APPENDIX A: BICYCLE FACILITY DESIGN GUIDELINES

This appendix provides basic bikeway planning and design guidelines for use in developing the Nevada County bikeway system and support facilities. All recommendations in this appendix satisfy Caltrans Chapter 1000 "Bikeway Planning and Design" requirements. However, as noted below only the "Design Requirements" sections for Class I, II and III facilities contain elements required by Caltrans for compliance with their design guidelines. The balance of the information is for reference only and although it meets Caltrans requirements is not intended to state a minimum or maximum accommodation or to replace any existing Nevada County roadway design guidelines. All facility designs are subject to engineering design review.

Bikeway Facility Classifications

According to Caltrans, the term "bikeway" encompasses all facilities that provide primarily for bicycle travel. Caltrans has defined three types of bikeways in Chapter 1000 of the Highway Design Manual: Class I, Class II, and Class III. For each type of bikeway facility both "Design Requirements" and "Additional Design Recommendations" are provided. "Design Requirements" contain requirements established by Caltrans Chapter 1000 "Bikeway Planning and Design". "Additional Design Recommendations" are provided as guidelines to assist with design and implementation of facilities and include alternate treatments approved or recommended by not required by Caltrans.

Figure A-1 provides an illustration of the three types of bicycle facilities.

Class I Bikeway - Design Requirements

Typically called a "bike path" or "shared use path," a Class I bikeway provides bicycle travel on a paved right-of-way completely separated from any street or highway. The recommended width of a shared use path is dependent upon anticipated usage:

8' (2.4 m) is the minimum width for Class I facilities

8' (2.4 m) may be used for short neighborhood connector paths (generally less than one mile in length) due to low anticipated volumes of use

10' (3.0 m) is the recommended minimum width for a typical two-way bicycle path

12' (3.6 m) is the preferred minimum width if more than 300 users per peak hour are anticipated, and/or if there is heavy mixed bicycle and pedestrian use

A minimum 2' (0.6 m) wide graded area must be provided adjacent to the path to provide clearance from trees, poles, walls, guardrails, etc. On facilities with expected heavy use, a yellow centerline stripe is recommended to separate travel in opposite directions. **Figure A-2** illustrates a typical cross-section of a Class I multi-use path.

