P.5, B.5, B.6	
P232	E Big Bear Blvd at Gold Mountain Dr	-	-	-	\$ 550,000	0	2	0	0	2	1	2	1	2	10	P.2, P.4, P.5, B.5, B.6	
P233	Maltby Blvd at Paradise Way	-	-	-	\$ 550,000	0	2	0	1	1	1	1	1	2	9	P.2, P.4, P.5, B.5, B.6	
P234	E Big Bear Blvd at Greenspot Blvd	-	-	-	\$ 550,000	1	3	0	1	0	2	0	1	2	10	P.2, P.4, P.5, B.5, B.6	
P235	Baldwin Lane at Maple Lane	-	-	-	\$ 550,000	3	3	0	0	0	0	0	1	2	9	P.2, P.4, P.5, B.5, B.6	
P236	Baldwin Lane at Greenspot Blvd	-	-	-	\$ 550,000	0	2	0	0	2	0	0	1	1	6	P.2, P.4, P.5, B.5, B.6	
Intersections Total					\$ 19,800,000												
Pedestrian Routes Total		84,241.9	16.0	222	\$ 61,920,000												



Project Number	Project Description							Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
	Project Name	Segment Name	Existing Route Type	Proposed Route Type	Proposed Route Design	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost Benefit	Total	
City of Big Bear Lake																			
B200	West Big Bear Boulevard Bike Lanes	Big Bear Blvd	Class III	Class II	Bicycle Lane	2.14	41	\$ 209,000	2	3	3	3	3	3	2	2	3	24	B.1/B.2
B201	Central Big Bear Boulevard Bike Lanes	Big Bear Blvd	Class III	Class II	Bicycle Lane	3.98	49	\$ 389,000	3	3	3	3	3	3	3	2	3	26	B.1/B.2
B203	Knickerbocker Road Bike Lanes	Knickerbocker Rd	-	Class II	Bicycle Lane	0.58	8	\$ 57,000	3	2	0	3	3	3	2	2	3	21	B.1/B.2
B204	Fox Farm/Swan Bike Lanes	Fox Farm Rd	Class III	Class II	Bicycle Lane	0.25	1	\$ 25,000	1	2	0	2	3	2	2	2	3	17	B.1/B.2
B204		Swan Dr	Class III	Class II	Bicycle Lane	0.16	4	\$ 15,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B205	Sandalwood Drive Bike Lanes	N Sandalwood Dr	-	Class II	Bicycle Lane	0.10	2	\$ 10,000	2	2	0	2	3	2	2	2	3	18	B.1/B.2
B205		Sandalwood	-	Class II	Bicycle Lane	0.26	1	\$ 25,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B205		Sandalwood Dr	-	Class II	Bicycle Lane	0.13	2	\$ 13,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B206	West Moonridge Loop	Club View Dr	Class III	Class II	Bicycle Lane	0.93	15	\$ 91,000	1	3	0	3	3	3	2	2	3	20	B.1/B.2
B206		Moonridge Rd	-	Class II	Bicycle Lane	0.39	2	\$ 38,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B206		Moonridge Rd	Class III	Class II	Bicycle Lane	0.44	6	\$ 43,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B206		Moonridge Way	-	Class II	Bicycle Lane	0.12	1	\$ 12,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B207	Stanfield Cutoff Bike Lanes (Southern Approach)	Stanfield Cutoff	-	Class II	Bicycle Lane	0.02	1	\$ 2,000	2	2	0	2	2	2	1	2	3	16	B.1/B.2
B208	Division Drive Bike Lanes	Division Dr	-	Class II	Bicycle Lane	0.46	10	\$ 45,000	1	2	0	3	2	2	2	2	3	17	B.1/B.2
B208		N Division Dr	-	Class II	Bicycle Lane	0.28	7	\$ 28,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B208		N Division Dr	Class III	Class II	Bicycle Lane	0.05	1	\$ 4,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B250	South of Boulevard Bike Boulevard	Brownie Ln	-	Class 2.5	Bicycle Boulevard	0.61	11	\$ 407,000	3	3	0	2	2	3	2	2	2	19	B.3
B250		Eureka Dr	-	Class 2.5	Bicycle Boulevard	0.10	2	\$ 67,000	-	-	-	-	-	-	-	-	-	-	B.3
B250		Jeffries Rd	-	Class 2.5	Bicycle Boulevard	0.05	1	\$ 36,000	-	-	-	-	-	-	-	-	-	-	B.3
B250		McWhinney Ln	-	Class 2.5	Bicycle Boulevard	0.35	3	\$ 231,000	-	-	-	-	-	-	-	-	-	-	B.3
B250		Oak St	-	Class 2.5	Bicycle Boulevard	0.21	5	\$ 140,000	-	-	-	-	-	-	-	-	-	-	B.3
B250		Pennsylvania Ave	-	Class 2.5	Bicycle Boulevard	0.48	9	\$ 322,000	-	-	-	-	-	-	-	-	-	-	B.3
B250		Thrush Dr	-	Class 2.5	Bicycle Boulevard	0.06	1	\$ 37,000	-	-	-	-	-	-	-	-	-	-	B.3
B250		Village Dr	-	Class 2.5	Bicycle Boulevard	0.45	9	\$ 297,000	-	-	-	-	-	-	-	-	-	-	B.3
B250		Wren Dr	-	Class 2.5	Bicycle Boulevard	0.02	1	\$ 17,000	-	-	-	-	-	-	-	-	-	-	B.3
B251	Fox Farm/Rathbone Bike Boulevard	Fox Farm Rd	Class III	Class 2.5	Bicycle Boulevard	0.98	18	\$ 649,000	1	2	0	2	3	2	3	2	2	17	B.3
B251		Rathbone Dr	Class III	Class 2.5	Bicycle Boulevard	0.07	1	\$ 44,000	-	-	-	-	-	-	-	-	-	-	B.3
B301	Castle Rock Oxbow Bridge and Trail Head	Proposed Oxbow Bridge	-	Class III	Shared Route	0.08	1	\$ 6,000	0	1	0	3	1	1	0	3	3	12	B.4
B302	Boulder Bay Shared Route	Big Bear Blvd	Class III	no change	Shared Route	0.67	16	-	0	2	0	3	2	2	1	3	-	-	-
B303	Pleasure Point Loop	Blue Jay Rd	-	Class III	Shared Route	0.06	1	\$ 4,000	0	3	0	2	3	2	2	3	3	18	B.4
B303		Catbird Ln	-	Class III	Shared Route	0.12	2	\$ 8,000	-	-	-	-	-	-	-	-	-	-	B.4
B303		Cienega Rd	-	Class III	Shared Route	0.53	11	\$ 37,000	-	-	-	-	-	-	-	-	-	-	B.4
B303		N Bay Dr	-	Class III	Shared Route	0.18	2	\$ 12,000	-	-	-	-	-	-	-	-	-	-	B.4
B303		Water View Dr	-	Class III	Shared Route	0.03	1	\$ 2,000	-	-	-	-	-	-	-	-	-	-	B.4
B303		Water View Shores	-	Class III	Shared Route	0.04	1	\$ 3,000	-	-	-	-	-	-	-	-	-	-	B.4
B303		Waterview Dr	-	Class III	Shared Route	0.44	7	\$ 30,000	-	-	-	-	-	-	-	-	-	-	B.4
B303		Willow Landing Rd	-	Class III	Shared Route	0.19	5	\$ 13,000	-	-	-	-	-	-	-	-	-	-	B.4
B303		Woodland Way	-	Class III	Shared Route	0.12	3	\$ 9,000	-	-	-	-	-	-	-	-	-	-	B.4
B304	North Lakeview Loop	Arroyo Dr	Class III	no change	Shared Route	0.06	2	\$ -	1	2	0	2	3	3	2	3	3	19	-
B304		Big Bear Blvd	Class III	no change	Shared Route	0.00	1	-	-	-	-	-	-	-	-	-	-	-	-
B304		Edgemoor Rd	Class III	no change	Shared Route	0.69	17	-	-	-	-	-	-	-	-	-	-	-	-
B304		Lakeview Dr	Class III	no change	Shared Route	1.17	20	-	-	-	-	-	-	-	-	-	-	-	-
B305	Talmdge Road Shared Route	Talmdge Rd	Class III	no change	Shared Route	0.41	7	\$ -	1	2	0	2	2	2	1	3	3	16	-
B306	South Lakeview Loop	Edgemoor Rd	Class III	no change	Shared Route	0.36	3	\$ -	1	2	0	3	2	2	1	3	3	17	-
B306		Mill Creek Rd	Class III	no change	Shared Route	0.28	5	-	-	-	-	-	-	-	-	-	-	-	-
B307	Spruce Road Shared Route	Spruce Rd	Class III	no change	Shared Route	0.19	2	\$ -	2	2	0	2	3	3	2	3	3	20	-
B308		Paine Rd	Class III	no change	Shared Route	0.07	1	\$ -	2	2	0	2	3	3	2	3	3	20	-
B308		Simonds Dr	Class III	no change	Shared Route	0.21	2	\$ -	-	-	-	-	-	-	-	-	-	-	-
B309	Pine Knot Shared Route	-	-	Class III	Shared Route	0.02	1	\$ 1,000	2	3	0	3	3	3	3	3	3	23	B.4
B309		Cameron Dr	-	Class III	Shared Route	0.05	2	\$ 3,000	-	-	-	-	-	-	-	-	-	-	B.4

