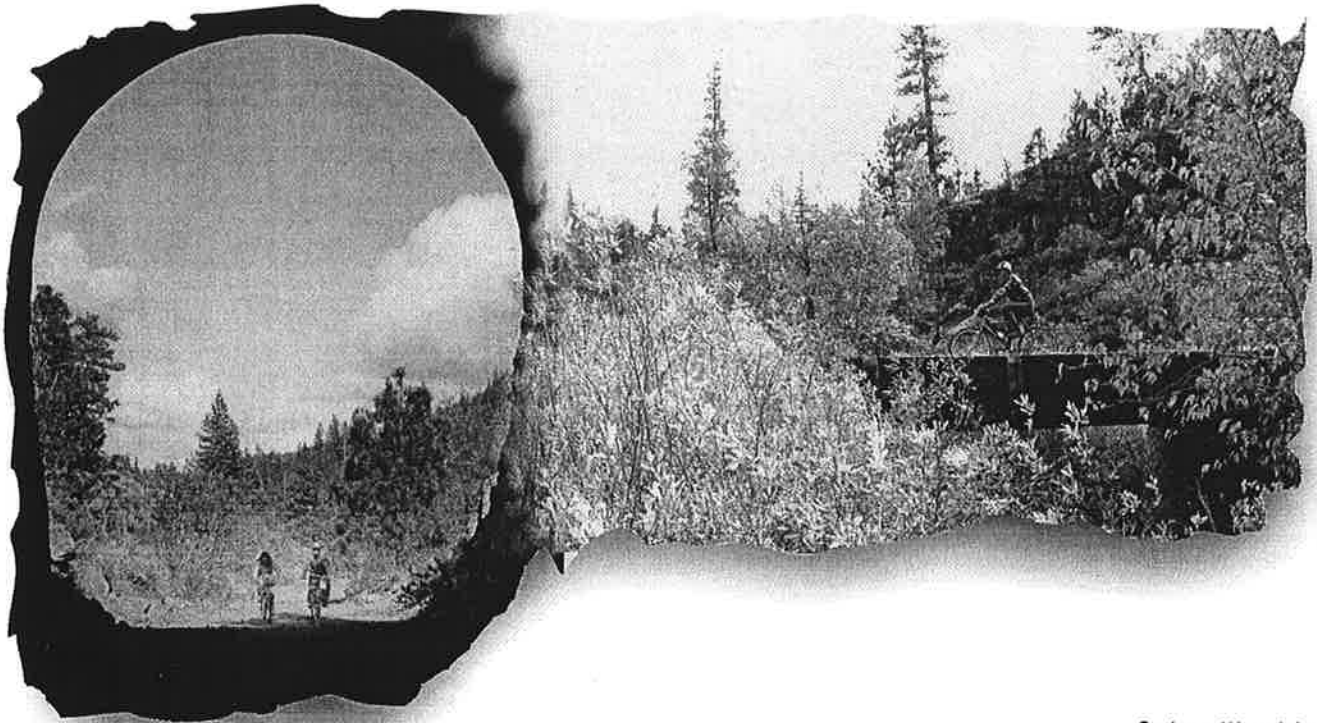


FINAL REPORT

LASSEN COUNTY BIKEWAY MASTER PLAN



Submitted to:
Lassen County
Transportation Commission

Submitted by:
 **Fehr & Peers Associates, Inc**
Transportation Consultants

March 1999

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I. INTRODUCTION

The Lassen County Bikeway Master Plan (BMP) was prepared by Fehr & Peers Associates, Inc. under contract to the Lassen County Transportation Commission (LCTC). It provides a blueprint for developing a bikeway system that includes both on-street and off-street facilities as well as support facilities and programs throughout the County. The plan covers bicycling on State highways, County roads, and City of Susanville streets as well as cycling opportunities on roadways through public lands managed by the Bureau of Land Management (BLM) and the United States Forest Service (USFS).