Figure A-1: Bicycle Facility Types

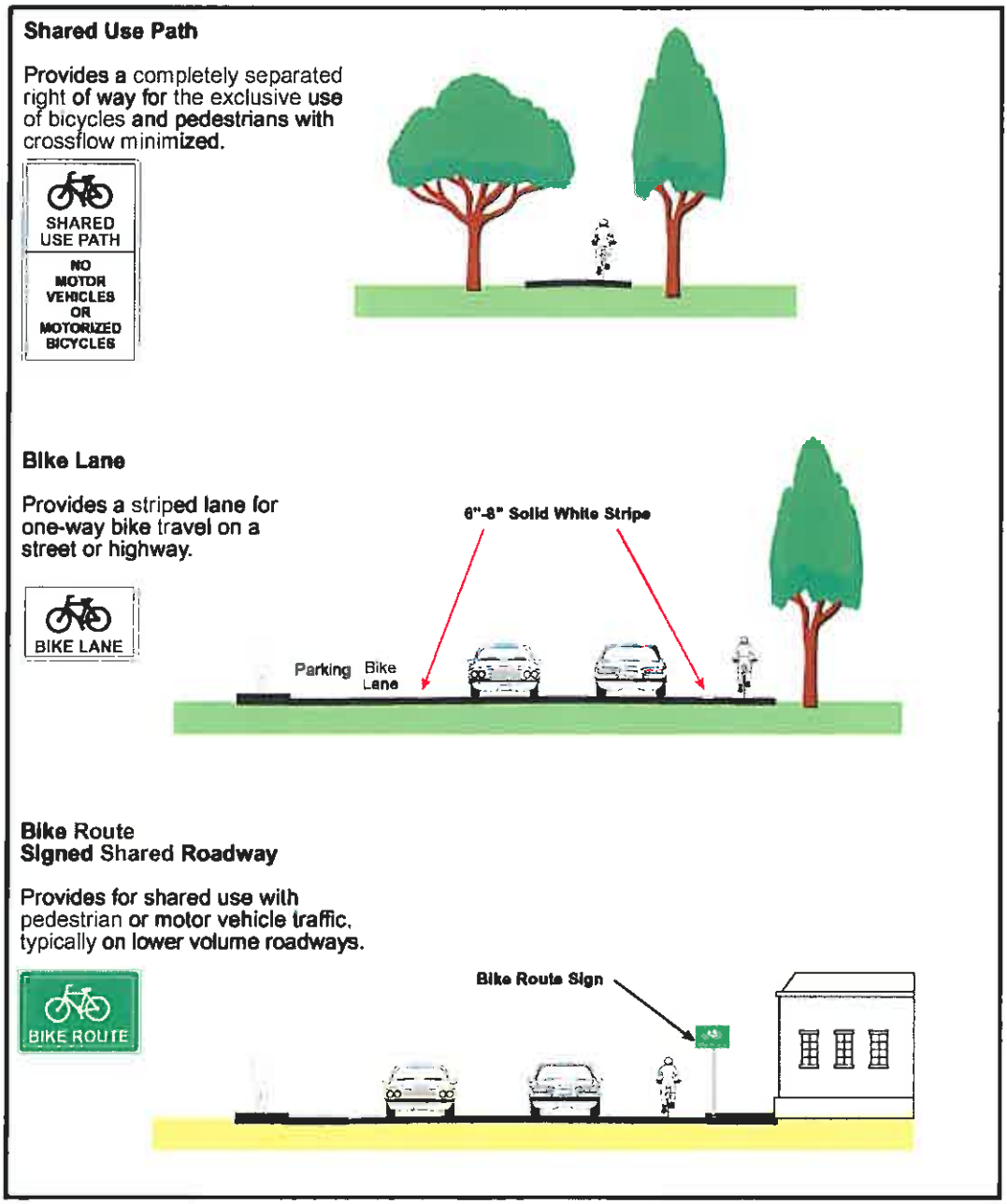


FIGURE A-1 Bicycle Facility Types

Figure A-2: Class I Facility Cross-Section

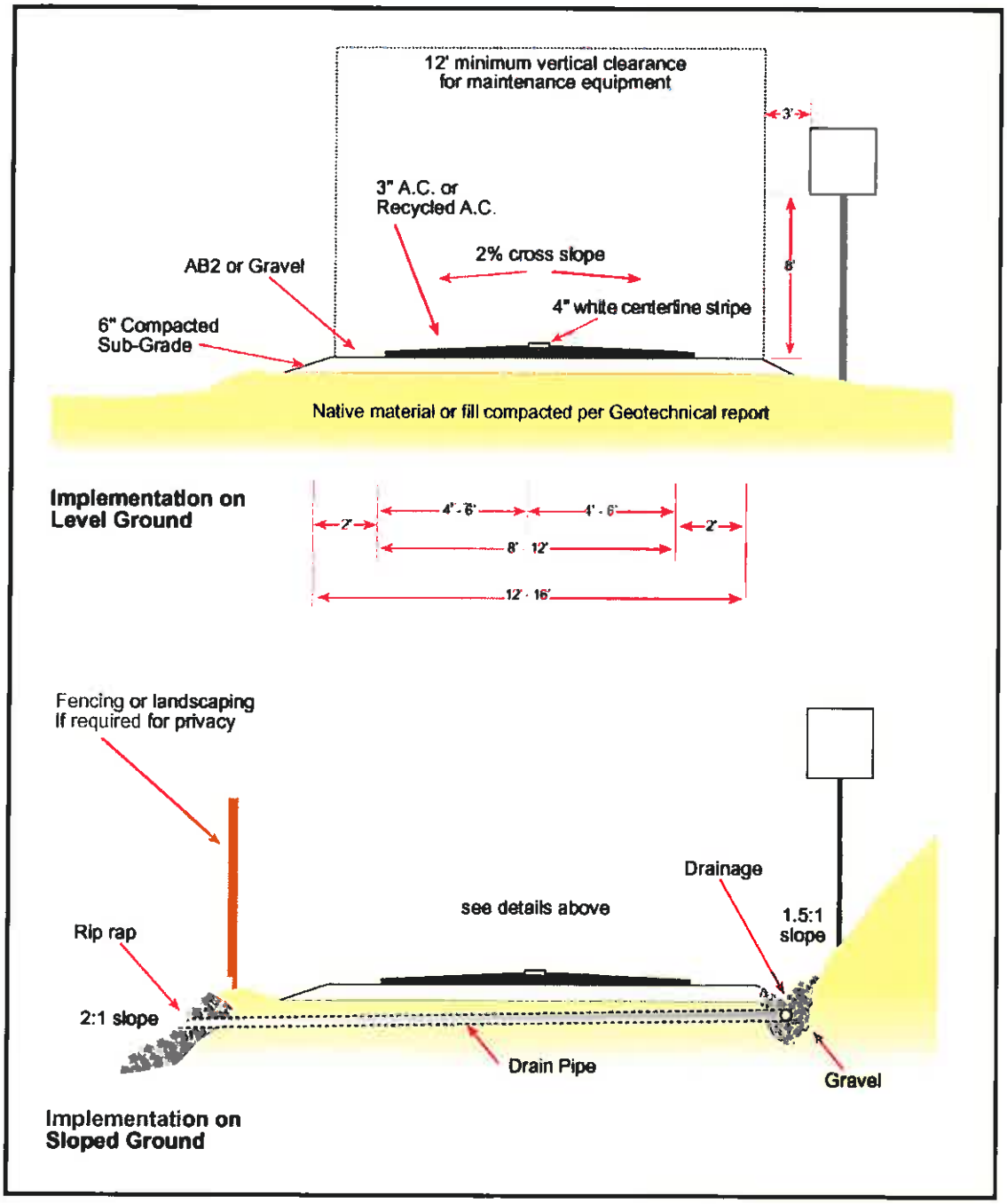


FIGURE A-2 Class I Facility Cross-Section

Class I Bikeway - Additional Design Recommendations:

- Shared use trails and unpaved facilities that serve primarily a recreation rather than a transportation function and will not be funded with federal transportation dollars may not be required to be designed to Caltrans standards. However, state and national guidelines have been created with user safety in mind and should be followed. Wherever any trail facility intersects with a street, roadway, or railway, standard traffic controls should always be used.
- Class I bike path crossings of roadways require preliminary design review. Generally speaking, bike paths that cross roadways with average daily trips (ADTs) over 20,000 vehicles will require signalization or grade separation.
- Landscaping should generally be low water consuming native vegetation and should have the least amount of debris.
- Lighting should be provided where commuters will use the bike path during hours of darkness.
- Barriers at pathway entrances should be clearly marked with reflectors and be ADA accessible (minimum five feet clearance).
- Bike path construction should take into account impacts of maintenance and emergency vehicles on shoulders and vertical and structural requirements. Paths should be constructed with adequate sub grade compaction to minimize cracking and sinking.
- All structures should be designed to accommodate appropriate loadings. The width of structures should be the same as the approaching trail width, plus minimum two-foot wide clear areas.
- Where feasible, provide two-foot wide unpaved shoulders for pedestrians/runners, or a separate tread way.
- Direct pedestrians to the right side of pathway with signing and/or stenciling.
- Provide adequate trailhead parking and other facilities such as restrooms and drinking fountains at appropriate locations.

Class II Bikeway - Design requirements

Often referred to as a "bike lane," a Class II bikeway provides a striped and stenciled lane for one-way travel on either side of a street or highway. **Figure A-3** shows a typical Class II cross-section. To provide bike lanes along corridors where insufficient space is currently available, extra room can be provided by removing a traffic lane, narrowing traffic lanes, or prohibiting parking. The width of the bike lanes vary according to parking and street conditions. Note that these dimensions are for reference only, may not meet Nevada County Standards and are subject to engineering design review.

4' (1.2 m) minimum if no gutter exists, measured from edge of pavement

5' (1.5 m) minimum with normal gutter, measured from curb face; or 3' (0.9 m) measured from the gutter pan seam

5' (1.5 m) minimum when parking stalls are marked

11' (3.3 m) minimum for a shared bike/parking lane where parking is permitted but not marked on streets without curbs; or 12' (3.6 m) for a shared lane adjacent to a curb face.

Figure A-3: Typical Class II Facility Cross-Section

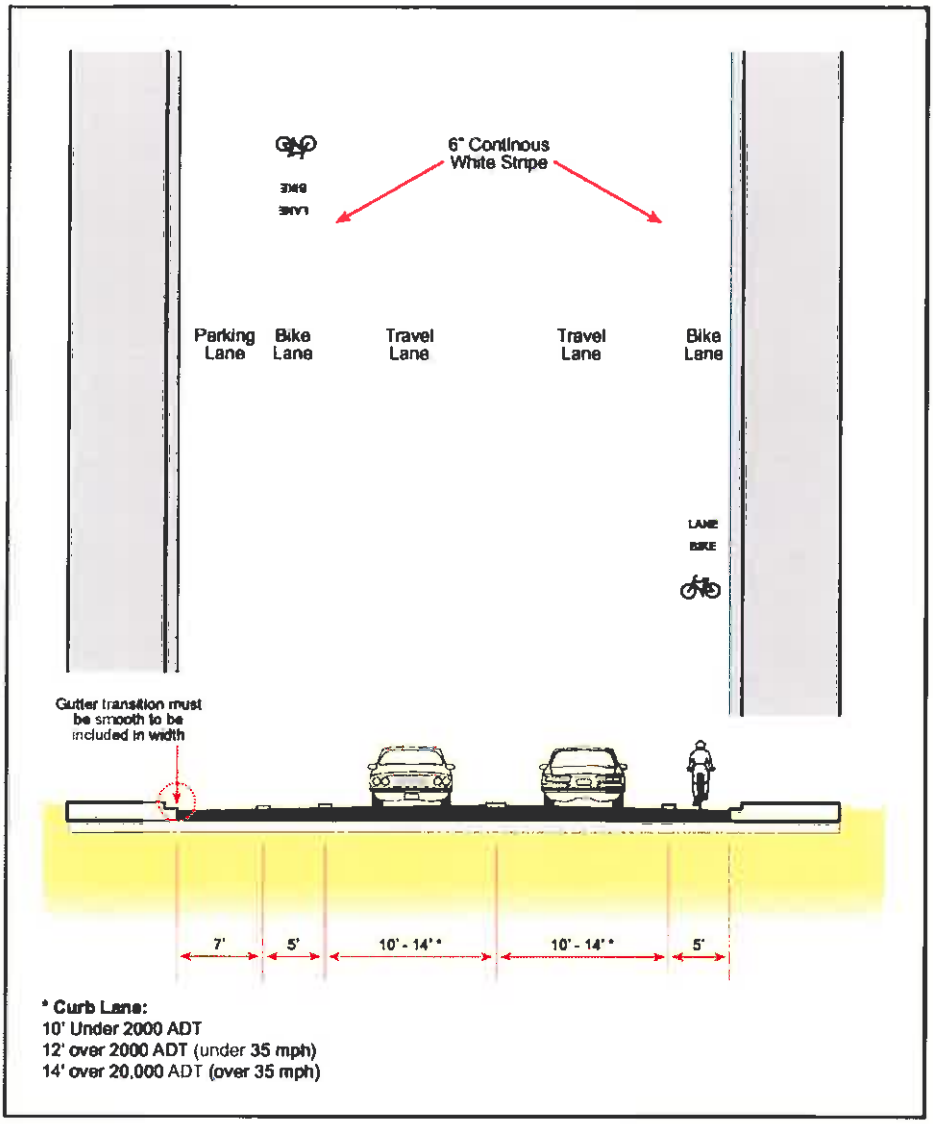


FIGURE A-3 Class II Facility Cross-Section

Class II Bikeway - Additional Design Recommendations:

1. The Department of Public Works should recommend that wider bike lanes beyond the minimum standard be installed, particularly along high-speed or high-volume arterial roads and highways.
2. Intersection and interchange treatment – Caltrans provides recommended intersection treatments in Chapter 1000 including bike lane "pockets" and signal loop detectors. The Department of Public Works should develop a protocol for the application of these recommendations, so that improvements can be funded and made as part of regular improvement projects.
3. Signal loop detectors, which sense bicycles, should be considered for all arterial/arterial, arterial/collector, and collector/collector intersections. A stencil of a bicycle and the words "Bicycle Loop" should identify the location of the detectors.
4. When loop detectors are installed, traffic signalization should be set to accommodate bicycle speeds.
5. Bicycle-sensitive loop detectors are preferred over a signalized button specifically designed for bicyclists (see discussion of loop detectors, below).
6. Bike lane pockets (min. 4' wide) between right turn lanes and through lanes should be provided wherever available width allows, and right turn volumes exceed 150 motor vehicles/hour.
7. Where bottlenecks preclude continuous bike lanes, they should be linked with Class III route treatments.
8. A bike lane should be delineated from motor vehicle travel lanes with a solid 6" white line, per MUTCD. An 8" line width may be used for added distinction.
9. Word and symbol pavement stencils should be used to identify bicycle lanes, as per Caltrans and MUTCD specifications.
10. Bicycle lane striping and stencils in areas with significant regular snowfall should be installed using thermoplastic materials, specified with an applied thickness of 90-100 mil and a skid resistance of 60 BPN. Thicker applications up to 120 mil can be specified, provided the edge of the application is beveled by hand by the contractor prior to cooling.