Project Number	Project Description							Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
	Project Name	Segment Name	Existing Route Type	Proposed Route Type	Proposed Route Design	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost Benefit	Total	
B309		Knickerbocker Rd	-	Class III	Shared Route	0.16	1	\$ 11,000	-	-	-	-	-	-	-	-	-	-	B.4
B309		Pine Knot Ave	-	Class III	Shared Route	0.67	6	\$ 46,000	-	-	-	-	-	-	-	-	-	-	B.4
B310	Knight Avenue Shared Route	Knight Ave	Class III	no change	Shared Route	0.24	3	\$ -	2	2	0	2	2	2	3	3	18	-	
B311		Park Ave	Class III	no change	Shared Route	0.41	7	\$ -	2	2	0	2	2	2	3	3	18	-	
B311		Wren Dr	Class III	no change	Shared Route	0.01	1	-	-	-	-	-	-	-	-	3	-	-	
B312	Park Avenue Shared Route	Park Ave	Class III	no change	Shared Route	0.50	8	\$ -	2	2	0	2	3	2	3	3	19	-	
B313		Georgia St	-	Class III	Shared Route	0.45	7	\$ 31,000	3	2	0	2	2	3	1	3	16	B.4	
B314	Eagle Point Loop	Condor Dr	Class III	no change	Shared Route	0.12	2	\$ -	2	2	0	2	2	2	3	3	18	-	
B314		Eagle Dr	Class III	no change	Shared Route	0.59	4	-	-	-	-	-	-	-	-	-	-	-	
B314		Eureka Dr	Class III	no change	Shared Route	0.31	4	-	-	-	-	-	-	-	-	-	-	-	
B314		Marina Point Dr	Class III	no change	Shared Route	0.33	4	-	-	-	-	-	-	-	-	-	-	-	
B314		N Bayside Dr	Class III	no change	Shared Route	0.11	1	-	-	-	-	-	-	-	-	-	-	-	
B314		S Bayside Dr	Class III	no change	Shared Route	0.09	1	-	-	-	-	-	-	-	-	-	-	-	
B314		S Eagle Dr	Class III	no change	Shared Route	0.02	1	-	-	-	-	-	-	-	-	-	-	-	
B314		Stone Bridge Rd	Class III	no change	Shared Route	0.17	1	-	-	-	-	-	-	-	-	-	-	-	
B315	Swan/Wren Shared Route	Swan Dr	-	Class III	Shared Route	0.21	3	\$ 15,000	2	2	0	2	2	2	3	3	18	B.4	

Project Number	Project Description							Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
	Project Name	Segment Name	Existing Route Type	Proposed Route Type	Proposed Route Design	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost Benefit	Total	
B315		Wren Dr	-	Class III	Shared Route	0.09	2	\$ 6,000	-	-	-	-	-	-	-	-	-	-	B.4
B316	Garstin Shared Route	Garstin Dr	Class III	no change	Shared Route	0.21	2	\$ -	1	2	0	2	2	3	3	3	3	18	-
B317	Moonridge Shared Route	Garstin Dr	-	Class III	Shared Route	0.27	2	\$ 19,000	1	2	0	2	3	3	3	3	3	19	B.4
B317		Moon Ridge Rd	-	Class III	Shared Route	0.07	1	\$ 5,000	-	-	-	-	-	-	-	-	-	-	B.4
B317		Moonridge Rd	-	Class III	Shared Route	0.03	1	\$ 2,000	-	-	-	-	-	-	-	-	-	-	B.4
B318	Thrush Drive Shared Route	Thrush Dr	-	Class III	Shared Route	0.36	5	\$ 25,000	2	2	0	3	2	3	2	3	3	20	B.4
B319	Switzerland Drive Share Route (West)	Switzerland Dr	-	Class III	Shared Route	0.22	4	\$ 15,000	1	2	0	2	2	3	1	3	3	17	B.4
B320	North Summit Shared Route	Summit Blvd	Class III	no change	Shared Route	0.44	5	\$ -	1	2	0	2	3	2	3	3	3	18	-
B321	South Summit Shared Route	Summit Blvd	-	Class III	Shared Route	0.14	1	\$ 10,000	1	2	0	2	2	3	2	3	3	18	B.4
B322	Evergreen Drive Share Route	Evergreen Dr	Class III	no change	Shared Route	0.70	7	\$ -	1	2	0	2	2	3	2	3	3	18	-
B323	Switzerland Drive Share Route (East)	Switzerland Dr	-	Class III	Shared Route	0.81	12	\$ 56,000	1	2	0	2	2	3	1	3	3	17	B.4
B324	Elm Street Shared Route	Elm St	-	Class III	Shared Route	0.31	7	\$ 22,000	1	2	0	2	2	2	1	3	3	16	B.4
B325	Willow Avenue Shared Route	Willow Ave	-	Class III	Shared Route	0.46	4	\$ 32,000	1	2	0	2	2	2	0	3	3	15	B.4
B326	East Rathbun Creek Shared Route	Catalina Rd	-	Class III	Shared Route	0.66	5	\$ 46,000	1	2	0	2	2	2	2	3	3	17	B.4
B326		Sonoma Dr	-	Class III	Shared Route	0.25	2	\$ 17,000	-	-	-	-	-	-	-	-	-	-	B.4
B327	Cougar Road Shared Route (West)	Cougar Rd	-	Class III	Shared Route	0.24	1	\$ 17,000	1	2	0	2	2	2	1	3	3	16	B.4
B328	East Moonridge Loop	Goldmine Dr	Class III	no change	Shared Route	0.20	1	\$ -	1	3	0	2	2	1	3	3	3	17	-
B328		Moonridge Rd	Class III	no change	Shared Route	0.98	9	\$ -	-	-	-	-	-	-	-	-	-	-	-
B328		Sonoma Dr	Class III	no change	Shared Route	0.27	3	\$ -	-	-	-	-	-	-	-	-	-	-	-
B329	Club View Drive Shared Route	-	-	Class III	Shared Route	0.04	1	\$ 2,000	1	2	0	3	1	3	0	3	3	16	B.4
B329		Club View Dr	-	Class III	Shared Route	0.27	4	\$ 19,000	-	-	-	-	-	-	-	-	-	-	B.4
B330	Cougar Road Shared Route (East)	Cougar Rd	Class III	no change	Shared Route	0.22	1	\$ -	1	2	0	2	2	2	1	3	3	16	-
B331	Douglas Street Shared Route	Douglas St	Class III	no change	Shared Route	0.06	1	\$ -	1	2	0	2	2	2	1	3	3	16	-
City of Big Bear Lake Total							31.37	460	\$ 3,777,000										
North of North Shore Drive (outside of City)																			
B209	North Shore Route	N Shore Dr	-	Class II	bicycle lane	0.05	1	\$ 98,000	3	3	3	3	3	3	1	1	23	B.2	
B209		N Shore Dr.	-	Class II	bicycle lane	6.40	61	\$ 2,155,000	-	-	-	-	-	-	-	-	-	-	B.2
B209		N Shore Ln.	-	Class II	bicycle lane	0.95	10	\$ 93,000	-	-	-	-	-	-	-	-	-	-	B.2
B210		N Shore Dr.	-	Class II	bicycle lane	1.16	19	\$ 114,000	3	2	3	3	2	2	2	3	22	B.2	
B211		E North Shore Dr	-	Class II	bicycle lane	0.66	12	\$ 64,000	1	3	0	3	2	2	1	1	15	B.2	
B211		N Shore Dr.	-	Class II	bicycle lane	3.21	15	\$ 2,580,000	-	-	-	-	-	-	-	-	-	-	B.2
B211		W North Shore Dr	-	Class II	bicycle lane	1.28	23	\$ 1,204,000	-	-	-	-	-	-	-	-	-	-	B.2
B212		Stanfield Cutoff	-	Class II	bicycle lane	0.39	5	\$ 39,000	3	2	3	3	2	2	1	2	3	21	B.2
North of North Shore Drive (outside of City) Total							14.11	146	\$ 6,347,000										
South of North Shore Drive (outside of City)																			
B202	E. Big Bear Boulevard Bike Lanes	E Big Bear Blvd	-	Class II	Bicycle Lane	1.37	16	\$ 134,000	2	3	0	3	3	3	2	3	22	B.1/B.2	
B202		Shay Rd	-	Class II	Bicycle Lane	0.72	8	\$ 71,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B202		Shay Rd	Class III	Class II	Bicycle Lane	0.02	1	\$ 2,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B202		W Big Bear Blvd	-	Class II	Bicycle Lane	1.24	14	\$ 121,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B202		S Greenspot Rd	Class III	Class II	Bicycle Lane	0.00	1	\$ 422	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B211	Baldwin Lake/Shay Road Bike Lanes	Baldwin Lake Rd.	-	Class II	Bicycle Lane	2.31	43	\$ 225,000	1	3	0	3	2	2	2	1	16	B.1/B.2	
B211		Shay Rd.	-	Class II	Bicycle Lane	1.44	5	\$ 1,381,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B213	Division Bike Lanes	Division Dr	-	Class II	Bicycle Lane	0.15	2	\$ 15,000	1	2	0	1	2	2	2	3	15	B.1/B.2	
B214	Paradise Way Bike Lanes	N Paradise Way	-	Class II	Bicycle Lane	0.01	2	\$ 1,000	1	3	0	2	2	2	2	3	17	B.1/B.2	
B214		Paradise Way	-	Class II	Bicycle Lane	0.68	16	\$ 66,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B214		Paradise Way	Class III	Class II	Bicycle Lane	0.10	2	\$ 9,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B215	Hwy 38/Greenspot Bike Lanes	Greenspot Blvd	-	Class II	Bicycle Lane	2.12	28	\$ 207,000	2	3	0	3	3	2	0	3	18	B.1/B.2	