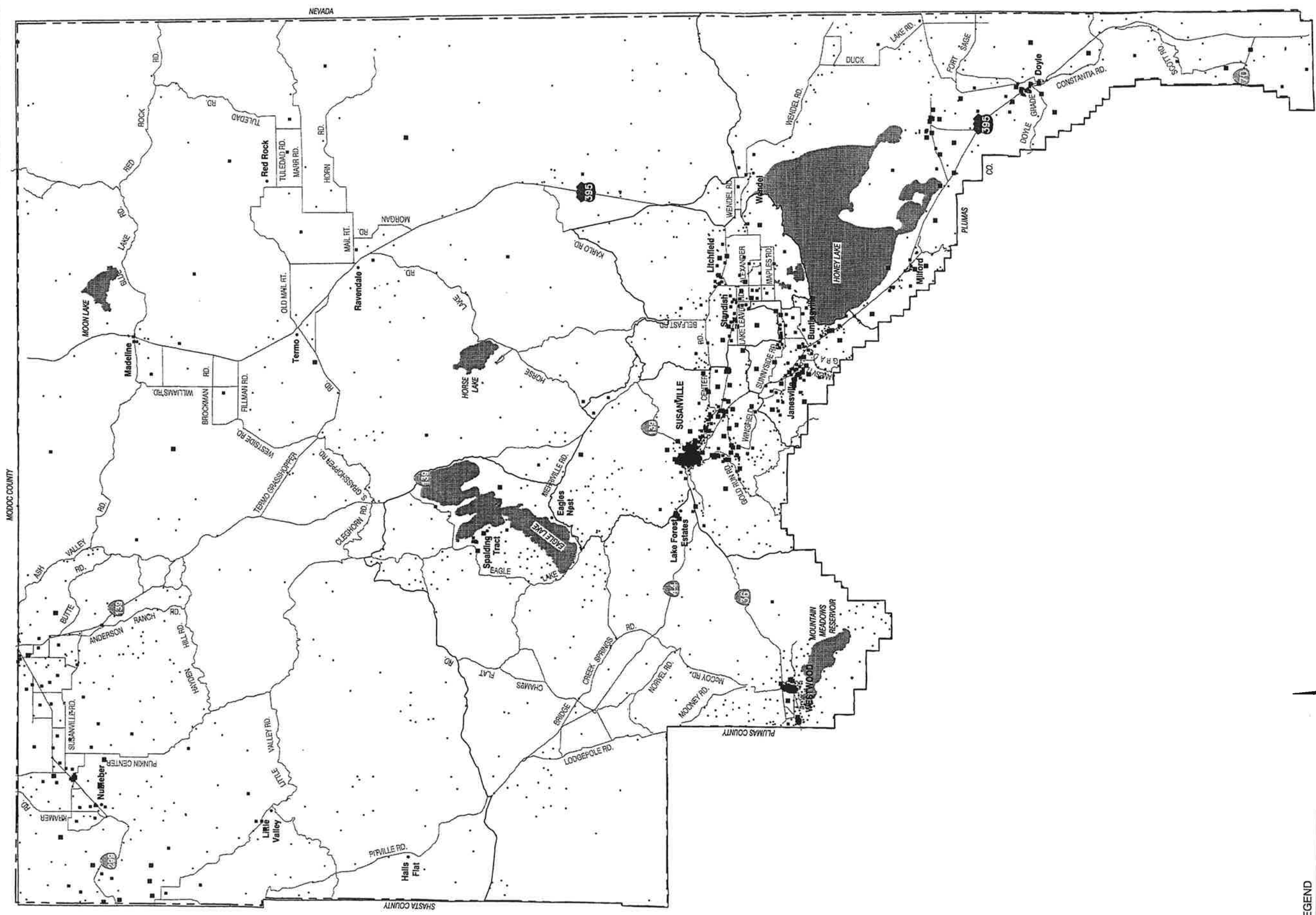
STUDY AREA

The study area includes all of Lassen County. Most of the County can be characterized as having rolling to mountainous terrain, with elevations ranging from about 4,000 to 8,000 feet above sea level. The western and southern areas of the County stretch through the Sierra Nevada. This area of the County is the most heavily populated, with urban development concentrated in the county's single incorporated city of Susanville (see Figure 1). Additional development exists in the unincorporated communities of Herlong, Doyle, Milford, and Westwood. In addition to several national forests and public lands managed by the Bureau of Land Management, the Lassen Volcanic National Park and Caribou Wilderness Area reside along the eastern border of Lassen County. The northern and eastern areas of the County extend from the east Sierra Nevada into the deserts neighboring the State of Nevada. This more arid area has limited development, which is concentrated in the unincorporated communities of Little Valley, Bieber, Madeline, Termo, and Ravendale.

PLANNING AND DESIGN STANDARDS

Bikeway planning and design in California typically rely on the guidelines and design standards established by the California Department of Transportation (Caltrans) as documented in the "Chapter 1000: Bikeway Planning and Design" contained in the Highway Design Manual, Fifth Edition, California Department of Transportation, July 1, 1995. Chapter 1000 identifies specific design standards for bikeways under various conditions and describes the relationship of bikeways to roadways. The Caltrans standards provide for three distinct types of bikeway facilities as generally described below and shown in Figure 1.

- Class I Bikeway (Bike Path) - Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.
- Class II Bikeway (Bike Lane) - Provides a striped lane for one-way bike travel on a street or highway.
- Class III Bikeway (Bike Route) - Provides for shared use with pedestrian or motor vehicle traffic.



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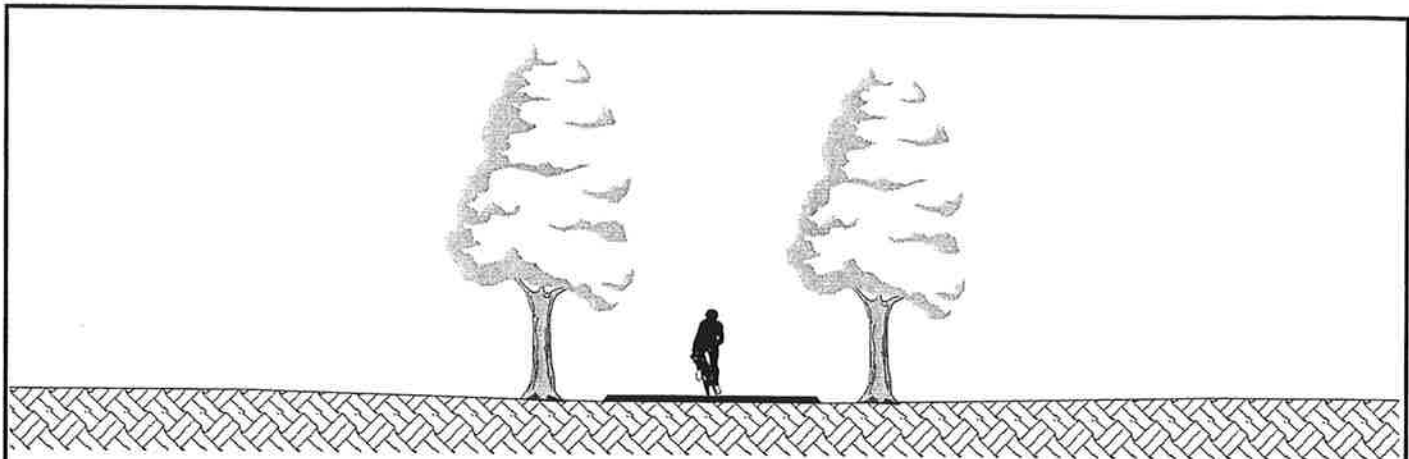
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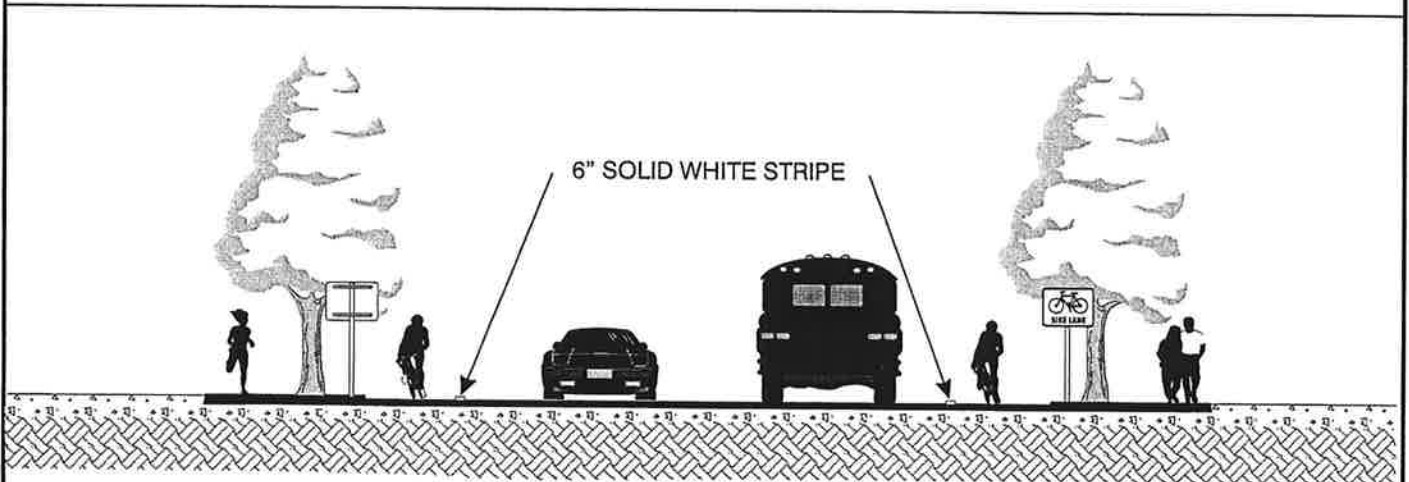
FIGURE 1