Installing bike lanes may require more attention to continuous maintenance issues. Bike lanes tend to collect debris as vehicles disperse gravel, trash, and glass fragments from traffic lanes to the edges of the roadway. Striping and stenciling will need periodic replacing.

Poorly designed or placed drainage grates can often hazardous to bicyclists. Drainage grates with large slits can catch bicycle tires. Poorly placed drainage grates may also be hazardous, and can cause bicyclists to veer into the auto travel lane.

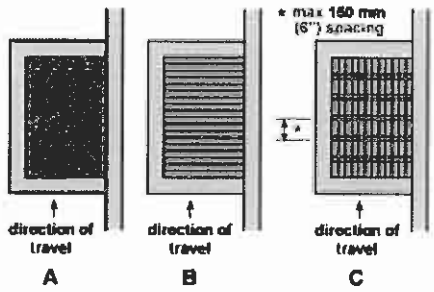


Figure A-4 Examples of bicycle friendly drainage grates

Class III Bikeway - Design Requirements

Generally referred to as a "bike route," a Class III bikeway provides routes through areas not served by Class I or II facilities or to connect discontinuous segments of a bikeway.

Class III facilities can be shared with either motorists on roadways or pedestrians on a sidewalk (not advisable) and is identified only by signing. There are no recommended minimum widths for Class III facilities, but when encouraging bicyclists to travel along selected routes, traffic speed and volume, parking, traffic control devices, and surface quality should be acceptable for bicycle travel. Although it is not a requirement, a wide outside traffic lane (14') is typically preferable to enable cars to safely pass bicyclists without crossing the centerline. Caltrans Chapter 1000 provides details regarding the design requirements for placement and spacing of bicycle route signage.

Class III Bikeway - Additional Design Recommendations

Shared Roadway Bicycle Marking

Recently, Shared Roadway Bicycle Marking stencils (also called "Sharrows"), have been introduced for use in California as an additional treatment for Class III facilities. The stencil can serve a number of purposes, such as making motorists aware of bicycles potentially in their lane, showing bicyclists the direction of travel, and, with proper placement, reminding bicyclists to bike further from parked cars to prevent "dooring" collisions. **Figure A-5** illustrates recommended on-street Shared Lane Marking stencil placement. The "Chevron" marking design recommended by Caltrans is shown below in **Figure A-6.** The following pavement markings were adopted for official use by Caltrans on 9/12/2005 as MUTCD 2003 California Supplement Section 9C.103 and Figure 9C-107.

Guidance language provided by Caltrans for use of the Shared Roadway Marking is as follows:

Section 9C.103 Shared Roadway Bicycle Marking

Option:
The Shared Roadway Bicycle Marking shown in Figure 9C-107 may be used to assist bicyclists with positioning on a shared roadway with on-street parallel parking and to alert road users of the location a bicyclist may occupy within the traveled way.

Standard:
The Shared Roadway Bicycle Marking shall only be used on a roadway which has on-street parallel parking. If used, Shared Roadway Bicycle Markings shall be placed so that the centers of the markings are a minimum of 3.3 m (11 ft) from the curb face or edge of paved shoulder. On State Highways, the Shared Roadway Bicycle Marking shall be used only in urban areas.

Option:
For rural areas, the SHARE THE ROAD (W16-1) plaque may be used in conjunction with

the W11-1 bicycle warning sign (see Sections 2C.51 and 9B.18). Information for the practitioner regarding classification of rural versus urban roadways can be found at the following California Department of Transportation website: http://www.dot.ca.gov/hq/tsip/hpms/Page1.php

Guidance:
If used, the Shared Roadway Bicycle Marking should be placed immediately after an intersection and spaced at intervals of 75 m (250 ft) thereafter. If used, the Shared Roadway Bicycle Marking should not be placed on roadways with a speed limit at or above 60 km/h, (40 mph).

Option:
Where a Shared Roadway Bicycle Marking is used, the distance from the curb or edge of paved shoulder may be increased beyond 3.3 m (11 ft). The longitudinal spacing of the markings may be increased or reduced as needed for roadway and traffic conditions. Where used, bicycle guide or warning signs may supplement the Shared Roadway Bicycle Marking.

Support:

The Shared Roadway Bicycle Marking is intended to:

* Reduce the chance of bicyclists impacting open doors of parked vehicles on a shared roadway with on-street parallel parking.

* Alert road users within a narrow traveled way of the lateral location where bicyclists ride.

* Be used only on roadways without striped bicycle lanes or shoulders.

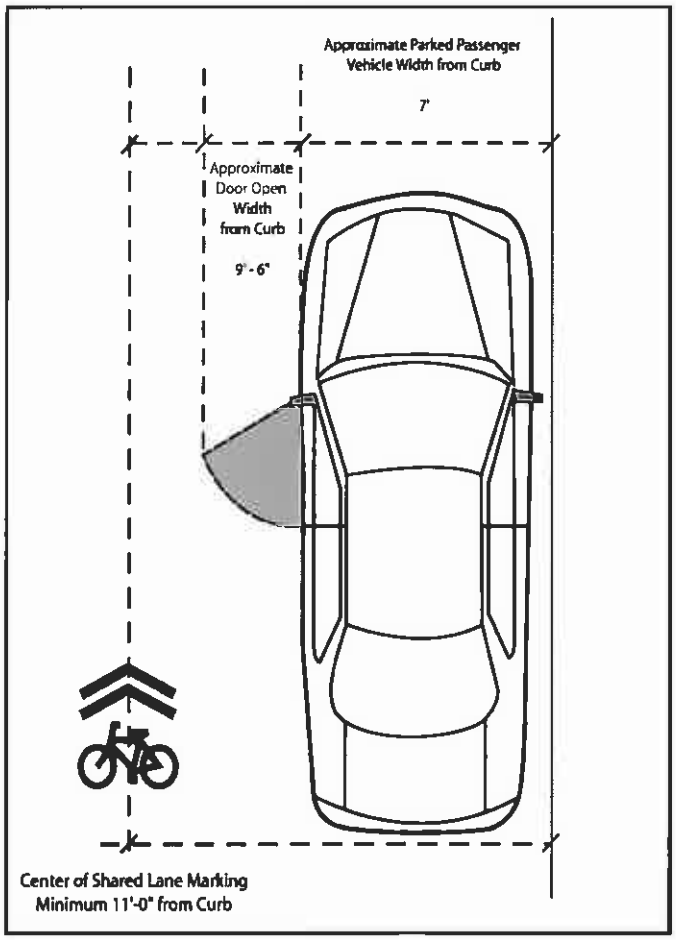
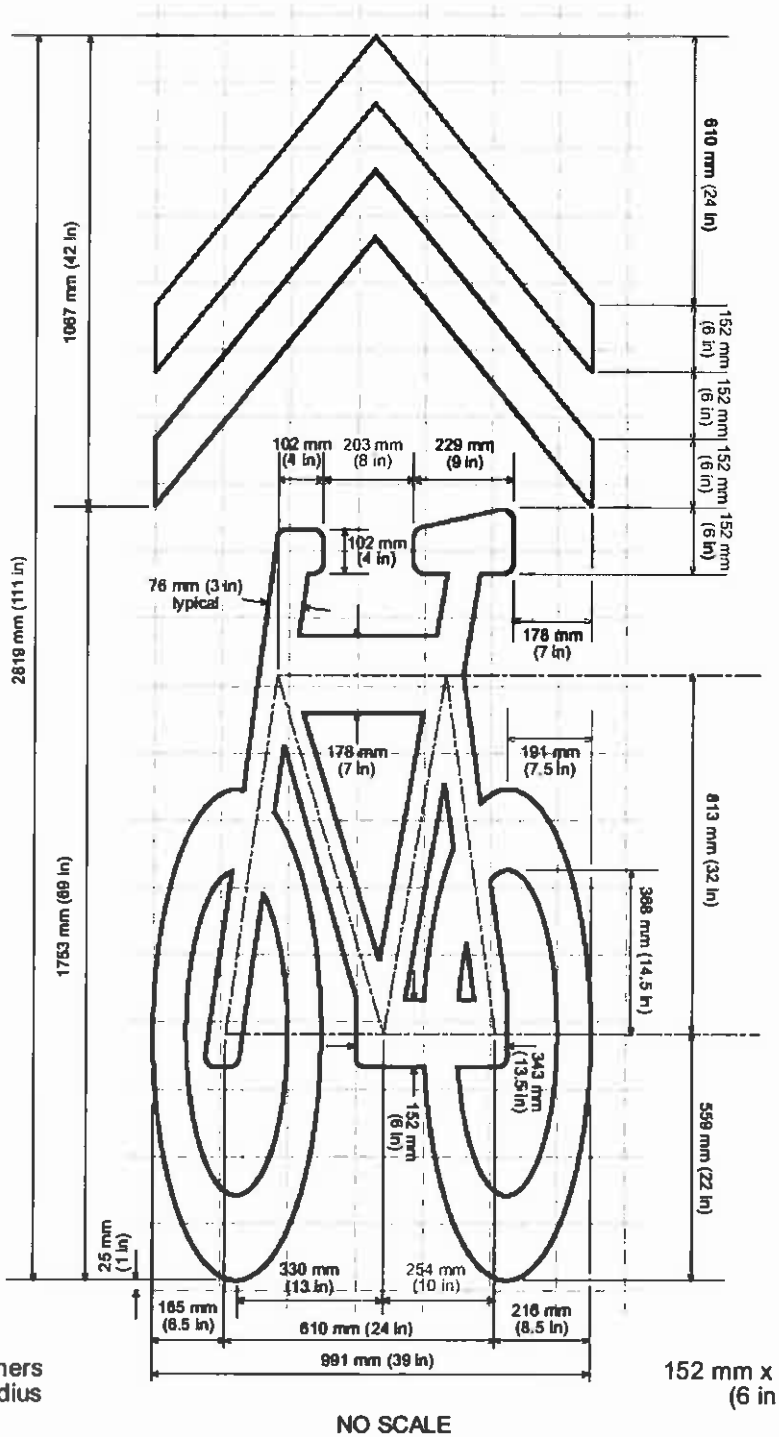