Project Description								Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
Project Number	Project Name	Segment Name	Existing Route Type	Proposed Route Type	Proposed Route Design	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost Benefit	Total	
B215		State Hwy 38	-	Class II	Bicycle Lane	0.34	2	\$ 33,000	-	-	-	-	-	-	-	-	-	-	B.1/B.2
B252	Fox Farm Bike Boulevard	Fox Farm Rd	Class III	Class 2.5	Bicycle Boulevard	0.11	1	\$ 76,000	1	1	0	3	2	3	0	2	3	15	B.3
B253	Country Club/Big Tree Bike Boulevard	Big Tree Dr	Class III	Class 2.5	Bicycle Boulevard	0.01	1	\$ 8,000	1	1	0	3	2	2	0	2	2	13	B.3
B253		E Country Club Blvd	-	Class 2.5	Bicycle Boulevard	0.32	3	\$ 214,000	-	-	-	-	-	-	-	-	-	-	B.3
B253		Valley Blvd	Class III	Class 2.5	Bicycle Boulevard	0.25	5	\$ 167,000	-	-	-	-	-	-	-	-	-	-	B.3
B253		W Aeroplone Blvd	Class III	Class 2.5	Bicycle Boulevard	0.50	6	\$ 330,000	-	-	-	-	-	-	-	-	-	-	B.3
B253		W Country Club Blvd	Class III	Class 2.5	Bicycle Boulevard	0.43	4	\$ 288,000	-	-	-	-	-	-	-	-	-	-	B.3
B254	Sugarloaf/Aeroplone Bike Boulevard	E Aeroplone Blvd	-	Class 2.5	Bicycle Boulevard	0.34	3	\$ 225,000	1	1	0	2	2	2	0	2	1	11	B.3
B254		Paradise Way	-	Class 2.5	Bicycle Boulevard	0.11	5	\$ 75,000	-	-	-	-	-	-	-	-	-	-	B.3
B254		Saw Mill Dr	-	Class 2.5	Bicycle Boulevard	0.13	4	\$ 84,000	-	-	-	-	-	-	-	-	-	-	B.3
B254		Sugarloaf Blvd	-	Class 2.5	Bicycle Boulevard	0.98	13	\$ 649,000	-	-	-	-	-	-	-	-	-	-	B.3
B254		W Aeroplone Blvd	-	Class 2.5	Bicycle Boulevard	0.19	3	\$ 123,000	-	-	-	-	-	-	-	-	-	-	B.3
B300	Little Arctic Circle Shared Route	Big Bear Blvd	Class III	no change	Shared Route	1.07	14	\$ -	0	1	0	3	1	1	0	3	3	12	-
B332	McAlister/Sugarpine Shared Route	Mc Alister Rd	-	Class III	Shared Route	0.23	6	\$ 16,000	1	1	0	1	2	1	1	3	3	13	B.4
B332		Sugarpine Rd	-	Class III	Shared Route	0.02	1	\$ 2,000	-	-	-	-	-	-	-	-	-	-	B.4
B333	Cougar/McAlister Shared Route	Cougar Rd	Class III	no change	Shared Route	0.07	2	\$ -	1	2	0	2	2	1	1	3	3	15	-
B333		Mc Alister Rd	Class III	no change	Shared Route	0.37	5	-	-	-	-	-	-	-	-	-	-	-	-
B334	Johnny Way Shared Route	Johnny Way	-	Class III	Shared Route	0.14	1	\$ 9,000	1	1	0	2	2	1	1	3	3	14	B.4
B335	Bowles/Blue Water Shared Route	Bowles Dr	-	Class III	Shared Route	0.05	1	\$ 3,000	1	2	0	1	2	2	2	3	3	16	B.4
B335		N Blue Water Dr	-	Class III	Shared Route	0.05	1	\$ 3,000	-	-	-	-	-	-	-	-	-	-	B.4
B336	E. Mountain View Boulevard Shared Route	E Mountain View Blvd	-	Class III	Shared Route	0.03	1	\$ 2,000	1	2	0	1	2	2	3	3	3	17	B.4
B337	Mountain View/Mount Doble Share Route	Angeles Blvd	Class III	no change	Shared Route	0.14	3	\$ -	1	2	0	1	2	2	3	3	3	17	-
B337		E Mountain View Blvd	Class III	no change	Shared Route	0.21	2	-	-	-	-	-	-	-	-	-	-	-	-
B337		Mount Doble Dr	Class III	no change	Shared Route	0.04	1	-	-	-	-	-	-	-	-	-	-	-	-
B338	Greenway Drive (west) Shared Route	Greenway Dr	Class III	no change	Shared Route	0.07	2	-	1	2	0	1	2	2	3	3	3	17	-
B339	Greenway Drive (east) Shared Route	Greenway Dr	-	Class III	Shared Route	0.19	4	\$ 13,000	1	2	0	2	2	2	3	3	3	18	B.4
B340	Maltby Boulevard Share Route	Maltby Blvd	-	Class III	Shared Route	0.50	5	\$ 34,000	1	2	0	2	2	2	2	3	3	17	B.4
B340		Shore Dr	-	Class III	Shared Route	0.04	1	\$ 3,000	-	-	-	-	-	-	-	-	-	-	B.4
B341	Country Club Shared Route	Country Club Blvd	-	Class III	Shared Route	0.05	1	\$ 4,000	1	2	0	1	3	2	2	3	3	17	B.4
B341		E Country Club Blvd	-	Class III	Shared Route	0.15	2	\$ 10,000	-	-	-	-	-	-	-	-	-	-	B.4
B342		Shore Drive Shared Route	Shore Dr	Class III	no change	Shared Route	0.27	7	\$ -	2	2	0	2	3	2	1	3	3	18
B343	Booth Way Shared Route	Barrett Way	-	Class III	Shared Route	0.12	1	\$ 8,000	2	2	0	1	3	2	2	3	3	18	B.4
B343		Bluebill Dr	-	Class III	Shared Route	0.04	1	\$ 3,000	-	-	-	-	-	-	-	-	-	-	B.4
B343		Booth Way	-	Class III	Shared Route	0.37	5	\$ 26,000	-	-	-	-	-	-	-	-	-	-	B.4
B343		E Booth Way	-	Class III	Shared Route	0.03	1	\$ 2,000	-	-	-	-	-	-	-	-	-	-	B.4
B343		Shore Dr	-	Class III	Shared Route	0.14	3	\$ 10,000	-	-	-	-	-	-	-	-	-	-	B.4
B344	E. Country Club Shared Route	E Country Club Blvd	Class III	no change	Shared Route	0.53	6	\$ -	2	2	0	2	3	2	1	3	3	18	-
B344		N Drake Dr	Class III	no change	Shared Route	0.01	1	-	-	-	-	-	-	-	-	-	-	-	-
B344		N Greenspot Rd	Class III	no change	Shared Route	0.04	1	-	-	-	-	-	-	-	-	-	-	-	-
B345	Maple Lane Shared Route	Barton Ln N	-	Class III	Shared Route	0.01	1	\$ 400	3	3	0	2	2	2	0	3	3	18	B.4
B345		Maple Ln	-	Class III	Shared Route	1.03	8	\$ 71,000	-	-	-	-	-	-	-	-	-	-	B.4
B345		S Maple Ln	-	Class III	Shared Route	0.27	1	\$ 19,000	-	-	-	-	-	-	-	-	-	-	B.4
B346	Baldwin Lane Shared Route	Baldwin Ln	-	Class III	Shared Route	0.90	14	\$ 62,000	3	3	0	1	3	1	0	3	3	17	B.4
B347	Barton Lane Shared Route	Barton Ln	-	Class III	Shared Route	0.01	1	\$ 1,000	1	3	0	2	1	0	0	3	3	13	B.4
B347		Barton Ln N	-	Class III	Shared Route	0.68	21	\$ 47,000	-	-	-	-	-	-	-	-	-	-	B.4
B348	E. Big Bear Boulevard (North) Shared Route	E Big Bear Blvd	Class III	no change	Shared Route	0.90	5	\$ -	2	2	0	2	2	2	0	3	3	16	-
B349	Zaca Road Shared Route	Zaca Rd	-	Class III	Shared Route	0.31	6	\$ 21,000	2	2	0	2	2	2	0	3	3	16	B.4

Project Number	Project Description							Planning Level Cost Estimates	Prioritization Criteria										Relevant Design Guidelines
	Project Name	Segment Name	Existing Route Type	Proposed Route Type	Proposed Route Design	Length (Miles)	# of Segments		Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation	Cost Benefit	Total	
B350	E. Big Bear Boulevard (South) Shared Route	E Big Bear Blvd	-	Class III	Shared Route	0.15	3	\$ 10,000	1	2	0	2	2	2	0	3	3	15	B.4
B351	Garnet Street Shared Route	Garnet St	Class III	no change	Shared Route	0.22	2	\$ -	1	2	0	2	2	2	0	3	3	15	-
B352	Hatchery Road Shared Route	Erwin Ranch Rd	Class III	no change	Shared Route	0.15	2	\$ -	1	2	0	2	2	2	0	3	3	15	-
B352		Hatchery Dr	Class III	no change	Shared Route	0.81	12	-	-	-	-	-	-	-	-	-	-	-	-
B352		Hatchery Rd	Class III	no change	Shared Route	0.41	9	-	-	-	-	-	-	-	-	-	-	-	-
B352		Lakewood Dr	Class III	no change	Shared Route	0.09	3	-	-	-	-	-	-	-	-	-	-	-	-
B353	Mitchell Lane Shared Route	Mitchell Ln	-	Class III	Shared Route	0.57	13	\$ 40,000	1	1	0	3	2	2	0	3	3	15	B.4
B354	State Lane Shared Route	E State Ln	-	Class III	Shared Route	0.04	2	\$ 3,000	1	1	0	2	2	2	0	3	3	14	B.4
B354		State Ln	-	Class III	Shared Route	1.07	19	\$ 74,000	-	-	-	-	-	-	-	-	-	-	B.4
	South of North Shore Drive (outside of City) Total		-	-	-	26.5	389	\$ 5,000,822											
<b>Bicycle Routes Total</b>						<b>71.9</b>	<b>995</b>	<b>\$ 15,124,822</b>											