**Lassen County Bikeway Master Plan
STUDY AREA AND EXISTING POPULATION DISTRIBUTION**



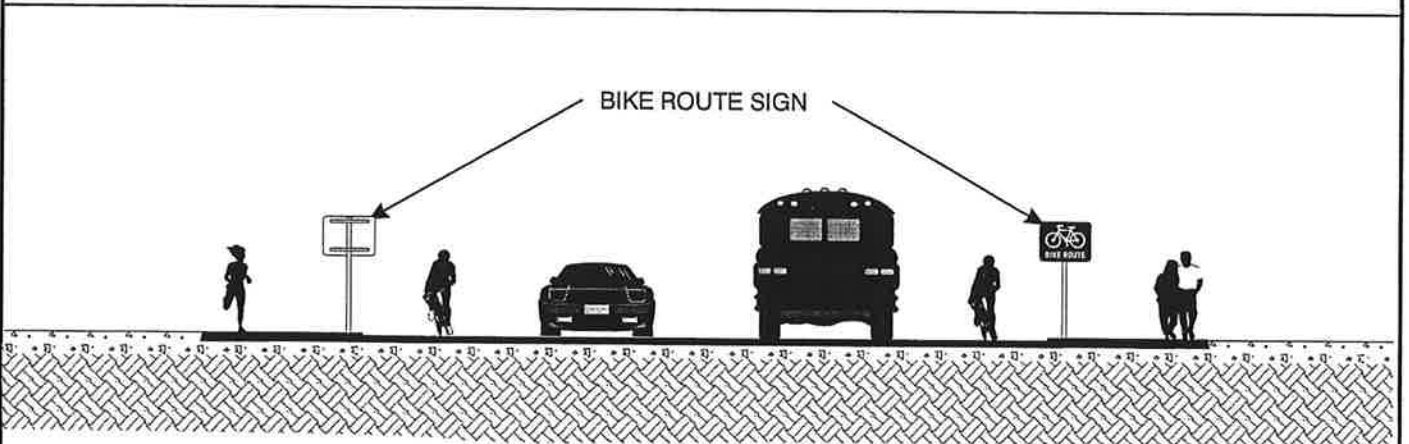
CLASS I BIKEWAY (Bike Path)

Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with crossflow minimized.



CLASS II BIKEWAY (Bike Lane)

Provides a striped lane for one-way bike travel on a street or highway.



CLASS III BIKEWAY (Bike Route)

Provides for shared use with pedestrian or motor vehicle traffic.

FIGURE 2

GENERAL BIKEWAY CLASSIFICATIONS

Other important policy documents that affect bikeway planning and design include the California Streets and Highways Code and Vehicle Code as well as the California Bicycle Transportation Act (1994). The California Bicycle Transportation Act (1994) recodifies the Streets and Highways Code (Chapter 517) and requires Caltrans to take certain actions that further promote bicycle programs.

A key component of this act is the requirement for cities and counties to complete bikeway master plans containing the following eleven elements as a condition of applying for state funding through the Bicycle Lane Account:

- 1) Estimated number of existing and future bicycle commuters;
- 2) Land use and population density;
- 3) Existing and proposed bikeways;
- 4) Existing and proposed bicycle parking facilities;
- 5) Existing and proposed multi-modal connections;
- 6) Existing and proposed facilities for changing and storing clothes and equipment;
- 7) Bicycle safety and education programs;
- 8) Citizen and community participation;
- 9) Consistency with transportation, air quality, and energy plans;
- 10) Project descriptions and priority listings; and
- 11) Past expenditures and future financial needs.

This plan addresses each of the eleven components in the remaining sections of this document, which are outlined below.

CONSISTENCY WITH OTHER PLANS

Preparation of this plan update included a review of the *Lassen County General Plan*, 1968, the *Lassen County Draft General Plan*, 1997, the *Susanville General Plan*, 1991, and the *Susanville Ranch Regional Recreation Area Master Plan*, 1990. Goals and policies from all of these documents have been incorporated into this plan. In addition, specific bikeway designations contained in the Susanville General Plan are also reflected in the proposed system of bikeway routes.

A separate *Lassen County Trails Master Plan* is being prepared by the Lassen Land & Trails Trust, City of Susanville, Lassen County, BLM, and USFS. This plan will address the extensive mountain biking opportunities in Lassen County.

COMMUNITY PARTICIPATION

Community participation was an important component of this plan update for the purpose of obtaining input on existing bicycling conditions, potential roadways for improvement to accommodate bicycles, and the type of support facilities or programs needed to improve bicycling in Lassen County. The community participation effort included input from a bicycle advisory committee (BAC) and the general public. The BAC provided direct technical oversight of the plan update.

ORGANIZATION OF THE PLAN

The remainder of this document includes the following components:

- Bikeway Goals and Policies;
- Existing Conditions;
- Analysis of Demand;
- Proposed System;
- Cost and Funding Analysis; and
- Implementation.

The information presented for each of these components is the result of the data collection efforts of Lassen County staff, Caltrans staff, and the consultant. The components have been organized to provide the reader with a logical discussion of how this plan was prepared, which began with the development of bikeway goals and policies to direct the planning effort.

II. GOALS, OBJECTIVES, AND POLICIES

The development of goals, objectives, and policies for this plan are intended to provide specific direction on the necessary actions involved in planning, designing, funding, and constructing bikeway facilities. The following information is based on the relationship between the proposed bikeway system, key issues facing implementation of specific routes, and the requirements of local, state, and federal funding programs. To create a more user-friendly document, this section is organized by “topic areas” that relate to specific implementation issues. These topic areas include:

- Overall System;
- Future Development;
- Commuting;
- Safety Education;
- Environmental Considerations; and
- Funding.

Within each topic area addressed below, the reader will find an overall goal, measurable objective, and policies with specific action statements related to the development of specific facilities or programs.

OVERALL SYSTEM

The following goal and policy statements express the philosophy behind this plan and the proposed system. They stem from the County’s desire to provide citizens and visitors with a bikeway system that can accommodate all trip purposes.

Goal 1: Provide safe and efficient bikeways in Lassen County

Objective: Construct bikeways identified in the Lassen County Bikeway Master Plan and provide for the maintenance of both existing and new facilities.

Policies

- 1.1 Maintain the Countywide bikeway master plan to identify existing and future needs, and provide specific recommendations for facilities and programs including adequate provisions for bicycle use and bikeways in all new developments.
- 1.2 Create a bikeway system that is cost-effective to construct and maintain; respects landowners, utilities, and special districts’ property rights; and minimizes the potential for conflicts with other types of vehicles and users.

- 1.3 Require all bikeways to conform to design standards contained in the latest version of the Highway Design Manual, “Chapter 1000: Bikeway Planning and Design,” Caltrans, unless otherwise established by the Lassen County Board of Supervisors or the City of Susanville City Council.
- 1.4 Update local roadway design standards to include sufficient pavement sections to accommodate bikeway facilities.
- 1.5 Consider a proposed route’s importance in providing access to regional bikeway facilities when recommending local routes for implementation.
- 1.6 Coordinate with agencies such as Caltrans, Sierra County, Plumas County, Shasta County, Modoc County, and the Nevada Department of Transportation regarding the implementation of the proposed system.

FUTURE DEVELOPMENT

As development occurs in Lassen County, individual projects should be reviewed to ensure consistency with the proposed system. In addition, development projects should adhere to the policy statements below regarding access, mobility, and support facilities for bicyclists.

Goal 2: Include bikeway facilities in all appropriate future development projects to facilitate on-site circulation for bicycle travel, on-site bicycle parking, and connections to the proposed system.

Objective: Maximize the number of daily trips made by bicycling in future development areas.