Figure A-5: Shared Roadway Bicycle Marking Placement

Figure A-6: Shared Roadway Bicycle Marking

Figure 9C-107. Shared Roadway Bicycle Marking



APPENDIX B: SAMPLE BICYCLE PARKING CODE LANGUAGE

This appendix provides sample bicycle parking code language taken from the City of Palo Alto Municipal Code and the City of San Francisco Planning Code. It is recommended that jurisdictions in Nevada County adopt bicycle parking ordinances that include similar language in their zoning code. Both Palo Alto and San Francisco provide detailed parking requirements per building square footage, and include provisions such as employee shower requirements.

The language provided here is for example only. Adoption of this plan by the Nevada County Transportation Commission or other government agency does not imply adoption of these sample policies which must be considered by each jurisdiction individually.

Palo Alto Municipal Code

Bicycle Parking Requirements

Section 18.83.050

Table 1. Minimum Off-Street Parking Requirements

Use	Minimum Off-Street Parking Requirement	Minimum Bicycle Parking Requirements	
		Spaces	Class(1)
Accessory employee housing or guest cottage	1 space per unit	None	
Administrative office services:			
(a) In the LM district	1 space for each 27.9 sq. m. (300 sq. ft.) of gross floor area	10% of auto parking	80% - I 20% - II
(b) In all other districts	1 space for each 23.2 sq. m. (250 sq. ft.) of gross floor area	10% of auto parking	80% - I 20% - II
Animal care facilities	1 space for each 32.5 sq. m. (350 sq. ft.) of gross floor area	10% of auto parking or 1 space-whichever is greater	80% - I 20% - III
Automobile service station:			

Table 1. Minimum Off-Street Parking Requirements

Use	Minimum Off-Street Parking Requirement	Minimum Bicycle Parking Requirements	
		Spaces	Class(1)
(a) Except in parking assessment area	1 space for each 32.5 sq. m. (350 sq. ft.) of gross enclosed floor area, plus queue capacity equivalent to the service capacity of gasoline pumps	None	
(b) In the California Ave. parking assessment area	1 space for each 2.82 sq. m. (310 sq. ft.) of gross enclosed floor area, plus queue capacity equivalent to the service capacity of gasoline pumps	None	
Automotive services:			
(a) Enclosed, except in parking assessment areas	1 space for each 32.5 sq. m. (350 sq. ft.) of gross floor area	None	
(b) Open lot, except parking assessment areas	1 space for each 46.5 sq. m (500 sq. ft.) of exterior sales, display, or storage site area	None	
(c) In the California Ave. parking assessment area	1 space for each 13.9 sq. m. (150) sq. ft.) of gross floor area, display, or storage on site	None	
Business and trade schools	1 space for each 4-person capacity, or 1 space for each 23.2 sq. m. (250 sq. ft.) of gross floor area, whichever is greater	10% of auto parking	40% - I 60% - II - covered
Churches and religious institutions	1 space for each 4 sets or 4- person capacity, based on maximum use of all facilities at the same time	10% of auto parking	20% - I 40% - II 40% - III
Commercial recreation	1 space for each 4 seats or 4-person capacity, or as adjusted by the Zoning Administrator as part of the conditional use permit, not to exceed a 30% reduction	25% of auto parking	20% - I 20% - II 60% - III or as adjusted by the Zoning Administrator as part of the conditional use permit

Table 1. Minimum Off-Street Parking Requirements

Use	Minimum Off-Street Parking Requirement	Minimum Bicycle Parking Requirements	
		Spaces	Class(1)
Community facilities, including swim club, tennis club, golf course, community centers, neighborhood centers, and similar activities	1 space for each 4-person capacity based on maximum use of all facilities, or as adjusted by the Zoning Administrator as part of the conditional use permit, not to exceed a 30% reduction	25% of auto parking	20% - I 20% - II - covered 60% - III or as adjusted by the Zoning Administrator as part of the conditional use permit
Convalescent facilities	1 space for each 2.5 patient beds	10% of auto parking	2 spaces - I remainder - III
Day care centers, day care homes, family day care homes, and residential care homes	a. Day care centers: 1 space for each 1.5 employees	25% of auto parking	100% - I
	b. Day care homes: 2 spaces per dwelling unit, of which one space shall be covered	25% of auto parking	100% - II
	c. Family day care homes: 2 spaces per dwelling unit, or which one space shall be covered	None	
	d. Residential day care homes: 2 spaces, or which one space shall be covered, for the resident owners or tenants	None	
	Where such uses are conditional, to be established by use permit conditions		
Downtown University Avenue Parking Assessment Area - all uses	1 space for each 23.2 sq. m. (250 sq. ft.) of gross floor area	10% of auto parking	40% - I 60% - II
Drive-up windows providing services to occupants in vehicles	Queue line for 5 cars, not blocking any parking spaces, in addition to other applicable requirements	None	
Eating and drinking services:			
(a) With drive-in or take out facilities	3 spaces for each 9.3 sq. m. (100 sq. ft.) of gross floor area	25% of auto parking	40% - I 60% - III
(b) All others, except parking assessment areas	1 space for each 60 gross sq. ft. of public service area, plus one space for each 200 gross sq. ft. for all other areas	10% of auto parking	40% - I 30% - II

Table 1. Minimum Off-Street Parking Requirements

Use	Minimum Off-Street Parking Requirement	Minimum Bicycle Parking Requirements	
		Spaces	Class(1)
			30% - III
(c) All others, in the California Ave. parking assessment area	1 space for each 14.4 sq. m. (155 sq. ft.) of gross floor area	10% of auto parking	40% - I
			60% - II
Financial Services:			
(a) Bank, savings and loan offices with 696.7 sq. m. or less (7,500 sq. ft.) of gross floor area:			
(1) Except in the parking assessment areas	1 space for each 18.6 sq. m. (200 sq. ft.) of gross floor area	10% of auto parking	40% - I
			60% - III
(2) In the California Ave. parking assessment area	1 space for each 16.7 sq. m. (180) sq. ft.) of gross floor area	10% of auto parking	40% - I
			60% - III
(b) Banks, savings and loan offices with more than 696.7 sq. m. (7,500 sq. ft.) of gross floor area.			
(1)Except in the parking assessment are	1 space for each 23.2 sq. m. (250 sq. ft.) of gross floor area	10% of auto parking	40% - I
			60% - III
(2)In the California Ave. parking assessment area	1 space for each 16.7 sq. m. (180) sq. ft.) of gross floor area	10% of auto parking	
(c) Others	1 space for each 23.2 sq. m. (250 sq. ft.) of gross floor area	10% of auto parking	40% - I
			60% - III
General business services:			
(a) Enclosed, except in parking assessment areas	1 space for each 3.25 sq. m. (350 sq. ft.) of gross floor area	10% of auto parking	80% - I
			20% - II
(b) Enclosed, in the California Ave. parking assessment area	1 space for each 33.4 sq. m. (360 sq. ft.) of gross floor area	10% of auto parking	80% - I
			20% - II
(c) Open lot	1 space for each 46.5 sq. m. (500 sq. ft.) of sales, display, or storage site area	10% of auto parking	100% - III