Project Number	Project Name	Project Description	Prioritization Criteria								Relevant Design Guidelines	
			Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation		Total
<b>Trailheads and Crossings</b>												
E012	Improve trailhead, parking and equestrian staging	Vale Trailhead	0	0	0	2	0	0	0	2	4	E.1, E.16
E011	Baldwin Lake Rd at-grade crossing at Vale Dr	Vale Crossing	0	0	0	2	0	0	0	2	4	E.11
E013	Crossing of Baldwin Lake Rd at Boron Ln	Boron Crossing	0	0	0	2	0	0	0	2	4	E.11
E015	Baldwin Lake Rd at-grade at Arrastre Rd	Arrastre Crossing	0	0	0	2	0	0	0	2	4	E.11
E016	Shay Rd crossing at Natural Heritage property	Shay Crossing	0	0	0	2	0	0	0	2	4	E.11
E017	Improve trailhead, parking, and equestrian staging	Heritage Trailhead	0	0	0	2	0	0	0	2	4	E.1, E.16
E014	Improve trailhead, parking and equestrian staging	Kickapoo Trailhead	0	0	0	2	0	0	0	2	4	E.1, E.16
E018	New trailhead, parking, and equestrian staging	Ham. Ranch Gateway	0	0	0	2	0	0	0	1	3	E.1, E.16
E021	Improve trailhead, parking and equestrian staging	PCT Crossing TH	0	0	0	3	0	0	0	2	5	E.1, E.16
E019	North Shore Drive crossing	N. Shore Crossing	0	0	0	2	0	0	0	2	4	E.11
E020	North Shore Drive crossing	Holc Villy E Crossing	0	0	0	2	0	0	0	2	4	E.11
E022	Paradise Way trailhead with parking & staging	Bald Lake TH W	0	2	0	1	2	1	1	1	8	E.1, E.16
E024	Signage at end of undercrossing	Greenspot Gateway	0	0	0	2	0	0	0	3	5	E.6
<b>Staging Areas</b>												
E023	Trailer pkg, event facilities, water restroom, access trails	Erwin Lake Equestrian Staging Center	0	1	0	2	2	2	0	2	9	E.1, E.5, E.12, E.13, E.14, E.16
E010	Trailer pkg, round pens, water, restrooms, access trails	Baldwin Lake Equestrian Staging Center	0	0	0	2	0	0	0	2	4	E.1, E.16
E024	Trailer pkg, round pens, water, restrooms, access trails	Greenspot Gateway Staging Center	0	0	0	2	0	0	0	2	4	E.1, E.16
<b>Trails, Connections and Signage</b>												
E100	Link Baldwin Loop Tr - Vale Dr Trailhead	Vale Connector	0	0	0	2	0	0	0	1	3	E.5
E300	Sign existing equestrian neighborhood streets	Boron Connector	0	0	0	2	0	0	0	3	5	E.5
PBE50#	Baldwin Lake Linkage Tr - Shay to Arrastre	S. Baldwin Lake Crossing	0	0	0	2	0	0	0	1	3	E.11
E102	Link across Natural Heritage property	Heritage Crossing	0	0	0	2	0	0	0	1	3	E.11
E200	Dedicated equestrian path adjacent to streets	Shay Neighborhood Trail	1	3	3	2	2	2	0	2	15	E.11
E301	Sign existing equestrian neighborhood streets	Lakeview Signage	0	0	0	2	0	0	0	3	5	E.6
E301	Sign existing equestrian neighborhood streets	Kickapoo Signage C3	0	0	0	2	0	0	0	3	5	E.6
E301	Sign existing equestrian neighborhood streets	Raymond-Ben. Wils. Sign C3	0	0	0	2	0	0	0	3	5	E.6
E302	Sign existing equestrian neighborhood streets	Erwin Ranch C3	0	0	0	2	1	2	0	3	8	E.6
E302	Sign existing equestrian neighborhood streets	County Ln C3	0	0	0	2	0	0	0	3	5	E.6
E302	Sign existing equestrian neighborhood streets	State Ln C3	0	0	0	2	0	0	0	3	5	E.6
E302	Sign existing equestrian neighborhood streets	State Ln C3	0	0	0	2	0	0	0	3	5	E.6
E201	Dedicated equestrian path adjacent to streets	Erwin Ranch Nghd Trail	0	0	0	2	0	0	0	2	4	E.4
E203	Sign existing equestrian neighborhood streets	Hatchery Nghd Trail	0	0	0	2	2	0	0	3	7	E.4
E304	Sign existing equestrian neighborhood streets	Lakewood-Hatchery C3	0	0	0	2	1	3	0	3	9	E.4
M003	Improve Rd b/t SH 38 & Los Vaqueros	Erwin Ranch Rd	0	1	0	2	2	2	0	3	10	E.4
E302	Sign existing equestrian neighborhood streets	Erwin Ranch C3	0	1	0	2	1	1	0	3	8	E.6
M001	Nghd street connecting Bramble Bush to Erwin Ranch	Bramble Bush Trl	0	1	0	2	1	1	0	2	7	E.5
E202	Dedicated equestrian path adjacent to streets	E Big Bear Blvd Nghd Tr	0	2	0	2	1	2	0	2	9	E.4
PBE50#	Multi-use C1 parallel to SH 38 Hatch to Lake W	SH 38 Multi-Use Path	0	0	0	2	0	0	0	1	3	E.4
PBE50#	Multi-use C1 - Baldwin Lake Loop	Baldwin Lake Loop	0	3	0	2	2	2	1	1	11	E.5
PBE50#	Multi-use C1 - Baldwin Lake Loop	Baldwin Lake Loop	0	0	0	2	0	0	0	1	3	E.5
PBE50#	Multi-use C1 - Baldwin Lake Loop	Baldwin Lake Loop	0	1	0	2	0	1	0	1	5	E.5
PBE50#	Multi-use C1 - Baldwin Lake Loop	Baldwin Lake Loop	0	0	0	2	0	0	0	1	3	E.5

Project Number	Project Name	Project Description	Prioritization Criteria								Relevant Design Guidelines	
			Safe Routes to School	Safe Routes to Transit	Neighborhood Connectivity	Lake and Forest Connectivity	Business Access	Visitor Supporting	Public Facility Access	Ease of Implementation		Total
PBE50#	Multi-use C1 - Baldwin Lake Loop	Baldwin Lake Loop	0	0	0	2	0	0	0	1	3	E.5
PBE50#	Multi-use C1 - Baldwin Lake Loop	Baldwin Lake Loop	0	0	0	2	0	0	0	1	3	E.5
PBE50#	Multi-use C1 parallel to SH 38 Hatch to Lake W	SH 38 Multi-Use Path	0	0	0	2	0	0	0	2	4	E.5
E303	Sign existing equestrian neighborhood streets	Vale-Upland-Quartz C3	0	0	0	2	0	0	0	3	5	E.6
E303	Sign existing equestrian neighborhood streets	Quartz Dr C3	0	0	0	2	0	0	0	3	5	E.6
M002	Neighborhood street b/t Erwin Ranch & Lakewood Dr	11th Ln extension	0	1	0	2	2	2	0	2	9	E.5
M001	Neighborhood street b/t Bramble Bush to Erwin Ranch	Bramble Bush Trl	0	1	0	2	1	2	0	2	8	E.5
E304	Sign existing equestrian neighborhood streets	Glencove-Center-Marip C3	0	0	0	2	0	0	0	3	5	E.6
E302	Sign existing equestrian neighborhood streets	I Ln C3	0	0	0	2	0	0	0	3	5	E.6
E302	Sign existing equestrian neighborhood streets	G Ln C3	0	0	0	2	0	0	0	3	5	E.6
E104	State Ln to Forest Connector	State-Forest C1	0	0	0	2	0	0	0	1	3	E.5
E302	Sign existing equestrian neighborhood streets	Cypress Ln C3	0	0	0	2	0	0	0	3	5	E.6
E201	Dedicated equestrian path adjacent to streets	Erwin Ranch Nghd Trail	0	0	0	2	0	0	0	2	4	E.4
E024	SH 38 undercrossing at Hatchery Rd	Hatchery Undercrossing	0	0	0	2	0	0	0	1	3	E.2
E201	Dedicated equestrian path adjacent to streets	Erwin Ranch Nghd Trail	0	0	0	2	0	0	0	2	4	E.4
E500	Dirt equestrian trail parallel & s of Shay Rd	Jackie's Trail	0	0	0	3	0	0	0	2	5	E.4
E204	Dedicated equestrian path along Baldwin Lake Rd	Baldwin Lake C2	0	0	0	3	0	0	0	2	5	E.4
E305	Sign existing equestrian neighborhood streets	Minnow Ln C3	0	0	0	2	0	0	0	3	5	E.6
E501	Dirt equestrian trail south of Minnow/Arrastre	Lost Trail	0	0	0	2	0	0	0	2	4	E.5
E306	Sign existing equestrian neighborhood streets	Switzerland Rd C3	0	2	0	2	2	2	0	3	11	E.6
E502	Dedicated equestrian path south of Switzerland Dr	Bristlecone Eq Trail	0	1	0	2	1	2	0	1	7	E.5
E502	Dedicated equestrian path south of Willow Ave	Bristlecone Eq Trail	0	2	0	2	2	1	0	1	8	E.5
E503	Dedicated equestrian path b/t golf course and zoo	Moonridge Eq. Connector	0	2	0	2	3	1	0	1	9	E.5
E205	Dedicated equestrian path adjacent to streets	Moon-Lass Trail	0	3	0	2	0	2	0	1	8	E.4
E304	Sign existing equestrian neighborhood streets	Lakewood-Hatchery C3	0	0	0	2	2	2	0	3	9	E.6





## APPENDIX C: ECONOMIC DEVELOPMENT CASE STUDIES

Case studies provide additional information related to how similar communities have capitalized on outdoor recreation as part of their branding and economic development strategy. Flagstaff, Park City, and Boulder were chosen because of their locations at altitude, their locations at some distance from larger metropolitan areas, and their reputations for outdoor recreation, including trail-based recreation. This appendix includes basic information about each community, based on interviews conducted with local representatives to highlight certain aspects of each respective community's outdoor recreation scene. Following these case studies, the appendix provides a summary of outcomes discussed with the Recreation Industry Advisory Committee during the planning process.