Policies

- 2.1 Require future development to construct and dedicate bikeways included in the proposed bikeway system as a condition of development.
- 2.2 Require future commercial development to provide bicycle access to surrounding residential areas when a nexus can be demonstrated between the development and potential bicycle travel to and from the residential areas.
- 2.3 Require future non-residential development to place bike racks near entrances.
- 2.4 Consider landowner concerns when planning and acquiring off-street bikeway easements.
- 2.5 Meet the requirements of the Americans with Disabilities Act when constructing facilities contained in the proposed system, where applicable.
- 2.6 Require future residential developments to provide Class I or Class II bikeways to adjacent schools when designing future circulation systems.

COMMUTING

Commuters that bicycle to work can represent a larger percentage of total commute trips if a comprehensive network of bikeway facilities is developed. This plan proposes to implement such a system as defined by the following goal and policy statements.

Goal 3: **Develop a bikeway system that enhances safety and convenience of bicycling to work and school.**

Objective: Increase bicycle trips to work and school to reduce vehicle congestion and improve air quality.

Policies

- 3.1 Provide connections to the proposed system from all existing and future transit facilities, stations, and terminals in Lassen County.
- 3.2 Provide support facilities such as bicycle racks, personal lockers, and showers at appropriate locations such as “park and ride” facilities, employment centers, schools, and commercial centers. This policy should apply to Lassen County, the City of Susanville, and to new development.

SAFETY EDUCATION

Safety education is an important aspect of increasing bicycle use. If residents perceive the bikeway system to be unsafe, they will be discouraged from using it. Therefore, the following goals and policies are intended to improve the public’s knowledge of how to use the bikeway system safely.

Goal 4: **Educate and inform all residents and visitors of Lassen County about how to use bikeway facilities safely.**

Objective: Improve bicycle conditions in Lassen County by reducing accidents and increasing the number of bikeway system users.

Policies

- 4.1 Incorporate standard signing and traffic controls as established by Caltrans to ensure a high level of safety for the bicyclist and motorist.
- 4.2 Use available accident data to monitor bicycle-related accident levels annually, and target a 10 percent reduction on a per capita basis over the next twenty (20) years.
- 4.3 Encourage local law enforcement agencies and local school districts to cooperatively develop a comprehensive bicycle education program that is taught to all school children in Lassen County.

ENVIRONMENTAL CONSIDERATIONS

Bikeway facilities are generally considered to benefit the environment because their use reduces demand for motorized travel. Nevertheless, the construction of specific facilities may adversely affect the physical environment. The following goal and policy statements have been developed to avoid and minimize potential impacts to the environment.

Goal 5: **Avoid adverse environmental impacts associated with the implementation of the proposed system.**

Objective: Mitigate potentially significant impacts to a level of less than significant.

Policies

- 5.1 Conduct environmental review consistent with the California Environmental Quality Act for individual projects as they advance to the implementation stage of development.
- 5.2 Avoid areas of sensitive habitats for plants and wildlife when constructing facilities contained in the proposed system whenever feasible. If sensitive areas are affected by new routes, mitigate impacts through the appropriate California Environmental Quality Act or National Environmental Policy Act process.
- 5.3 Solicit and consider community input in the design and location of bikeway facilities.
- 5.4 Consider the effect on other transportation facilities such as travel lane widths, turn lanes, on-street parking, and on-site circulation when planning and designing on-street bikeways.

FUNDING

To obtain the funding required to implement the proposed system, local and regional agencies in Lassen County must take advantage of funding sources at the state and federal level. It will also require a commitment of local funding.

Goal 6: **Acquire sufficient funding to construct the proposed system in 20 years.**

Objective: Maximize the amount of local, state, and federal funding for bikeway facilities that can be received by agencies in Lassen County.

Policies

- 6.1 Maintain current information regarding regional, state, and federal funding programs for bikeway facilities along with specific funding requirements and deadlines. The LCTC should be responsible for this effort.
- 6.2 Prepare joint grant applications with other agencies or eligible groups for state and federal funds.

III. EXISTING CONDITIONS

This summary of existing conditions describes the current status of bikeway facilities in Lassen County. The discussion focuses on existing bikeways, regional and multi-modal connections, and bikeway support facilities and programs.

EXISTING BIKEWAYS

Bikeways in Lassen County are very limited. The only existing facilities are the Bizz Johnson Trail between Susanville and Westwood and various recreational trails in the Susanville Ranch Regional Recreation Area. However, mountain biking was observed on many County and U.S. Forest Service Roads in the southern and western portions of the County.

REGIONAL AND MULTI-MODAL CONNECTIONS

To encourage bicycle use, a bikeway plan should contain connections to other communities outside of Lassen County, and it should contain connections to other forms of travel such as public transit at transfer locations. The extent of existing regional and multi-modal connections is discussed below.

REGIONAL CONNECTIONS

Lassen County is bordered by Sierra County, Plumas County, Shasta County, Modoc County, and the State of Nevada. U.S. Highway 395 and State Routes 70, 36, 44, 299, and 139 all provide regional roadway connections to these counties and their urban areas, while local roads provide minor connections to the State of Nevada.

MULTI-MODAL CONNECTIONS

Multi-modal connections in Lassen County are important due to barriers for continuous bicycle travel such as topography and distance. Existing public transit service in Lassen County provides fixed-route and demand responsive service for both residents and visitors. Service is provided by the Lassen Rural Bus, which offers inter-city fixed-route service to southern County communities including Westwood, Susanville, the Susanville Municipal Airport, Johnstonville, Janesville, Milford, Herlong, and Doyle, as well as intra-city service in Susanville. The inter-city bus routes have connections to Plumas County Transit and Modoc County's Sage Stage.

The Lassen Rural Bus allows bikes on the buses; however, no bicycle parking facilities were identified at key bus stops along the transit routes. Not providing secure bicycle parking at transit stops can limit bicycle mobility. Bicyclists often rely on transit service to transfer them to destinations safely when barriers to continuous travel are present. Other potential multi-modal transfer points typically include park-and-ride lots. The Lassen Rural Bus service operates park-and-ride lots at the Susanville Airport and Janesville stops, neither of which provide bike lockers.

SUPPORT FACILITIES

Bikeway support facilities include physical infrastructure designed to accommodate or promote the use of bicycles. Examples include bicycle racks, bicycle lockers, restrooms, and shower facilities. A windshield survey of major shopping centers, schools, parks, and employment centers in the Susanville area revealed few bike racks. In addition, BAC members indicated that other support facilities such as bicycle lockers, restrooms, or shower facilities do not exist in the County. Support facilities are important because potential riders can be discouraged from riding if they think that their bicycle may be stolen or vandalized or if sufficient facilities are not provided to make bicycling convenient.

In many cities and counties, the installation of secure bicycle parking is required as part of local transportation system management plans or the zoning code to encourage the use of bicycles as an alternative to automobile use. For example, Yuba City, CA requires the provision of bicycle racks as part of their zoning code while similar requirements apply in the City of Roseville, CA as part of their transportation systems management program. Based on available information, similar standards are not required in Lassen County jurisdictions.

BICYCLE SAFETY

As part of this plan update, bicycle safety was evaluated. In particular, existing and available bicycle accident data was reviewed to identify accident locations and local law enforcement agencies were contacted to determine the types of bicycle safety programs that were being conducted in the County.

ACCIDENT DATA

Ten bicycle accidents were reported in Lassen County between January 1994 and June 1997. Primary causes of these accidents generally resulted from illegal turns or other vehicle code violations by bicyclists. Table 1 summarizes the accident data by year, severity, and party at fault.