Table 1. Minimum Off-Street Parking Requirements

Use	Minimum Off-Street Parking Requirement	Minimum Bicycle Parking Requirements	
		Spaces	Class(1)
Hospitals	1 space for each 1.5 patient beds	10% of auto parking	60% - I 40% - II
Hotel	1 space per guestroom; plus the applicable requirement for eating and drinking, banquet, assembly, commercial or other as required for such use, less 75 percent of the spaces required for guestrooms	10% of auto parking	40% - I 30% - II 30% - III
Lodging	1 space for each lodging unit in addition to other residential use requirements	1 space per lodging unit	100% - I
Manufacturing.			
(a) In the LM district	1 space for each 27.9 sq. m. (300 sq. ft.) of gross floor area	10% of auto parking	80% - I 20% - II
(b) In all other districts	1 space for each 46.5 sq. m. (500 sq. ft.) of gross floor area	10% of auto parking	80% - I 20% - II
Medical, professional, and general business offices:			
(a) In the LM district	1 space for each 27.9 sq. m. (300 sq. ft.) of gross floor area	10% of auto parking	60% - I 40% - II
(b) In all other districts, except in parking assessment areas	1 space for each 23.2 sq. m. (310 sq. ft.) of gross floor area	10% of auto parking	60% - I 40% - II
(c) In the California Ave. parking assessment area	1 space for each 28.8 sq. m. (310 sq. ft.) of gross floor area	10% of auto parking	60% - I 40% - II
Mortuaries	1 space for each 4 seats or 4-person capacity, plus funeral procession queue capacity of 5 cars	2 spaces	100% - II

Table 1. Minimum Off-Street Parking Requirements

Use	Minimum Off-Street Parking Requirement	Minimum Bicycle Parking Requirements	
		Spaces	Class(1)
Multiple-family residential use	1.25 spaces per studio unit, 1.5 spaces per 1-bedroom unit, and 2 spaces per 2-bedroom or larger unit; of which at least one space per unit must be covered	1 space per unit	100% - I
(a) Guest parking	For projects exceeding 3 units: 1 space plus 10% of total number of units, provided that if more than one space per unit is assigned or secured parking, then guest spaces equal to 33% of all units is required.	1 space for each 10 units	100% - III
Personal services:			
(a) Except in parking assessment areas	1 space for each 18.6 sq. m. (200 sq. ft.) of gross floor area	10% of auto parking	20% - I 40% - II 40% - III
(b) In the California Avenue parking assessment area	1 space for each 4.18 sq. m. (450 sq. ft.) of gross floor area	10% of auto parking	20% - I 40% - II 40% - III
Private clubs, lodges and fraternal organizations	1 space for each 4 seats or 4-person capacity based on maximum use of all space at one time	10% of auto parking	20% - I 40% - II 40% - III
Research and development:			
(a) In the LM district	1 space for each 27.9 sq. m. (300 sq. ft.) of gross floor area	10% of auto parking	80% - I 20% - II
(b) In all other districts	1 space for each 23.2 sq. m. (250 sq. ft.) of gross floor area	10% of auto parking	80% - I 20% - II
Retail:			
(a) Intensive, except in parking assessment areas	1 space for each 18,.6 sq. m. (200 sq. ft.) of gross floor area	10% of auto parking	20% - I 40% - II 40% - III
(b) Intensive in the California Ave. parking assessment area	1 space for each 22.3 sq. m. (240) sq. ft.) of gross floor area	10% of auto parking	20% - I 40% -II 40% - III

Table 1. Minimum Off-Street Parking Requirements

Use	Minimum Off-Street Parking Requirement	Minimum Bicycle Parking Requirements	
		Spaces	Class(1)
(c) Extensive	1 space for each 32.5 sq. m. (350 sq. ft.) of gross floor area	10% of auto parking	20% - I 40% - II 40% - III
(d) Open lot	1 space for each 46.5 sq. m. (500 sq. ft.) of sales, display, or storage site area	10% of auto parking	100% - III
Schools and educational facilities:			
(a) Grades K-8	2 spaces per teaching station	1 space per every 3 students	100% - III enclosed
(b) Grades 9-12	4 spaces per teaching station	1 space per every 3 students	100% - III enclosed
Shopping center	1 space for each 25.6 sq. m. (275 sq. ft.) of gross floor area	10% of auto parking	40% - I 30% - II 30% - III
Single-family residential use: (including second detached single-family dwelling units)			
(a) In the O-S district	For the primary dwelling unit, 4 spaces, of which one space must be covered For all additional units, 2 spaces per unit, of which one space must be covered	None None	
(b) In all other districts	2 spaces per unit, of which one space must be covered	None	
Two-family residential use	1.5 spaces per unit, of which one space must be covered	1 space per unit	100% - I
Warehousing and distribution:			
(a) In the LM district	1 space for each 27.9 sq. m. (300 sq. ft.) of gross floor area	10% of auto parking	80% - I 20% - II
(b) In all other districts	1 space for each 92.9 sq. m. (1,000 sq. ft.) of gross floor area	10% of auto parking	80% - I 20% - II
Any use not specified	To be determined by the Director of Planning and Community Environment	To be determined by the Director of Planning and Community Environment	

Table 1. Minimum Off-Street Parking Requirements

Use	Minimum Off-Street Parking Requirement	Minimum Bicycle Parking Requirements	
		Spaces	Class(1)

(1) For description of bicycle parking classes, refer to section 18.83.080

Design Standards: Bicycle Parking Facilities

Section 18.83.080

(a) Classifications of Bicycle Parking Facilities.

Class I Facilities. Intended for long-term parking; protects against theft of entire bicycle and of its components and accessories. The facility must also protect the bicycle from inclement weather, including wind-driven rain. Three design alternatives for Class I facilities are as follows:

Bicycle Locker. A fully enclosed space accessible only by the owner or operator of the bicycle. Bicycle lockers may be pre-manufactured or designed for individual sites. All bicycle lockers must be fitted with key locking mechanisms.

In multiple-family developments, the Class I bicycle parking and required storage area for each dwelling unit may be combined into one locked mullet-use storage facility provided that the total space requirement shall be the sum of the requirements for each use computed separately.

The preferred Class I facility is a bicycle locker. Restricted access facilities and enclosed cages may be considered as alternatives to bicycle lockers as indicated below. Class I facilities other than lockers, restricted access rooms, or enclosed cages, but providing the same level of security, may be approved by the Director of Planning and Community Environment.

Restricted Access. Class II bicycle parking facilities located within a locked room or locked enclosure accessible only to the owners or operators of the bicycles parked within. The maximum capacity of each restricted room or enclosure shall be ten (10) bicycles. An additional locked room or enclosure is required for each maximum increment of ten additional bicycles. The doors of such restricted access enclosures must be fitted with key locking mechanisms.

In multiple-family residential developments, a common locked garage area with Class II bicycle parking facilities shall be deemed restricted access provided the garage is accessible only to the residents of the units for whom the garage is provided.

Enclosed Cages. A fully enclosed chain link enclosure for individual bicycles, where contents are visible from the outside, and which can be locked by a user-provided lock. The locking mechanism must accept a 3/8" diameter padlock. This type of facility is only to be used for retail and service uses and multiple family developments.

Class II Facilities. Intended for short term parking. A stationary object to which the user can lock the frame and both wheels with only a lock furnished by the user. The facility shall be designed so that the lock is protected from physical assault. A Class II rack must accept padlocks and high security U-shaped locks.

Class III Facilities. Intended for short term parking. A stationary object to which the user can lock the frame and both wheels with a user-provided cable or chain (6 foot) and lock.

All Class III facilities must be located at street floor level.

(b) The following general design standards shall be observed:

- Class II and Class III facilities shall provide at least a twenty-four inch clearance from the centerline of each adjacent bicycle, and at least eighteen inches from walls or other obstructions.

- An aisle or other space shall be provided to bicycles to enter and leave the facility. This aisle shall have a width of at least five feet (1.5 meters) to the front or the rear of a standard six-foot (1.8 meters) bicycle parked in the facility.