### FLAGSTAFF, AZ

#### Overview

- Tagline: The destination for all seasons
- Elevation: 7,000 ft. Population: 66,000
- Location: 130 miles from Phoenix
- Key assets: Northern Arizona University, Flagstaff Medical Center; Flagstaff Urban Trail System (FUTS); near Arizona Snowbowl ski area, Coconino National Forest, and Grand Canyon; served by I-40 and I-17.
- Highlights: 78 percent of residents have used FUTS in last year; 50 miles, master planned for 130
- Former USOC Training Site; designated "Bicycle Friendly Community", city has 9% bicycle mode share; W.L. Gore & Associates – outdoor products manufacturer

#### Spotlight on High Altitude Training Facilities

Due to a collaboration of effort between the City of Flagstaff, the Chamber of Commerce, and Northern Arizona University, Flagstaff has become known a destination for high altitude athletic training, attracting elite athletes from within the U.S. and numerous foreign countries. The following was excerpted from the Northern Arizona Center for High Altitude Training web site:

"The Center for High Altitude Training, formerly known as the High Altitude Sports Training Complex, was started in 1994 as a joint venture of NAU, the City of Flagstaff, and the State of Arizona. It now operates as a department at NAU, with support funding from the City of Flagstaff and other outside sources. The organization's original and sole purpose was to provide managerial service to international visiting teams traveling to Flagstaff for altitude training. In 2000, the center expanded its mission to include community programming and

outreach to Native American reservations. In the past 10 years, the center has served over 4,500 athletes and coaches from 39 countries. 191 Olympic and Paralympic medals have been won by athletes who trained at the center. In February of 2004, the center co-hosted the 2004 NAU / U.S. Olympic Committee Altitude Training Symposium in Colorado Springs. In May 2004, the center was designated an official U.S. Olympic Training Site and was designated a site for a Community Olympic Development Program.”

The center was forced to re-structure its operations in 2009 due to budget cuts at the Northern Arizona University, and subsequently dropped out of the U.S. Olympic Committee’s Olympic Training Center designation program; however, high altitude athletic training continues to thrive in Flagstaff, with local high altitude training expert Sean Anthony of Hypo2 Sports reporting regarding the 2012 Olympic games: “We [Flagstaff] sent almost 150 athletes from 22 countries, and these athletes went on to win 23 Olympic medals and 74 top ten finishes – those are just extraordinary results.”

### **Economic Benefits of High Altitude Training**

Sean Anthony was previously employed by the Center for High Altitude Training; however, when the center closed in 2009, he formed his own business to work with athletes and teams who want to conduct high altitude training in Flagstaff and other areas. Mr. Anthony’s company, Hypo2 Sports, collaborated with NAU’s Arizona Rural Policy Institute to put together a study of Hypo2 Sports’ economic impact in Coconino County in 2011. The study identified a total of \$1,058,000 in expenditures within the local economy by Hypo2 and its clients, including almost \$600,000 in lodging. These figures represent expenditures from just a slice of the athletes who train in Flagstaff and work with Hypo2 Sports.

### **U.S. Olympic/Paralympic Training Site Designation**

Bobbi Ullman of the United States Olympic Committee is the manager of the Training Sites and Community Partnerships regarding the Olympic/Paralympic Training Site designation program. Following are findings from the conversation with Ms. Ullman.

- *Organization:* Typically, communities getting involved with site designation are already involved with Olympics and/or Paralympics athletes and have connections within the sport (e.g., either local coaches or event organizers have contacts in the sport at the national level). When a community decides that it wants to become established as a formal Training Site, it is usually necessary to set up a local “commission” of stakeholders who will commit to promoting and overseeing the program. A first step is to send “commission” representatives to sports conferences to network with people active within the national governing body for the targeted sports (e.g., USA Triathlon is the national governing body for the sport of triathlon in the United States). As with Flagstaff’s establishment of its Olympic Training Site, it is critical that the national governing body voice its support to the USOC if a site designation is to be conferred. If the national governing body does not want to participate with the site, then site

designation is unlikely. Aside from Olympic/Paralympic Training Site designations, there are other designations that are more youth sports oriented, and which are typically set up in partnership with a youth sports non-profit.

- *Staffing:* A training site will most likely require a paid executive director. Site executive directors are often paid from funds from other enterprise operations that generate revenues. For example, the executive director of a swim training center might also function of the manager of the pool complex, which generates fees from various user groups. Additionally, other support staff will likely also be necessary. As an example, it was reported that the Flagstaff center had five employees and two interns, in 2008. In the case of the Flagstaff center, at least some of these staff were employees of Northern Arizona University, who were involved with management of the University's athletic facilities.
- *Services:* A key role of the organization that operates the training site is to provide access to facilities for training, and also to provide access to outside support services, such as nutritionists, physicians, physical therapists, transportation, lodging, dining, etc. The USOTC publishes guidelines for Olympic Training Site designation, which can be accessed at:  
[www.teamusa.org/~media/TeamUSA/Images/USOlympicandParalympicSiteDesignationPlan2010.pdf](http://www.teamusa.org/~media/TeamUSA/Images/USOlympicandParalympicSiteDesignationPlan2010.pdf). Even if a community is not going to pursue formal Olympic/Paralympic Training Site designation, the guidelines would be valuable in identifying the key resources that a community needs to provide in order to make itself an attractive venue for athletic training. The various recommended support services are usually provided by third parties, who may provide services for free or reduced costs to athletes, or who may receive some of their compensation from the Training Site organization to defray athlete's expenses. In regard to housing, the needs can vary, as some athletes are permanent residents in the communities where they train, and others are there for three to four week "camps", with the latter requiring access to short-term housing.

### **The Business of High Altitude Athletic Training**

Hypo2 Sports also shared information related to their relationship with the Altitude Training Center at NAU as well as their experience as a private company that specializes in organizing high altitude training for elite and professional athletes.

The focus for high altitude training facilities should be sports that have an endurance component. In the United States, elite level (e.g., national team level) athletes are invited to the U.S. Olympic Training Center in Colorado Springs, operated by the USOC. Training Sites and other high altitude training centers will likely serve people who are below that level. For those athletes who are not permanent residents in the community, 21 to 23 days is recommended for altitude training, prior to an event. In Mr. Anthony's experience, there are some trade-offs between the prestige of the Olympic Site designation and the constraints that come with it; thus, it may make more sense for a center not to obtain USOC designation in some cases.

From the standpoint of developing and supporting a high altitude training center, it can be beneficial to look beyond domestic athletes and cultivate relationships with international sports federations, which may have funds to spend to send their elite athletes abroad for training, if suitable facilities are not available in their home country. For example, Park City is now working with Hypo2 sports to promote high altitude training in Park City and Mr. Anthony has brought an Australian Rules Football club to Park City for a training camp. In addition, dealing with athletes at the team level can bring economies of scale that do not exist when dealing with individual athletes. Regardless of which market niches are pursued, Mr. Anthony emphasized that it is critical to provide a top-notch experience for athletes the first time the community tries to actively market itself as a high altitude training destination. The athletic community is relatively small, and word will get around if there are any negative experiences, which will hamper future efforts that must overcome the stigma.

Mr. Anthony recommended that a local community wanting to market itself as a destination for high altitude training have a single entity that can “corral” all of the athletic activity and provide central coordination of facilities, services, etc., and also be able to track and measure economic activity to show results of the effort, rather than having efforts fragmented and creating the need for duplication of effort.

- *Target Markets:* The Large Southern California population of serious amateur athletes creates opportunities to promote “camps” like “Train Like an Olympian”, serving as venue for Carmichael Training Systems (former Lance Armstrong coach) Cycling Camps, fantasy camps of different types, etc.
- *Key Ingredients for High Altitude Training Destination:* Following are some of the key attributes that teams and athletes will want when they are selecting a location for high altitude training, according to Mr. Anthony:
  - Transportation, ease of access (being within an easy drive of major Southern CA airports was seen as a benefit);
  - Room and board;
  - Sports medicine – having an MRI is an important resource;
  - Massage therapy/physical therapy; and
  - Practice facilities – including an indoor track if possible.

Mr. Anthony also indicated that having centralized services available for the athletes and coaches can make an area attractive – by providing turnkey arrangements to the athlete/team, they don’t have to figure it all out themselves, and this adds value. A compact community is beneficial, so that transportation times are minimized for daily activities. In Flagstaff organizers, leveraged the economic impact of the activities to get access to facilities for training time.

A good strategy for lining up specialized health services for athletes is to partner with them, in promoting the center and promoting their individual practices. The providers get marketing benefits from the association with elite athletes and in return they provide free, discounted, or preferential services to athletes. As discussed further below, sports medicine for elite athletes is such a limited market, that the core business of most providers is serving the needs of everyday patients. A good strategy for lining up lodging for visiting athletes is for the center to partner with hotels and receive a commission from the hotels on the room bookings to help support the center and its programs.

### **Sports Medicine Facilities**

The Sports Medicine Clinic in Seattle, a high end sports medicine practice that is known for working with a range of professional, college, and elite athletes. The project team interviewed Ms. Ricki Vadset, the organization's Administrator. Following are highlights of the conversation with Ms. Vadset.

The Sports Medicine Clinic is now a wholly owned subsidiary of the University of Washington Medical Center, however it was originally established as an independent practice. The Clinic is organized as a center specializing in musculo-skeletal treatment, with a focus on sports medicine. This structure was selected because active people identify with these types of services and the people who use these services are a good demographic for reimbursement. The Clinic's patients come from all over the Puget Sound area, and they also have patients who come from locations up to several hundred miles away, and also from Alaska. A key to the Clinic's success is providing physical therapy services as well as medical treatment, offering patients "one-stop" service. The Clinic also benefits from proximity to other established medical centers and colleagues, enabling cross-referrals.

- *Key Ingredients for a Sports Medicine Clinic:* According to Ms. Vadset, the key services that must be offered include primary care and orthopedic surgery. Having a digital X-ray system for rapid diagnosis is a must, and having ready access to a good MRI nearby is also key for serving athletes. Even though the Clinic is promoted as a service for elite athletes, the bread and butter is treating other patients, such as work place injuries and other musculo-skeletal injuries. It is necessary to have a population base that can utilize these services, to support the specialized physicians, since elite athletes alone are not going to support these physicians, particularly in a smaller community. Thus, in addition to physical therapy services for athletes, providers who can offer occupational therapy for other patients also helps to build a base of business that can support the facility. Also, there is a significant cross-over between the skills and equipment needed to serve workers comp patients and athletes. Staffing the facility with doctors who have primary care sports medicine training e.g., family practice physician with sports medicine training as additional qualification is a good way to be able to offer these services. Orthopedics is a critically important service to offer, and other services could include

podiatry, surgery on feet, video gait analysis, bio-engineering/prostheses, dieticians, internal medicine, allergy clinic, extremity MRI, ambulatory surgery center, hand surgery, and medical supplies – such as braces and splints.