Year	Accidents		Party at Fault		
	Total	Fatalities	Bicyclist	Driver	Other
1995	3	0	3	0	0
1996	4	0	4	0	0
1997	3	0	3	0	0
Total	10	0	10	0	0

Source: Reported accidents according California Statewide Integrated Traffic Records System (SWITRS) and Traffic Accident Surveillance and Analysis System (TASAS) reports.

Figure 3 on the following page shows the location of each reported bicycle accident in Table 1. The information shown in the figure also indicates the party at fault and the severity of the accident. Seven of the ten accidents involved a collision between a bicycle and a vehicle while the remaining three involved either an isolated bicycle accident or a bicycle-bicycle collision.

In an effort to compare the rate of bicycle accidents in Lassen County with other communities, Table 2 was prepared which shows a calculated bicycle accident rate based on number of bicycle accidents per 1,000 persons for the unincorporated portions of several counties. This information is only intended for comparison purposes and does not contain sufficient data to demonstrate any statistical relationships.

TABLE 2 COMPARISON OF BICYCLE ACCIDENTS ON LOCAL ROADS PER 1,000 PERSONS (SELECTED CALIFORNIA COUNTIES)			
County	Population	Accidents/Year	Accidents/ 1,000 Persons
Lassen County (unincorporated) ¹	16,110	4	0.25
Calaveras County (unincorporated) ²	32,660	1	0.03
San Joaquin County (unincorporated) ²	130,400	32	0.25
Sutter County (unincorporated) ²	34,830	7	0.20
Yuba County (unincorporated) ²	48,020	11	0.23
Solano County (unincorporated) ²	21,690	5	0.23

Notes: ² Reported 1996 accidents according to California Statewide Integrated Traffic Records System (SWITRS) reports.
¹ Reported 1994 accidents according to California SWITRS reports

Table 2 indicates that the calculated bicycle accident rate for Lassen County is relatively similar to that of other Counties.

SAFETY PROGRAMS

Safety is a major concern of both existing and potential bicyclists. For those who ride, safety is typically an on-going concern and sometimes a distraction. Potential riders often consider safety one of the most compelling reasons not to ride. These reasons make safety education for both children and adults an important component of this plan. Existing bicycle safety programs in Lassen County were reviewed as part of this update effort. The results are summarized in Table 3.

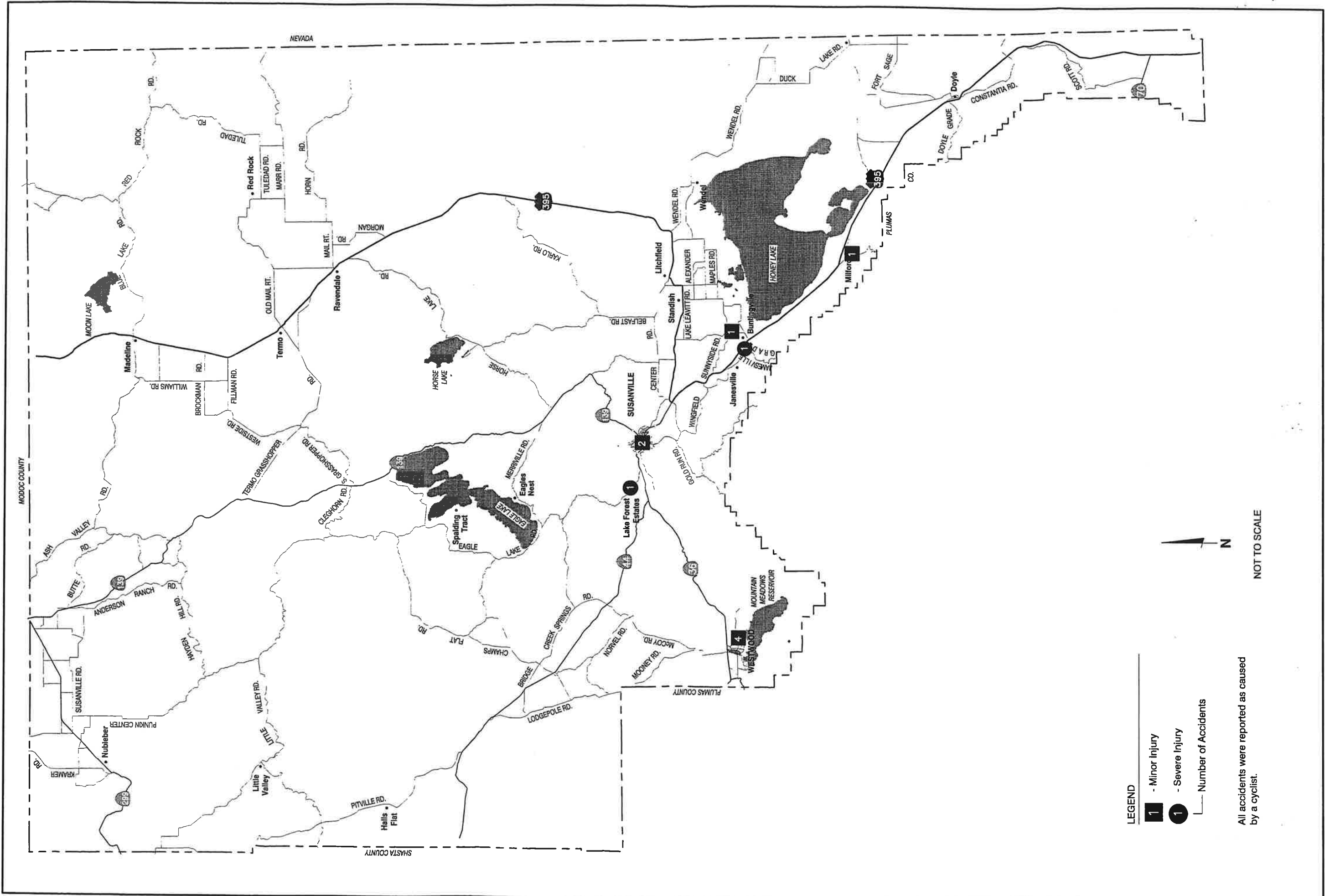


FIGURE 3

**Lassen County Bikeway Master Plan
THREE-YEAR ACCIDENT HISTORY**

**TABLE 3
BICYCLE SAFETY EDUCATION PROGRAM SUMMARY**

Agency	Contact Person	Program Functions
CHP	Jim Wills Phone: 530-257-2191	<ul style="list-style-type: none"> • The program organizes bicycle rodeos that include roadway and bicycle safety. • The rodeos are offered annually or semiannually at schools (K-8) throughout Lassen County and Susanville. • No internal education program specific to bicycle laws are conducted for officers; however, officers are updated annually on any new laws, including bicycle-related laws. • Child helmet laws are actively enforced through parent notification and/or citation.
Lassen Co. Sheriff	Phone: 530-257-6121	<ul style="list-style-type: none"> • The sheriff's department does not offer any bicycle safety education programs.
Susanville Police Department	Jessica Moss Phone: 530-257-1076	<ul style="list-style-type: none"> • The program proactively organizes safety courses that include roadway and bicycle safety. The program also organizes bicycle rodeos. • The safety courses and rodeos are mainly offered at schools (K-8) within Susanville city limits. • Officers are internally educated on bicycle safety topics through distribution of materials published by the California State Automobile Association. • Child helmet laws are actively enforced through positive reinforcement (e.g. handing gift certificates out to helmet-wearing children).