- Parking facilities shall support bicycles in a stable position without damage to wheels, frame, or components. Facilities designed for hanging or vertical storage of bicycles shall not satisfy the requirements of this chapter.

- Bicycle parking should be situated at least as conveniently as the most convenient vehicle parking area. Bicycle and vehicle parking areas shall be separated by a physical barrier or sufficient distance to protect parked bicycles from damage by vehicles.

    - Class I facilities at employment sites shall be located near the building entrances used by employees.

    - Class II or Class III facilities intended for customers or visitors shall be located near the main building entrances used by the public.

  Paving of bicycle parking areas is required.

- Convenient access to bicycle parking facilities shall be provided. Where access is via a sidewalk or pathway, curb ramps shall be installed where appropriate.

- Signage of Bicycle Parking Facilities.

- Where bicycle parking areas are not clearly visible to approaching bicyclists, signs shall be posted to direct cyclists to the facilities.

- All bicycle parking areas shall be identified by a sign of a minimum of 12" X 12" in size to identify the area for bicycle parking and to give the name, phone number of location of the person in charge of the facility.

- Where Class I parking required by this chapter is provided by restricted access parking, the sign shall state that the bicycle enclosure shall be kept locked at all times.

- Lighting shall be provided in all bicycle parking areas. In both exterior and interior locations, lighting of not less than one footcandle of illumination at ground level shall be provided.

- The director of planning and community environment shall have the authority to review the design of all bicycle parking facilities required by this chapter with respect to safety, security, and convenience.

Employee Shower Facility Requirements

Section 18.49.040

(e) Requirement for Showers. Employee shower facilities shall be provided for any new building constructed or for any addition to or enlargement of any existing building in compliance with the following table:

Use	Gross Floor Area of New Construction	Number of Showers Required
Medical, professional, general business offices, financial services, business and trade schools and general business services.	0-9,999 sq. ft.	No requirement
	10,000-19,999 sq. ft.	1
	20,000-49,999 sq. ft.	2
	50,000 sq. ft. and up	4
Retail, personal and eating and drinking services.	0-24,999 sq. ft	No requirement
	25,000-49,999 sq. ft.	1
	50,000-99,999 sq. ft.	2
	100,000 sq. ft. and up	4

San Francisco Planning Code

Bicycle Parking and Shower Requirements

Excerpts From The San Francisco Planning Code, Sections 155.1-4.
See: Http://Sfgov.Org/Planning/Index.Htm

SEC. 155.1. BICYCLE PARKING REQUIREMENTS FOR CITY-OWNED AND LEASED BUILDINGS.

In all City-owned and leased buildings, regardless of whether off-street parking is available, the responsible city official, as defined in Section 155.1(a)(11) below, shall provide bicycle parking according to the schedule in Section 155.1(c) below, except as otherwise provided in Section 155.2. The provisions of this Section shall not apply in any case where the City occupies property as a tenant under a lease the term of which does not exceed six months. In the event that a privately owned garage, as defined in Section 155.2, is in a building in which the City leases space, Section 155.2 and not this Section shall apply. All required bicycle parking shall conform to the requirements of Sections 155.1(b) (Location of Facilities) and 155.1(c) (Number of Spaces) set forth below:

(a) **Definitions.**

(1) **Locker.** A fully enclosed, secure and burglar-proof bicycle parking space accessible only to the owner or operator of the bicycle.

(2) **Check-In Facility.** A location in which the bicycle is delivered to and left with an attendant with provisions for identifying the bicycle's owner. The stored bicycle is accessible only to the attendant.

(3) **Monitored Parking.** A location where Class 2 parking spaces are provided within an area under constant surveillance by an attendant or security guard or by a monitored camera.

(4) **Restricted Access Parking.** A location that provides Class 2 parking spaces within a locked room or locked enclosure accessible only to the owners of bicycles parked within.

(5) **Personal Storage.** Storage within the view of the bicycle owner in either the operator's office or a location within the building.

(6) **Class 1 Bicycle Parking Space(s).** Facilities which protect the entire bicycle, its components and accessories against theft and against inclement weather, including wind-driven rain. Examples of this type of facility include (1) lockers, (2) check-in facilities, (3) monitored parking, (4) restricted access parking, and (5) personal storage.

(7) **Class 2 Bicycle Parking Space(s).** Bicycle racks which permit the locking of the bicycle frame and one wheel to the rack and, which support the bicycle in a stable position without damage to wheels, frame or components.

(8) **Director.** Director of the Department of City Planning.

(9) **Landlord.** Any person who leases space in a building to the City. The term "landlord" does not include the City.

(10) **Employees.** Individuals employed by the City and County of San Francisco.

(11) **Responsible City Official.** The highest ranking City official of an agency or department which has authority over a City-owned building or parking facility or of an agency or department for which the City is leasing space.

(12) **Person.** Any individual, proprietorship, partnership, joint venture, corporation, limited liability company, trust, association, or other entity that may enter into leases.

(b) **Location of Facilities.**

(1) At locations where the majority of parking spaces will be long-term (e.g., occupied by building employees for eight hours or more), at least ½ of the required bicycle parking spaces shall be Class 1 spaces. The remaining spaces may be Class 2 spaces. The Director may approve alternative types of parking spaces that provide an equivalent measure of security.

(2) **Alternative Locations.** In the event that compliance with Section 155.1(b)(1) may not be feasible because of demonstrable hardship, the responsible city official may apply to the Director for approval of an alternative storage location. In acting upon such applications, the Director shall be guided by the following criteria: Such alternative facilities shall be well-lighted and secure. The entrance shall be no more than 50 feet from the entrance of the building, unless there are no feasible locations within a 50 foot zone that can be provided without impeding sidewalk or pedestrian traffic. However, in no event shall an alternative location be approved that is farther from the entrance of the building than the closest automobile parking space.

(3) **Exemptions.** If no feasible alternative parking facility exists nearby which can be approved pursuant to Section 155.1(b)(1) or (2) or, securing an alternative location would be unduly costly and pose a demonstrable hardship on the landlord, or on the City, where the City owns the building, the Director may issue an exemption. In order to obtain an exemption, the responsible City official shall certify to the Director in writing that the landlord, or the City, where the City owns the building, will not prohibit bicycle operators from storing bicycles within their office space, provided that they are stored in such a way that the Fire Code is not violated and that the normal business of the building is not disrupted.

(c) **Required Number of Bicycle Parking Spaces.**

(1) **Class 1 Bicycle Parking Spaces.** The following standards shall govern the number of Class 1, long-term, bicycle parking spaces a responsible City official must provide:

(A) In buildings with one to 20 employees, at least two bicycle parking spaces shall be provided.

(B) In buildings with 21 to 50 employees, at least four bicycle parking spaces shall be provided.

(C) In buildings with 51 to 300 employees, the number of bicycle parking spaces provided shall be equal to at least five percent of the number of employees at that building, but in no event shall fewer than five bicycle spaces be provided.

(D) In buildings with more than 300 employees, the number of bicycle parking spaces provided shall be equal to at least three percent of the number of employees at that building but in no event shall fewer than 16 bicycle parking spaces be provided.

(2) In addition to the Class 1 bicycle parking spaces required above, a responsible City official shall also provide Class 2 bicycle parking spaces according to the below enumerated schedule:

(A) In buildings with one to 40 employees, at least two bicycle parking spaces shall be provided.

(B) In buildings with 41 to 50 employees, at least four bicycle parking spaces shall be provided.

(C) In buildings with 51 to 100 employees, at least six bicycle parking spaces shall be provided.

(D) In buildings with more than 100 employees, at least eight bicycle parking spaces shall be provided. Wherever a responsible City official is required to provide eight or more Class 2 bicycle parking spaces, at least 50 percent of those parking spaces shall be covered.

(3) In public buildings where the City provides a public service to members of the public who are patrons or users of the buildings, such as libraries, museums, and sports facilities, the responsible City official shall provide the number of bicycle parking spaces as set out in Section 155.1(c)(1) and (2), except that the average patron load in a building during peak use hours as determined by the Director, rather than the number of employees, shall determine the number of spaces required. This Section shall not apply where a public building has a "garage" (as such term is defined in Section 155.2(a)) that is open to the general public, in which case Section 155.2 shall apply.

(4) The Director shall annually survey the amount, location, and usage of provided bicycle parking spaces in all buildings subject to the requirements of this Section in order to ascertain whether current requirements are adequate to meet demand for such parking spaces. If current requirements are inadequate, the Director shall draft and submit to the Board of Supervisors proposed legislation that would remedy the deficiency.