## PARK CITY, UT

### Overview

- Elevation: 7,000 feet
- Population: 7,600
- Location: 30 miles from Salt Lake City
- Key assets: Canyons, Park City Mountain Resort, Deer Valley ski areas; Utah Olympic Park (USOC Training Site); 400 miles of public trails surrounding the city
- Outdoor Highlights:
- First location to achieve International Mountain Bike Association “Gold Ride Center” designation
- Headquarters for Backcountry.com, Rossignol USA
- USOC Training Center
- USSA Center of Excellence
- Pursuing establishment of high altitude athletic training center

### Spotlight on Mountain Bike Tourism

With its achievement of Gold Level status from the International Mountain Bike Association, Park City is developing a national and international reputation as a destination for mountain biking. The project team interviewed a number of individuals familiar with mountain biking in Park City as part of this case study, to learn more about how the City has been able to establish itself as a mountain biking destination, and what benefits the community has realized.

Charlie Sturgis is the executive director of the Mountain Trails Foundation, a local organization that partners with the City of Park City in the development, maintenance, and operation of the City’s mountain bike trails, using funding from the City. Mr. Sturgis feels that over the last 6 years, the number of visitors has increased substantially, due to the attraction of 80 kilometers of non-fee trails for cross-country mountain biking.

- *Trail System Usage:* Mr. Sturgis estimates that there are well over 1 million user days per year, and cites statistics one trailhead that gets 600 to 700 users per day. People use the trail system not only for recreation in and near town, but also to access trails that link to a neighboring town to make a dinner outing by bike. According to Mr. Sturgis, the trail system is the second most common reason for visitors to go to Park City. From

a survey of local residents, nine out of ten people use the trail system more than once per week. One reason for such high usage is that almost any neighborhood is close to trail access.

- Economic and Other Benefits:* In terms of economic benefits, Mr. Sturgis estimates that there is at least \$50 per user day in economic benefits, which, applied to 1 million user days per year would yield a \$50 million annual economic benefit. He also indicated that Park City ranks with the lowest obesity rate of any city in the U.S., and that Realtors say that buyers are attracted to the trails and open space as a property amenity. According to Chris Bernhardt of the IMBA, the local merchant community eventually latched onto the IMBA designation, and now the lodging industry is involved in distributing information and tying the trails to their marketing. Anecdotally, local businesses do believe they have drawn mountain bikers to the area (mountain bikers are visible around town), and generally understand that business has increased as a result. According to Mr. Bernhardt, the median household income for mountain bikers is \$110,000 to \$120,000 per year, meaning they are an attractive demographic non-bicycle related businesses in the areas that mountain bikers are attracted to.
- Trail System Funding:* According to Chris Bernhardt, of IMBA, Park City started building its trail network about 10 years ago. The key was to institutionalize trail development in City policies, including requiring developers to dedicate trail rights of way as part of subdivisions, and including trails in impact fee programs. Another important factor was that the community of trail users organized and integrated into the political and financial at the state level (e.g., participating in grant programs). A major local source of funding for trails development is an Open Space Bond measure, which passed with 76% approval. Heinrich Deiters, who is a Park City employee who oversees the trail system also echoed many of the same general ideas as those shared by Charlie Sturgis regarding trail system, usage, community support, and economic benefits. Mr. Deiters indicated that Park City is willing to give tours, have meetings with out of town representatives, etc., and share resources (e.g., sign designs) to help other communities establish and develop their own trail systems. Mr. Deiters indicated that one of the biggest challenges that Park City has faced is dealing with non-motorized multi-use policies (e.g., some trails uphill only for bikes, both ways for pedestrians).
- Key Ingredients for Success:* Patrick Kell of the International Mountain Bike Association provided information related to how Big Bear could position itself for the type of success that Park City has enjoyed with mountain biking. A key requirement to be marketable as a mountain biking destination is to develop a full suite of mountain bike trail options, suitable for different skill levels. He made the analogy to ski resort trail rating systems, where trails marked with green signs are for beginners, trails with blue signs for intermediate, and trails with black signs are for advanced/experts. He also emphasized that the quality of the trail design and construction is critical to user enjoyment and long-term ease of maintenance, and that the trails must be purpose-built for the type of use that mountain biking entails, rather than opening existing trails

for mountain bike use without modification. Mr. Kell indicated that 10 to 15 miles is a good distance for one day of mountain biking; thus, in order to attract people for three to four days, it will be necessary to create 45 to 60 miles of “routes”, not all of which need to be unique trail miles (e.g., routes can be different combinations of trail segments). Chris Bernhardt of IMBA suggested using the IMBA’s Ride Center criteria as a guide for trail planning, and noted that about 62 percent of the rating is based on trail experience, meaning that a quality trail system is a key factor in achieving Ride Center designation, with a key threshold being the ability for a rider to do different rides on three different days.

- *Success in Other Areas and Big Bear’s Potential:* Mr. Kell cited the Whistler, British Columbia area as another good example of a successful mountain biking destination. While it is four hours by car from Vancouver, it draws 125,000 mountain bikers in summer. The major draw there is mountain biking at the ski resort; however, there are also cross-country trails that give mountain bikers additional activities that can extend their stay in the area. Turning the focus to Big Bear, he recommended extending the Skyline Trail with some loops that can give riders of different abilities options for doing rides on multiple days. In discussion with Mr. Kell, it was noted that the Southern California region is a much larger potential market than Vancouver, and yet Big Bear is much closer to the population base in Southern California than Whistler is to Vancouver; however, Big Bear still needs to think about accessibility and how to improve the ease for people getting up to the mountain. In Mr. Kell’s opinion, at present, there is nothing in Southern California that will compete with Big Bear as a mountain biking destination, if it is done right. In terms of potential economic benefits, he cited a study of the trail system in Allegripps, PA, which assumes \$225 in spending per person per day for overnight visitors who are attracted for mountain biking. As an example of the type of trail-related business opportunity that opens up when a trail system is established, he mentioned mountain bike tour guides are a business opportunity, and gave Moab, UT, as an example of a community that has well-established guiding services. Chris Bernhardt of IMBA identified several other recommendations related to capturing the expenditures of mountain bikers in the local economy, including providing “bicycle-friendly” lodging, where bikes can be brought inside, and providing facilities for RVs in addition to mid-range lodging. A shuttle service that takes riders uphill and then picks them up at the bottom of downhill runs is another business opportunity.

## **BOULDER, CO**

### **Overview**

- Tagline: The city nestled between the mountains and reality
- Elevation: 5,400 feet
- Population: 97,400



- Location: 25 miles from Denver
- Key assets: University of Colorado; 146 miles of trails, 45,000 acres of preserved open space dating to 1898; 300 miles of dedicated bikeways, 75 bicycle underpasses
- Outdoor Highlights:
  - 5.3 million visits per year to Open Space and Mountain Parks system
  - HQ of Outdoor Industry Association and about 75 members are located in the Boulder Valley
  - Ranked #1 Best City to Raise an Outdoor Kid – Backpacker Magazine
  - Ranked #1 Gallup-Healthways Well-Being Index – USA Today
  - 18.2 percent of trips to work taken by bike or walking

### **Spotlight on Open Space Trails System**

The project team interviewed several representatives from Boulder in the preparation of this case study. They include Marni Ratzel, City of Boulder, Bicycle & Pedestrian Coordinator, Cliff Harald, Boulder Economic Council, and Kim Farin, Communications Manager, Convention & Visitors Bureau. Information from conversations with these individuals, along with additional information gathered from online sources is reflected below.

Boulder has over 45,000 acres of Open Space and Mountain Parks (OSMP) forming a ring around much of the City. The OSMP serves as a buffer setting Boulder apart from surrounding communities and giving it an identity of its own. Development within the City is seen as occurring inside the framework of the OSMP. The 145 miles of maintained trails in the OSMP are served by more than 60 major access points making it easy to move from the open space and recreational areas into the City's urban trail system. The OSMP trail system includes paths for hikers, bicyclists and horseback riders. Bicyclists are permitted to share 48 out of the total 145 miles of trails on bike trails are clearly marked. Horseback riding is permitted on all OSMP trails unless otherwise indicated. Riders may choose from a wide variety of terrains and locations. Some trailhead parking areas have been designed to include designated parking spaces for horse trailers. Neither bicyclists nor equestrians are permitted to ride off-trail.

As set forth in the City of Boulder Open Space and Mountain Parks Visitor Master Plan, 2005, OSMP land is to be acquired, maintained, preserved, retained and used only for designated purposes including “ the preservation of land for passive recreational use, such as hiking, photography or nature study, and if specifically designated, bicycling, horseback riding or fishing.”

Within the urban area, the City of Boulder has an extensive bicycle and pedestrian network with over 300 miles of bicycle and pedestrian paths including 159 centerline miles of bicycle facilities. The bike routes include on-street, contra-flow, designated routes, paved shoulders,

multi-use paths and soft surface paths. Boulder also has 78 underpasses, allowing for substantially uninterrupted travel to almost any destination. Each year, the City has added an average of one mile of off-street paths, half a mile of on-street bike lanes, and two underpasses.

Boulder also has a Greenways system made up of a series of riparian corridors along Boulder Creek and 14 of its tributaries. The area is managed by the City Utilities Program for flood mitigation and water quality. The most important difference between the paths in the Greenways area and the OSMP trail system is the former are built to transportation standards. They are paved, help to convey stormwater and allow access by City vehicles. The City of Boulder has been able to use the Greenways system to integrate multiple objectives including habitat protection, water quality management, storm drainage and floodwater management, trails and recreational resources. The Greenways system is funded by the City's Transportation fund, the Stormwater and Flood Control Utility Fund and the State's Lottery Fund. Each of these funds provides \$150,000 each year. The Greenways area also gets funding from the Urban Drainage and Flood Control District.