IV. ANALYSIS OF DEMAND

The objective of analyzing bicycle travel demand is to identify existing bicycle ridership levels and travel patterns, project future use, and explain possible methods for stimulating additional ridership. This section identifies the location of existing major activity centers likely to attract bicycle trips, and provides information about population and employment trends and their influence on bicycle travel demand.

EXISTING MAJOR ACTIVITY CENTERS

One purpose of a bikeway master plan is to provide improved linkages from residential areas to employment, commercial, educational, and recreational centers. These linkages support bicycle travel demand for both commuter and recreational trip purposes. Major activity centers in Lassen County include regional commercial areas, large residential developments, employment and educational centers, schools, and parks (see Figure 4). Most of these centers are located within the urbanized areas of the County and are located along or near a state highway.

POPULATION AND EMPLOYMENT TRENDS

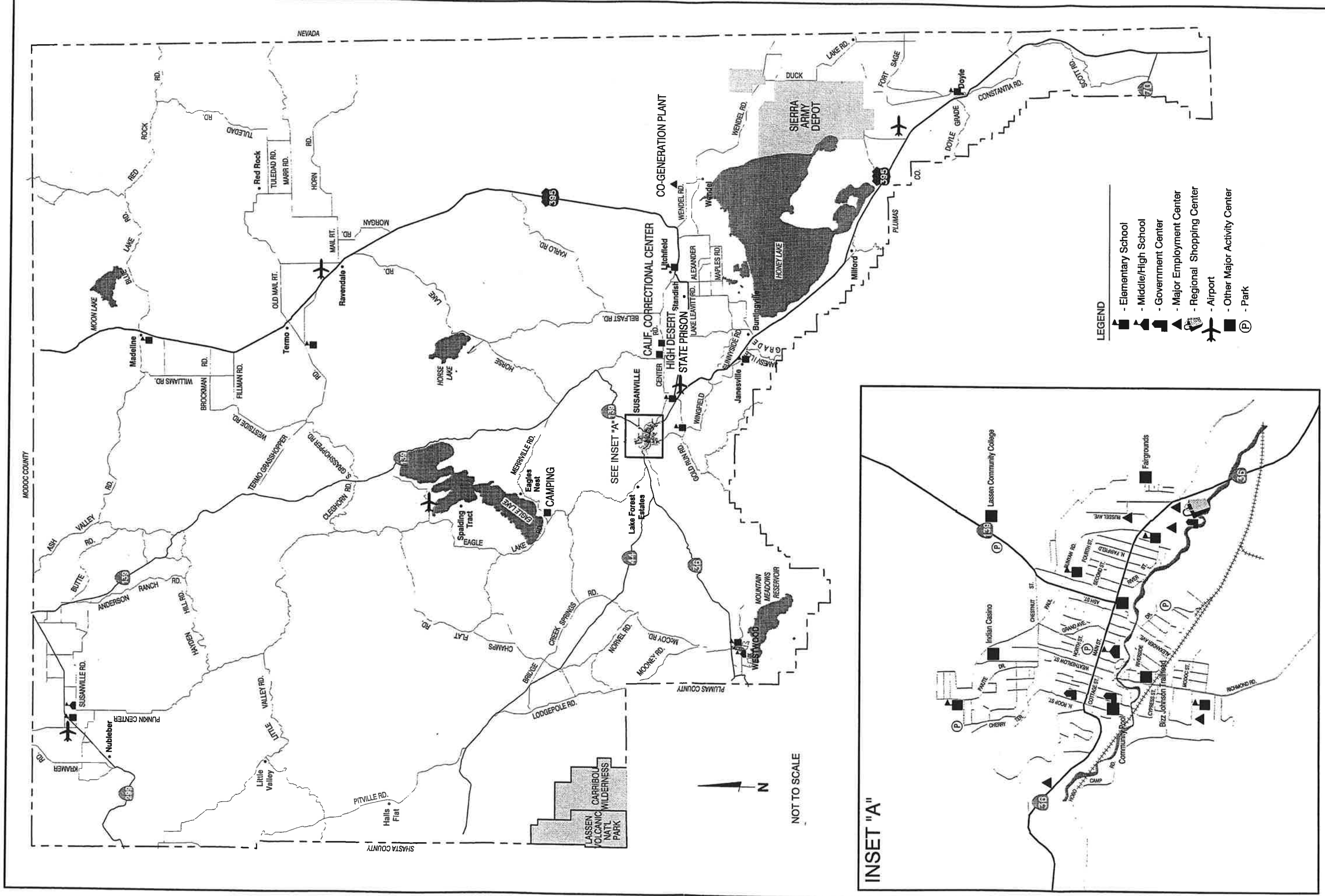
The following discussion contains estimates of existing and forecasts of future, population and employment levels to determine trends and how they affect demand for bikeway facilities.

EXISTING POPULATION AND EMPLOYMENT

In 1996, Lassen County had an estimated total population of 30,650 persons and an estimated total employment level of 10,540 persons. Table 4 shows the breakdown of these population and employment estimates for both incorporated and unincorporated areas of the County.

Jurisdiction	1996 Population ¹	1996 Employment ²
Unincorporated Lassen County	16,110	7,200
City of Susanville	14,540	3,340
Total	30,650	10,540

Source:
¹ California Department of Finance, Demographic Research Unit, *City/County Population & Housing Estimates 1990-1998*. May 1998. As of January 1, 1996. Includes group quarters population (i.e., inmates). Without inmates, the City of Susanville population was approximately 7,890.
² Employment Development Department, *Labor Market Information*, 1998.



- LEGEND**
- - Elementary School
 - - Middle/High School
 - - Government Center
 - - Major Employment Center
 - - Regional Shopping Center
 - ✈ - Airport
 - - Other Major Activity Center
 - Ⓟ - Park

FIGURE 4

**Lassen County Bikeway Master Plan
MAJOR ACTIVITY CENTERS**

The distribution of existing population in Lassen County was shown above in Figure 1. Similar information was not available for employment although the Lassen County General Plan Map contained in Appendix A provides a good context for the location of employment generating land uses. In most cases, employment is concentrated in and around Susanville and to the east at the California Correctional Center and High Desert State Prison.

FUTURE POPULATION AND EMPLOYMENT

According to the *County Population Projections with Race/Ethnic Detail*, California Department of Finance Demographic Research Unit, December 1998, Lassen County is expected to experience at least moderate levels of growth over the next 20 years. By 2020, the total population including group quarters is expected to reach about 49,320, which represents an increase of about 60 percent above 1996 levels. Although formal forecasts of employment are not available for 2020, the level of growth is expected to be commensurate with population.

Future growth and changes in population and employment are important to bikeway planning for two reasons. First, new developments will require new and upgraded roadways, which would provide on-street bikeways as part of the standards recommended for this plan. Some of the cost of the proposed system could be borne as part of the cost of developing new or widening existing roadways. Almost all communities in Lassen County are projected to experience at least moderate growth over the next 20 years, which implies that there will be additional demand placed on the area's roadway system. The resulting need for enhanced capacity of the roadway system may also present opportunities for the expansion of the regional bikeway system.