(5) **Reductions.** The Director may grant a reduction from the number of bicycle parking spaces required by this Section where the applicant shows based upon the type of patronage, clientele, or employees using the building that there is no reason to expect a sufficient number of bicycle-riding patrons, clientele or employees to justify the number of spaces otherwise required by the Section.

(d) **Layout of Spaces.** Class 1 and Class 2 bicycle parking spaces or alternative spaces approved by the Director shall be laid out according to the following:

(1) An aisle or other space to enter and leave the facility shall be provided. The aisle shall provide a width of five feet to the front or rear of a standard six-foot bicycle parked in the facility.

(2) Each bicycle parking space shall provide an area at least two feet wide by six feet deep. Vertical clearance shall be at least 78 inches.

(3) Bicycle parking shall be at least as conveniently located as the most convenient nondisabled car parking. Safe and convenient means of ingress and egress to bicycle parking facilities shall be provided. Safe and convenient means include, but are not limited to stairways, elevators and escalators.

(4) Bicycle parking and automobile parking shall be separated by a physical barrier or sufficient distance to protect parking bicycles from damage.

(5) Class 2 bicycle racks shall be located in highly visible areas to minimize theft and vandalism.

(6) Where Class 2 bicycle parking areas are not clearly visible to approaching bicyclists, signs shall indicate the locations of the facilities.

(7) The surface of bicycle parking spaces need not be paved, but shall be finished to avoid mud and dust.

(8) All bicycle racks and lockers shall be securely anchored to the ground or building structure.

(9) Bicycle parking spaces may not interfere with pedestrian circulation.

(g) **Miscellaneous Requirements.**

(4) Buildings with existing traditional-type racks which support only one wheel shall have two years from the effective date of this Section to replace them with conforming racks.

SEC. 155.3. SHOWER FACILITIES AND LOCKERS REQUIRED IN NEW COMMERCIAL AND INDUSTRIAL BUILDINGS AND EXISTING BUILDINGS UNDERGOING MAJOR RENOVATIONS.

(a) **Definitions.**

(1) **New Building.** A commercial or industrial building for which a building permit is issued at least six months after the effective date of this legislation.

(2) **Major Renovations.** Any construction or renovation project (i) for which a building permit is issued commencing at least six months after the date of enactment of this legislation (ii) which involves an enlargement of an existing public or privately owned commercial or industrial building, and (iii) which has an estimated cost of at least $1,000,000.00. For purposes of this Section, the term "enlargement" shall mean an increase in the square footage of the ground story of a building.

(3) The term "commercial building" shall include, but is not limited to, public or privately owned buildings containing employees working for City government agencies or departments.

(b) **Requirements for New Buildings and Buildings With Major Renovations.** New buildings and buildings with major renovations shall provide shower and clothes locker facilities for short-term use of the tenants or employees in that building in accordance with this Section. Where a building undergoes major renovations, its total square footage after the renovation is the square footage that shall be used in calculating how many, if any, showers and clothes lockers are required.

(c) For new buildings and buildings with major renovations whose primary use consists of medical or other professional services, general business offices, financial services, City government agencies and departments, general business services, business and trade schools, colleges and universities, research and development or manufacturing, the following schedule of required shower and locker facilities applies:

(1) Where the gross square footage of the floor area exceeds 10,000 square feet but is no greater than 20,000 square feet, one shower and two clothes lockers are required.

(2) Where the gross square footage of the floor area exceeds 20,000 square feet but is no greater than 50,000 square feet, two showers and four clothes lockers are required.

(3) Where the gross square footage of the floor area exceeds 50,000 square feet, four showers and eight clothes lockers are required.

(d) For new buildings and buildings with major renovations whose primary use consists of retail, eating and drinking or personal services, the following table of shower and locker facilities applies:

(1) Where the gross square footage of the floor area exceeds 25,000 square feet but is no greater than 50,000 square feet, one shower and two clothes lockers are required.

(2) Where the gross square footage of the floor area exceeds 50,000 square feet but is no greater than 100,000 square feet, two showers and four clothes lockers are required.

(3) Where the gross square footage of the floor area exceeds 100,000 square feet, four showers and eight clothes lockers are required.

(e) **Exemptions.** An owner of an existing building subject to the requirements of this Section shall be exempt from Subsections (c) and (d) upon submitting proof to the Director of the Department of City Planning that the owner has made arrangements with a health club or other facility, located within a four-block radius of the building, to provide showers and lockers at no cost to the employees who work in the owner's building.

(f) **Exclusion for Hotels, Residential Buildings and Live/Work Units.** This Section shall not apply to buildings used primarily as hotels or residential buildings. In addition, this Section shall not apply to "live/work units" as defined in Section 102.13 of the San Francisco Planning Code.

(g) **Owners of Existing Buildings Encouraged to Provide Shower and Clothes Locker Facilities.** The City encourages private building owners whose buildings are not subject to this Section to provide safe and secure shower and clothes locker facilities for employees working in such buildings.

(h) The Department of City Planning may establish more definitive requirements for shower and locker facilities in accordance with this Section. (Added by Ord. 343-98, App. 11/19/98)

SEC. 155.4. BICYCLE PARKING REQUIRED IN NEW AND RENOVATED COMMERCIAL BUILDINGS.

(a) **Definitions.**

(1) All definitions set forth in Section 155.1(a) and Section 155.3(a) are incorporated into this Section.

(2) **New Commercial Building.** A commercial or industrial building for which a building permit is issued on or at least six months after the effective date of this Section.

(3) **Major Renovation.** Any construction or renovation project (i) for which a building permit is issued commencing on or at least six months after the effective date of this Section (ii) which involves an enlargement of an existing commercial building and (iii) which has an estimated construction cost of at least $1,000,000.00.

(b) **Requirements for New Commercial Buildings and Commercial Buildings with Major Renovations.** New commercial buildings and commercial buildings with major renovations, as a condition of approval, shall provide bicycle parking in that building in accordance with this Section. Where a building undergoes major renovations, its total square footage after the renovation shall be used in calculating how many, if any, bicycle parking spaces are required.

(c) **Types of Bicycle Parking.** New commercial buildings and commercial buildings with major renovations shall offer either Class 1 bicycle parking, as defined in Section 155.1(a)(6), or Class 2 bicycle parking, as defined in Section 155.1(a)(7), or a combination of Class 1 and Class 2 bicycle parking.

(d) **Bicycle Parking Spaces - Professional Services.** For new commercial buildings and commercial buildings with major renovations whose primary use consists of medical or other professional services, general business offices, financial services, general business services, business and trade schools, colleges and universities, research and development or manufacturing, the following schedule of required bicycle parking applies:

(1) Where the gross square footage of the floor area exceeds 10,000 square feet but is no greater than 20,000 feet, 3 bicycle spaces are required.

(2) Where the gross square footage of the floor area exceeds 20,000 square feet but is no greater than 50,000 feet, 6 bicycle spaces are required.

(3) Where the gross square footage of the floor area exceeds 50,000 square feet, 12 bicycle spaces are required.

(4) Bicycle Parking Spaces—Retail. For new commercial buildings and commercial buildings with major renovations whose primary use consists of retail, eating and drinking or personal service, the following schedule of required bicycle parking applies:

(1) Where the gross square footage of the floor area exceeds 25,000 square feet but is no greater than 50,000 feet, 3 bicycle spaces are required.

(2) Where the gross square footage of the floor area exceeds 50,000 square feet but is no greater than 100,000 feet, 6 bicycle spaces are required.

(3) Where the gross square footage of the floor area exceeds 100,000 square feet, 12 bicycle spaces are required.

(f) **Notice of Bicycle Parking.** New commercial buildings and commercial buildings with major renovations subject to this Section must provide adequate signs or notices to advertise the availability of bicycle parking.

(g) **Layout of Spaces.** Owners of new commercial buildings and commercial buildings with major renovations subject to this Section are encouraged to follow the requirements set forth in Section 155.1(d) (Layout of Spaces) in installing Class 1 and Class 2 bicycle parking.