- *History:* In 1898, the City of Boulder purchased the eastern slope of Flagstaff Mountain from the US government, starting a tradition of preserving nature and encouraging outdoor activities. Sixty-nine years later, in 1967, Boulder voters passed the first sales tax measure to create, manage and maintain Boulder's Open Space program. The Open Space program went on to acquire 400 separate properties at a total cost of \$208 million. As the program has matured, the size and the pace of acquisitions has slowed. New properties have provided important links to the existing open space and satisfied one or more of the objectives set forth by the City. The City's long range blueprint for travel and mobility, the Transportation Master Plan, was adopted in 1989. At that time, the City also created the Alternative Transportation Center to develop alternatives to driving alone. The group soon took on the name Great Options in Transportation, or GO Boulder, and became a leader in progressive transportation management. GO Boulder takes a multi-modal approach (bicycles, pedestrians, buses) which is fully integrated into the Transportation Department and the community. In 2001, the Mountain Parks Division of the City's Parks and Recreation Department, and the Open Space/Real Estate Department merged to form the Open Space and Mountain Parks Program (OSMP), which exists today. The merger allowed the City to provide more consistent management of the area, to avoid expensive duplication, and to bring the Mountain Parks land under the strict protections of the Open Space Charter.
- *Facilities Usage:* In total, Boulder's Open Space and Mountain Parks are visited by about 5.3 million people per year. In 2009/2010, the Boulder Convention and Visitor's Bureau conducted a survey of over 10,000 visitors to Boulder and learned the following:

- *Length of Stay:* Most visitors to Boulder stay overnight in Boulder (61%). Another 16% elect to stay overnight in a nearby city, and 17% are day visitors. The remaining 6% are Boulder residents.
- *Place of residence:* Denver is the top market for visitors to Boulder (22%), followed by international visitors (6.7%), New York City (4.5%), and Los Angeles (3.7%). Visitors from Chicago, Washington D.C., San Francisco/Oakland, Boston, Minneapolis-Saint Paul and Colorado Springs-Pueblo each make up 2% - 3% of total visitors. The remaining 48.4% of visitors come from a broad range of domestic markets. Visitors coming on business tend to come from large US cities or internationally, while those visiting for recreation and leisure tend to be disproportionately from the Midwest.
- *Activities Pursued:* General sightseeing is the most popular activity for visitors at 59%. Hiking and climbing ranks 5th at 35%, followed by running/walking at 25%, special events at 22% and cycling and mountain biking at 10%. (The survey allowed visitors to select more than one activity.)
- *Spending:* On a per person per day basis, visitors combining business and pleasure spend the most (about \$206), followed by business travelers (\$180) and recreation/vacationers (\$161). In addition to visitors, local public opinion is recognized as key to maintaining support for the system, so in 2010 the OSMP conducted a telephone survey of registered voters. The goal was to get residents' opinions about delivery of services, land management, public policy issues, and to learn about the residents who visit OSMP. Of the 400 Boulder residents who participated, over half reported visiting OSMP at least twice a week and most stated that they had been visiting the area since they first moved to Boulder. Seventy percent reported their ability to access destinations in the area as very adequate. When asked what about OSMP is most important to them, 29% said recreation, 22% preservation, and 20% "aesthetic purposes" (enjoying nature, relaxing, etc.). Most respondents (78%) felt that OSMP found the right balance between recreational activities and preservation of the natural resources.
- *Funding.* Since the landmark sales tax measure was approved in 1967, local voters have approved a charter amendment allowing a bond issue for land acquisition in 1971, a second sales tax measure in 1989 further increasing the sales tax for 15 years, a 1997 extension of that tax to 2018, and a 2003 vote for another increase through 2019 to be used for land acquisitions and maintenance. Sales taxes, bond issues, private donations, development dedications and conservation measures have all played a part in the development and maintenance of the OSMP. In 2010, OSMP funding was threatened by State ballot measures which would have negatively impacted future sales tax revenues and forced changes to the department's financial management. The ballot measures failed, however, and revenue for 2010 was higher than projected. Among the outside organizations supporting the urban transportation system in Boulder, Great Outdoors Colorado (GOCO) stands out. GOCO is financed with lottery proceeds and

provides significant funding for work in the open space, parkland, bike parks, greenway trails, etc.

- *Marketing/Branding:* Boulder has done a good job of branding the City with the imprint of its beautiful mountain location, abundant Open Space, and healthy lifestyle. For example, GO Boulder was founded in 1989 to “create an innovative and balanced transportation system to sustain the quality of life valued by Boulder residents, employees and visitors.” Go Boulder is responsible for the designing, marketing, developing, and maintaining a transportation system that is multi-modal, safe, efficient and completely integrated. The transportation system includes buses as well as over 300 miles of bicycle and pedestrian paths. The public has been included in the development of the system through community design processes allowing participation in the creation of transportation options. Attractive packaging of everything from bus graphics to map design has been addressed. Every effort has been made to unite the public to “stay the course of no long-term growth in auto traffic.” The Active Living Business Center, a nonprofit formed by the Convention and Visitors Bureau and the Office of Economic Vitality, is an influential coalition of outdoor oriented businesses dedicated to shaping Boulder’s external marketing and local policy. Boulder’s image as a sustainable, healthy, outdoor, sports-oriented community strengthens the coalition’s marketing campaigns and they give back in return, planning events, and giving political support, funding, and volunteers.
- *Other Community Partners:* Numerous community partners have contributed to the development and maintenance of the urban trail system, including the City, the County (which has more open space than the City), and both nonprofit and for profit organizations. One way the City’s OSMP connects with the community is by coordinating the volunteer work done by nonprofit and for profit organizations. In 2010, volunteers contributed over 33,000 hours by monitoring wildlife, restoring habitat, building trails, etc. Volunteers are seen by the City as providing inspiration to staff and to the community. Volunteer groups included two AmeriCorps National Civilian Community Corps (NCCC) teams, Flatirons Climbing Council (FCC), University of Colorado, Saint Peter’s Summer Youth Group, New Vista High School, WhiteWave Foods, Pure One Natural Pet Store, Cisco & Webroot Software, the Sierra Club, Boulder City Improvement Association, BearCare Team, Native Garden Team, Bike Patrollers, Open Space Board of Trustees and the Community Collaborative Group. GO Boulder, a City program, was set up in part to collaborate with regional partners, including the local business community, to provide convenient travel choices to employees and customers. GO Boulder, in partnership with RTD, the University of Colorado at Boulder, Boulder County and other neighboring communities, has worked with local businesses and other constituents to expand the Community Transit Network to better serve these populations. Among other things, these efforts have resulted in a significant increase in average daily trips on RTD buses since 1989.

- *Economic Impacts:* According to a local economic survey conducted in 2011, Boulder benefits from \$52 million in annual economic activity from the city's bicycle industry, which supports at least 330 full-time jobs. A 2006 study of the greenbelt in Boulder showed that the average value of homes adjacent to the greenbelt was 32% higher than those 3,200 feet away. It also showed that the adjacent greenbelt added \$5.4 million to the total property values of one Boulder neighborhood, generating an additional \$500,000 per year in property taxes. As described above, another economic benefit is the additional spending by park visitors when they visit Boulder.

## **QUEEN CREEK HORSESHOE PARK & EQUESTRIAN CENTER, PHOENIX, AZ**

### **Overview**

Queen Creek Horseshoe Park & Equestrian Center is a 40-acre, \$15 million equestrian-oriented facility located as part of a brownfields project in a southwest Phoenix community of approximately 30,000 people. The land was donated by a large waste management company to the Town of Queen Creek, a community heavily populated by equestrians for many years. The community desired to provide a center that could serve the residents, youth programs, and provide a location for other activities that could utilize all of the arenas and other park facilities. The master plan incorporates the event-oriented facility and a separate, always-open community access arena facility and trail system. This well-designed facility, located in the Phoenix metropolitan area, provides ample opportunity for events of both the English and Western equestrian persuasion, as well as home shows, RV and car shows, concerts and weddings.

### **Facility Management**

These public facilities are managed by the Town of Queen Creek and the calendar is fully booked annually for a wide variety of equestrian activities, including 4H youth groups, horseshows, rodeos, and equine expos. Quiet and secluded yet conveniently located to Phoenix International Airport, venues in and around the City of Phoenix, and easily accessed from two major freeways, Horseshoe Park was constructed with flexibility in mind. Facility management services are provided through a long-term contractual agreement with an on-site concessionaire enterprise company that has successfully managed the facilities over the past four years, as well as coordinating all of the contracts, reservations, collection of fees for use of the facilities and the seasonal staffing required for the maintenance and operations of the entire facility.

### **Facilities Details**

The facilities include a 100-stall state-of-the art horse barn built under LEED guidelines, 200 shed row stalls, a large 150-foot x 300-foot covered arena with bleachers, three uncovered arenas and parking for equestrian horse trailers. The facility has electrical and water hookups, but no sewer utilities to the large parking areas shown on the site map designed for overnight

equestrian-oriented camping. The lack of a dump station has not been problematic due to the fact that many local facilities in the area provide dump stations. The equestrian facility has one permanently built show office and one mobile show office that can be moved to different locations on site, depending on the different needs of various equestrian and other types of park users. The professional footing in the main arena attracts many equestrian events throughout the region. The mixture of the composites in the top layer is ideal for many different types of events, and the base remains in nearly perfect condition after eight years of heavy use. The park has a food concession building that also includes large 15-stall contemporarily-furnished public restrooms. Two large restrooms are also provided in the permanent horse barn building.

### **Economic Impacts**

The equestrian park was planned to contribute to the economic development of the Town of Queen Creek to help offset the building, maintenance and operating costs of the facilities. The concessionaire is currently collecting \$25 per day for parking RV and horse trailers, and the stalls are rented for \$15.00 per day. Wood shavings for stalls are available on site for \$10/bag. Stalls are cleaned by rental customers. The park is home to a number of national and regional organizations, including the National Reined Cowhorse Association, Arizona Cutting Horse Association, Arizona Reined Cow Horse Association, Arizona Reining Horse Association, Hersberger Performance Horse Sale, Cowboy Mounted Shooting and Collman Equestrian Productions.