Second, changes in land use patterns impact average commute distance, which in turn affects the attractiveness of bicycling as a commute mode. From a bicycling perspective, land use policies that encourage a balance between residential and employment developments, higher land use densities, and an increase in local employment is a favorable step.

BICYCLE RIDERSHIP LEVELS

Bicycle ridership levels are not easily measured or projected for an entire County without extensive data collection efforts. Existing and available data currently includes the 1990 Census, while projections regarding future travel demand can only be based on population growth. With this limited amount of information, the following discussion describes both existing and future bicycle ridership levels and their relationship to the availability of a comprehensive bikeway system.

EXISTING BICYCLE RIDERSHIP

According to a recent Lou Harris Public Opinion Poll, nearly 3 million adults in the United States already commute by bike. This number could rise to 35 million if more bicycle friendly transportation systems existed (USDOT, 1994). The concept of "demand" for bicycle facilities is difficult to measure. Unlike vehicle use, where historical trip generation studies for different types of land uses allows an estimate of future "demand", no such methodology exists for bicycles.

A common term used in describing demand for bicycle facilities is “mode split.” Mode split refers to the form of transportation a person chooses to take, be that walking, bicycling, using public transit, or driving. Mode split is often used in evaluating commuter alternatives such as bicycling, where the objective is to increase the split or percentage of people selecting an alternative means of transportation. From the 1990 Census, mode split information is available for the journey-to-work. This information is presented in Table 5 for Lassen County.

TABLE 5 1990 CENSUS JOURNEY-TO-WORK MODE SPLIT (ALL WORKERS WHO DID NOT WORK AT HOME)	
Mode (Home-based work trips):	Lassen County
Drive Alone	76.0 %
Carpool	15.6 %
Public Transportation	1.9 %
Bicycle	0.9 %
Walk	4.6 %
Other	1.1 %

As shown in Table 5, approximately one percent of 1990 home-based work trips in Lassen County residents were made by bicycle. This represented approximately 100 commute trips. Many more bicycle trips were made for other trip purposes such as recreation. For example, counts taken by the Bureau of Land Management measured approximately 41,500 users on the first seven miles of the Bizz Johnson Trail west of Susanville for the period of October 1, 1997 through September 30, 1998. BLM estimates that at least 50 percent of this use is by bicyclists, which represents approximately 20,750 annual users.

FUTURE BICYCLE RIDERSHIP

Future bicycle ridership levels will depend on a number of factors such as demographics, the location, density and type of future land development, and the availability of bikeway facilities. According to *The National Bicycling and Walking Study: Transportation Choices for a Changing America*, Federal Highway Administration, 1994 bicycle mode splits may double as a result of implementing comprehensive bikeway systems such as the Lassen County system described in the next section.

V. PROPOSED SYSTEM

This section describes the proposed system of bikeways for Lassen County that was developed for this plan. The planning effort relied on input from the BAC, interested agencies, groups, and members of the public regarding new routes. Potential new routes were mapped during three BAC meetings. The initial system was reviewed by the LCTC and was modified to create the proposed system presented in this section.

PROPOSED SYSTEM DEVELOPMENT

The selection of individual routes for the proposed system was based on the following bikeway planning criteria:

- Local Input - Consider local information in the bikeway planning process, including input from bicycle club members, bike shop owners, current riders, and the general public.
- Use - Bikeways contained in the proposed system should reflect use levels that are commensurate with the level of investment required for construction and maintenance.
- Coverage - The system should provide balanced access from all portions of Lassen County's population centers for both commuting and recreation routes.
- Safety - The system should provide the highest level of safety possible while eliminating major safety concerns such as narrow roadways.
- Connectivity - The system should provide bikeway connections to major activity centers, multi-modal transfer locations, and to routes that provide access to neighboring counties. Activity centers include residential neighborhoods, schools, regional parks, shopping centers, employment centers, government centers, transit centers, and other recreational opportunities. Major gaps and barriers, including narrow bridges and roadways, should be targeted as high priority items.
- On-Street Bikeways - Class II bike lanes should be provided as the preferred on-street bikeway facility. Class III bike routes should be used when Class II bike lanes are not feasible due to existing physical, environmental, or funding constraints. As with bike lanes, the designation of bike routes should indicate to bicyclists that there are particular advantages to using these routes as compared with alternative routes. This means that responsible agencies have taken actions to assure that these routes are suitable as shared routes and will be maintained in a manner consistent with the needs of bicyclists.

- Off-Street Bikeways - Where feasible, Class I bike paths on grade separated rights-of-way should be implemented. These bikeways provide a higher degree of safety and recreational benefit than bikeways located on streets. They can also become linear parks, adding to the range of amenities for local communities. In many areas of Lassen County, the cost of constructing off-street bikeways may be competitive with that for on-street facilities due to the physical characteristics of the existing roadway system.

After refining the proposed system according to the bikeway planning criteria, the proposed system map was presented to LCTC and members of the public to obtain their comments about specific routes. Based on comments received through this review process, the proposed system map shown in Figure 5 was prepared.

The proposed system includes a total of over 595 miles (955 kilometers) of bikeway facilities plus another 420 miles of motorized and non-motorized trails on various County, BLM, and USFS roadways, which can be used by mountain bicyclists. The system connects each community in Lassen County, and it provides regional connections to other counties including Sierra County, Plumas County, Shasta County, and Modoc. Each bikeway route is classified according to standards defined in “Chapter 1000: Bikeway Planning and Design” contained in the Highway Design Manual, Fifth Edition, California Department of Transportation, July 1, 1995 and presented earlier Figure 2.

The reader should note that the Caltrans standards for the Class III bike route designation do not specify a minimum shoulder width or roadway lane width. Although four-foot shoulders and 12-foot travel lanes (i.e., 32-foot paved section) are desirable on all roadways used by bicyclists, a minimum roadway lane width of 14 feet (i.e., 28-foot paved section) is suggested for the Class III designation in Lassen County. Table 6 shows the number of proposed miles and kilometers for each bikeway classification.

Bikeway or Trail Classification	Miles	Kilometers
Class I Bike Path	10.8	17.4
Class II Bike Lane	322.4	518.9
Class III Bike Route	262.1	421.7
Subtotal	595.3	958.0
Motorized Recreational Trail	391.7	630.4
Non-Motorized Recreational Trail	27.7	446.0

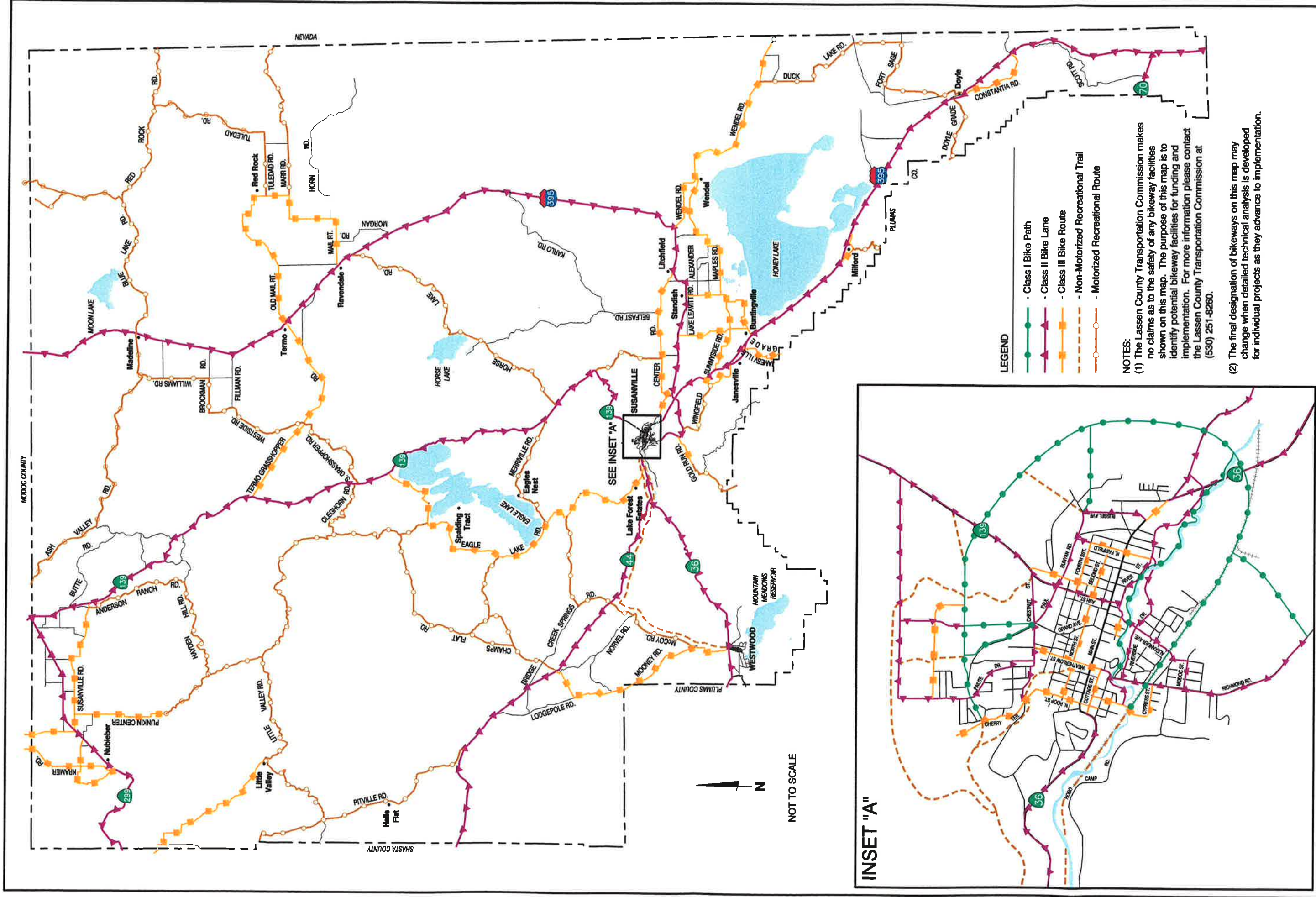


FIGURE 5

**Lassen County Bikeway Master Plan
PROPOSED SYSTEM**

REGIONAL AND MULTI-MODEL BIKEWAY CONNECTIONS

Regional connections include those bikeway facilities that connect urban areas in Lassen County with urban areas in surrounding counties. Multi-modal connections allow bicyclists to transfer to other modes such as buses. Including these components in the discussion about the proposed system is important for the development of a bikeway system that provides a high degree of both accessibility and mobility.

REGIONAL CONNECTIONS

In the development of the proposed bikeway routes, an effort was made to assess the potential connectivity of Lassen County bikeways with existing or planned bikeways in surrounding counties. Lassen County is bordered by Sierra County, Plumas County, Shasta County, Modoc County, and the State of Nevada. As discussed in the existing conditions section above, no existing bikeways connect Lassen County to these surrounding counties. The proposed system would provide Class II bike lanes on the state routes connecting to these counties, as well as some additional Class III bike routes on selected county roads connecting to these counties.

MULTI-MODAL CONNECTIONS

The proposed bikeway system includes routes that connect with the existing park-and-ride lots at the Susanville Municipal Airport and in Janesville, and overlap with existing transit routes and stations. To facilitate use of these routes by bicyclists, all transit buses and major transit stations should be equipped with bike racks.

SUPPORT FACILITIES AND PROGRAMS

Support facilities and educational programs are an important part of the proposed bikeway system. Existing support facilities are very limited in Lassen County based on available data collected during this study. However, local law enforcement agencies are actively involved in bicycle education programs. Specific recommendations on how to improve these conditions are listed below.

BICYCLE PARKING, SHOWER, AND LOCKER FACILITIES

Support facilities such as bicycle parking, shower and locker facilities can encourage bicycling by reducing the threat of theft and making riding more convenient. Properly designed bike racks should be available at major bicycle destinations in Lassen County. For the most part, these facilities should be required for new developments that are likely to experience a demand for bicycle parking such as commercial areas, parks, libraries, schools, and major employers. In some cases, though, existing activity centers should add bicycle parking facilities. The type of parking facility (bike rack or bicycle locker) should be selected based on (a) cost, (b) ease of use, and (c) ability to prevent theft.

Access to shower and locker facilities may help encourage people to commute by bicycle, particularly in the summer months. Many jobs require employees to wear specific uniforms or formal attire such as suits and ties. By having shower and locker facilities, employees have the option to shower and dress at work. This is an important consideration for bicycle commuters since they cannot control their travel environment and are much more dependent on support facilities located at the workplace.

The following action is recommended for increasing the number of locations with bicycle parking, shower, and locker facilities:

- Require the installation of bicycle parking, shower, and locker facilities as conditions of approval for major new developments.

CROSSING PROTECTION

These improvements should be targeted for major intersections on the proposed bikeway network, and at locations where school children cross a busy street to gain access to their school. The following steps are recommended to build upon this effort.

- Use signing, striping, crossing guards, flashing beacons, and pedestrian actuated signals at street crossings with high levels of pedestrian and bicycle demand when warranted by engineering standards.
- Install bicycle detectors at signalized intersections along the bikeway system as intersections are upgraded. Detectors should be located within the striped bike lane either along the curb or between the right-turn lane and through lane.

STREET DRAIN SAFETY

All City and County street drain covers should be bicycle safe. Lassen County and the City of Susanville should replace any existing street drain covers that do not currently prevent bicycle wheels from slipping into the drain cover slots. In addition, all new drain covers should be compatible for bicycle travel.

EDUCATIONAL PROGRAMS

Programs to teach existing and potential bicyclists about the fundamentals of bicycle riding are important to establishing good riding habits. Currently, elementary school children in Lassen County are given regular bicycle-riding safety education by law enforcement officials from both the Susanville Police Department and the California Highway Patrol. The following steps are recommended to build upon this effort.

- Continue and expand the current bicycle education program for school children. The existing programs are offered on an as needed basis without interagency cooperation. A coordinated proactive effort between the California Highway Patrol and local law enforcement agencies would be more efficient and productive.
- Establish an adult bicycle education program through the parks and recreation departments or other local agency departments that teaches adults how to ride defensively and encourages people to ride to work.