Horseshoe Park concessionaire manager, Tammy Kelly, reports the annual 2012 fee collections totaled \$460,000, and the annual costs of operations were \$1.2 million. The financial ratio between the costs to manage and maintain this equestrian park and event facility, versus the park's annual revenues, is very similar in comparison with the national economic figures for similar facilities as reported in the economic tables provided by the League of Agriculture.

Balancing out the costs and revenues picture, the Town of Queen Creek just completed an economic study and survey that demonstrated a multiplier of ten in the positive impact of the equestrian facility on the Town's economic activity. The study concluded that for every \$1.00 of expense for the facilities, the Town realizes \$10.00 in increased business earnings from the community. Bookings for Horseshoe Park in 2013 have doubled those of the previous year, which has been the trend over the past eight years since the facility opened. The Town of Queen Creek maintains a website that provides an event calendar that provides up-to-date information about upcoming events and also serves as a marketing tool for the equestrian park. The website is: <http://www.queencreek.org/index.aspx?page=773>

## RECREATION INDUSTRY ADVISORY COMMITTEE FINDINGS

### RIAC Meeting #1

The focus of discussion at the first meeting of the Recreation Industry Advisory Committee, on December 12, 2012, was a review of the information regarding the local outdoor recreation economy. This included information on the definition of the outdoor recreation industry and data on the size of the industry, both nationally and locally. This was followed by a discussion of the particular opportunities and constraints that Big Bear faces in trying to leverage development of the Trails Master Plan, for economic development benefits. Following are highlights of the opportunities and constraints identified by the RIAC.

#### *Opportunities*

- Activities for young people - e.g., night life, sharing and living spaces, job opportunities.
- Become a destination, extend visits by offering more activity options.
- Develop strong brand and identity - e.g., active learning resort, Sky High U, connect mind, body, spirit.
- Create better beginner experiences: provide outfitters, information and support, learning community.
- New music and cultural venues to help create 24-hour community.
- Create new lodging types, or new businesses to cater to their tastes.
- "Guide Permit Program" to streamline process for businesses to operate in the forest.
- New shoulder season activities - increase occupancy and support businesses year round.
- Attract a name brand, destination resort.

#### *Constraints*

- Lacking 18-25 year olds.
- Identity as day trip spot.
- Lack of awareness/generic identity.
- Not easy for people to get introduced to activities.
- Sleepy town - shops & restaurants close early.
- Young adventure crowd doesn't use conventional lodging.
- Difficulty in getting permits to operate in National Forest.

- Operating a max capacity during peak seasons.
- Need better lodging opportunities.

### *Other*

A number of other ideas were mentioned by RIAC participants for consideration in the development of economic development strategies.

- Increase awareness of Big Bear as a training destination.
- Promote four season recreation opportunities.
- Package what Big Bear has to offer and build on existing assets.
- Tie in with community's human capital.
- Make Big Bear attractive to the workforce; emphasize quality of life for residents.
- Develop industry partnerships to provide facilities and services - e.g. 5.10 branded climbing center.

### **RIAC Meeting #2**

The second RIAC meeting, on January 28, 2013, included a review of the Trails Master Plan concept that was under development, and then a discussion of the potential economic development opportunities that could be created in conjunction with the development of the trail network. The discussion was divided into four topics: Branding/Marketing, Visitor Attraction, Resident/Workforce Attraction, and Business Expansion/Attraction. Committee members brainstormed different ideas for economic development opportunities related to these topics. Following is a summary of the ideas that came out of these discussions:

#### *Branding/Marketing*

- First, clearly define market and then target messaging accordingly.
- Incorporate trail system as part of Big Bear's Image , including:
  - Quantify trails;
  - Improved maps/guides;
  - Web site to promote trail-based tourism in Big Bear;
  - Promote winter use as well as spring, summer, fall;
  - Package vacations;
- Broaden marketing and branding from current Resort Association focus on winter snow skiing, including:
  - RA activities are membership based.
- Establish one common design aesthetic throughout community.



- Common elements to develop distinct identity and sense of place.
- Deploy internet and social media tools as a means of connecting with Gen Y.

### *Visitor Attraction*

- Expand range of lodging options, including:
  - Seek to attract 4- and 5-star resort hotel accommodations; planning may be required to identify suitable location(s);
  - Seek to keep some campgrounds open for winter camping;
  - Explore opportunities to attract businesses offering outfitted camper vans/trailers/RVs for local use;
- Expand range of recreational options, including:
  - Provide lower cost alternatives to snow skiing at resorts such as snow play areas - improve availability (e.g., Onyx Summit may open soon), forest picnic areas, snowshoeing, cross country skiing, and other backcountry experiences, etc.
  - Promote climbing and trail running as a spring, summer, fall activity.
- Expand events calendar including climbing, cross-fit, benefit events, and moving from single-day events to multiday festivals and events.
- Create good, free maps for recreation, including summer and winter specific information on conditions, miles/time, difficulty, etc.
- Promote BBL as a location for Art Camps, Retreats, Etc.
- Expand inventory of local assets, such as an indoor swimming pool and outdoor and indoor running tracks .

### *Resident/Workforce Attraction*

- Promote trail system as integral part of local quality of life and attractive to creative class.
- Tap into internet-based workers, who can live anywhere, looking at broadband access and reducing redundant networks.
- Target singles.
- Facilitate a career ladder - so talented young people can remain in the community instead of leaving to advance..
- Develop tourism as a more constant year-round activity, so that there are more year round jobs to support residents.
- Create post-secondary educational opportunities.

- Partner with colleges down the hill to offer classes and training in the valley, such as sciences, archaeology and hospitality professional training program; and
- Develop internships with local employers.

### ***Business Expansion/Attraction***

- Hosting retreats and training sessions, broadening lodging and meeting space options.
- Help businesses obtain suitable, affordable space, including:
  - Work with absentee landlords; and
  - Establish pop-up store program (City could partner with landlords to offer incentives).
- Target 2nd home owners who own businesses off the hill.
- Small business support and services, including:
  - Establish business mentor program in partnership with Chamber;
  - Networking events for young entrepreneurs in partnership with Chamber; and
  - Establish local business investment fund.
- Target businesses whose owners and employees want outdoor lifestyle, including:
  - Outdoor gear and clothing;
  - Adventure travel companies;
  - Outdoor event promotion companies; and
  - Outdoor education/training organizations.
- Specific Business Targets:
  - Rock climbing gear and instruction/guiding (could be expansion of local outdoor stores);
  - Healthy groceries and restaurants;
  - Cross country and snowshoe retailer/outfitter (could be expansion of local outdoor stores);
  - Mountain bike trail guiding/outfitting businesses;
  - Festivals/events - work with promoters to host events locally- particularly multi-day events; and
  - Athletic training and sports medicine professionals and facilities (will likely include providers who also provide serve conventional health care clientele).

## APPENDIX D: BICYCLE TRANSPORTATION ACCOUNT COMPLIANCE

Caltrans provides bicycle transportation improvement funding for cities and counties through its Bicycle Transportation Account (BTA) program.<sup>1</sup> Funding is available for a range of bicycle safety improvements, including planning, design, land acquisition and construction. The first step in eligibility of funding is adoption of a local bicycle transportation plan that meets provisions of the California Streets and Highways Code, Section 891.2.

Section 891.2 calls for descriptions and maps of all existing and proposed bicycle infrastructure, as well as a summary of public involvement and conformance with existing plans and policies. To ensure compliance with the code and allow for future funding opportunities through the program, the following provides citations of code responses found within the Master Plan.

Table D.1: BTA Account Compliance

California Streets and Highways Code Section 891.2		Location in Document	
Code Provision	Specific Elements to Include	Narrative	Map
a. Estimated number of existing bicycle commuters and estimated increase resulting from plan implementation.	-	Chapter 2	N/A
b. Existing and proposed land use settlement patterns.	<ul style="list-style-type: none"> <li>• Residential neighborhoods</li> <li>• Schools</li> <li>• Shopping centers</li> <li>• Public buildings</li> <li>• Major employment centers</li> </ul>	Chapter 2	Map 2.1
c. Existing and proposed bikeways.	-	Chapters 2, 7, Appendix B	Map 7.1
d. Existing and proposed end-of-trip bicycle facilities.	<ul style="list-style-type: none"> <li>• Parking at schools</li> <li>• Shopping centers</li> <li>• Public buildings</li> <li>• Major employment centers</li> </ul>	Chapters 2, 7, Appendix B	Map 7.1
e. Existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes.	<ul style="list-style-type: none"> <li>• Transit stops</li> <li>• Rail and transit terminals</li> <li>• Ferry docks and landings</li> <li>• Park-and-ride lots</li> <li>• Provisions for</li> </ul>	Chapters 2, 7, Appendix B	Map 7.1

<sup>1</sup> Funding comes from the Highway User's Tax Account (HUTA), Transportation Tax Fund.

California Streets and Highways Code Section 891.2		Location in Document	
Code Provision	Specific Elements to Include	Narrative	Map
	transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.		
f. Proposed facilities for changing and storing clothes and equipment.	<ul style="list-style-type: none"> <li>• Lockers</li> <li>• Restrooms</li> <li>• Shower facilities</li> </ul>	Chapter 7	Map 7.1
g. Bicycle safety and education programs conducted in the area included within the plan, law enforcement provisions, and accidents involving bicyclists.	-	Chapter 2	N/A
h. Extent of citizen and community involvement, including letters of support.	-	Chapters 1, 3	N/A
i. Plan coordination and consistency with other local or regional plans.	<ul style="list-style-type: none"> <li>• Transportation, air quality, energy conservation plans</li> <li>• Programs that provide incentives for bicycle commuting</li> </ul>	Chapter 2	N/A
j. Projects proposed in the plan and a listing of their priorities for implementation.	-	Chapters 5-8, Appendix B	N/A
k. Past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.	-	Chapters 2, 10	N/A