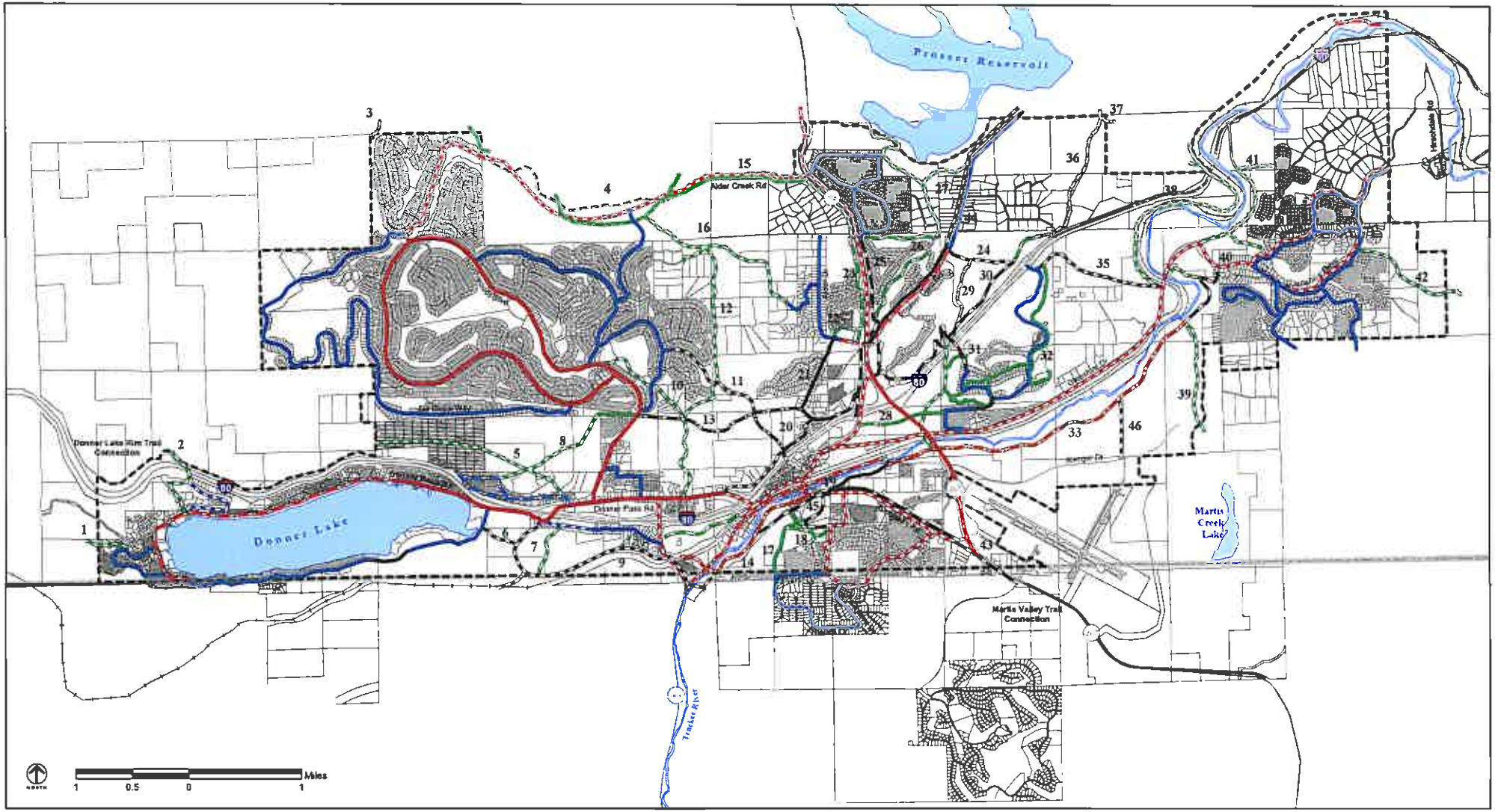
(h) **Owners of Existing Buildings Encouraged to Provide Bicycle Parking Spaces.** The City encourages building owners whose buildings are not subject to this Section to provide bicycle parking spaces in such buildings.

(i) **Exemption.** Where a new commercial building or building with major renovations includes residential uses, the building's total non-residential square footage shall be used in calculating how many, if any, bicycle parking spaces are required.

(j) This Section shall not be interpreted to interfere with the Department of Planning's authority to require more than the minimum bicycle parking spaces required by this Section as a condition of approval of a project, where appropriate.

(k) For the purposes of this Section, commercial shall mean commercial and industrial. (Added by Ord. 193-01, File No. 010488, App. 9/7/2001)

APPENDIX C: TRUCKEE TRAILS AND BIKEWAYS PLAN MAP



Existing Trail - Actual Route

- Class I Bike Path
- Class II Bike Lane
- Class III Bike Route
- Recreational Trail - Earthen

Planned Alignment

- Class I Bike Path
- Class I With Unpaved Element
- Class II Bike Lane
- Class III Bike Route
- Recreational Trail - Surface TBD

Proposed Corridor

- Class I Bike Path
- Class I With Unpaved Element
- Class II Bike Lane
- Class III Bike Route
- Recreational Trail - Surface TBD

Truckee Town Limits

APPENDIX D EXHIBIT 1
LOCAL MAP

EXISTING AND PROPOSED
TRAIL AND BIKEWAY NETWORK
As of 5/17/2007

TOWN OF TRUCKEE

APPENDIX D: PUBLIC WORKSHOP MEETING NOTES

Eastern Nevada County Bicycle Master Plan Workshop Notes March 19, 2007

Verbal comments from attendees:

- Tourists are an important user group that should be considered when looking at bike projects. The Truckee River corridor is a great project and if it was constructed with a hard surface people would use it. It is also important for residents and visitors to know where trail heads exist and have multiple access points. "What is going to get me on my bike?"
- Bike routes are not enough – need pathways.
- Gradient is a key is to be considered in planning bike facilities. The route that this rider takes to get down to Safeway is a tough ride. He indicated he travels from Prosser Lakeview to I-80 to the cemetery to downtown to Safeway. The proposed facility ??? is good, but it would be better on the other side of I-80.
- Someone suggested taking Prosser Lakeview down SR 89 into downtown.
- Highway 89 needs improved maintenance.
- Bike route signage should consider identifying the degree of difficulty. Also Class I signage on how to use the facility is very important as well as striping relating to how the different users utilize the facility.
- Pathways need to be striped/signed for separate bike/ped use areas.
- Would love to see Truckee become a destination for high altitude bicycle training.
- Tourists need better pathways and facilities in Truckee, so they don't have to go to Tahoe City or other areas to ride; most people in Tahoe City riding are from Truckee.
- As an educator trying to teach kids to be smart consumers of our resources, but we need bicycle facilities so they have the option to ride.
- Need a link from Glenshire to downtown.
- Maintenance of bikeways:

  - They need to cleaned more often to remove dirt and sand and cleared of snow sooner
  - Striping on the facilities does not last long and should be addressed.

- Truckee will be more of a College community very soon; school-aged users are important.
- Neighborhoods are spread out away from downtown and we need facilities to connect to outlying communities such as Glenshire and Sierra Meadows.
- Caltrans repaved the highway travel lane, but did not do the shoulders. The Town of Truckee also only did the travel lane when they did a slury seal project. Need a policy at state and local level re shoulder maintenance.
- Lack infrastructure to allow kids to ride to schools; need SR2S program.
- Schools lack bicycle storage facilities. Alder Creek Middle School has no safe facility to get to it. Grocery stores are another important destination.
- It would be nice to see more educational events, like bike-in movies or large group rides/tours.
- Donner Lake Road from Tahoe Donner Pines Markets to the west end of Donner Lake needs a bike facility; Tahoe Donner Pines Market to the west end of Donner Pass Road will be completed by next summer (?).
-
- The poorly designed "bollards" (steel pole located in the middle of the bike path trailheads in Tahoe City to keep vehicles from driving on the path) are very dangerous and should not be put on Class I facilities.
- The Legacy trail is perfect for a Class I facility and would be great for tourists, families, and residents. It connects neighborhood and future connections to Northstar.
- Truckee needs to be connected to all the neighborhoods not only Glenshire. Work with developers to provide trails.
- Striping earlier in the year and more frequent cleaning of roads
- Better facilities for tourism, recreation, and serious riders (high altitude training), and better marketing; serious economic development potential.
- Improve Hwy 40 and also Boca Road to Stampede as recreational routes.
- Caltrans Class I guidelines are tough to meet with grade requirements. Funding needs to be sped up and invested and banked.

- Better coordination is needed with Caltrans so when improvements to State highways are made adequate bicycle facilities are addressed.

- Pyramid Lake to Tahoe project utilizes the philosophy of paved trails in urban areas and dirt in rural areas. Would like to connect the trail through the Truckee River cannon to Glenshire. Easements are the major problem in this section. Southern Pacific Railroad owns most of the land and does not want a trail located on it. Would like to see acknowledgement of the potential connection shown in the plan.

- Need to work with golf courses to allow bikes on golf cart pathways.

- Prosser development

    - Sidepath along 89 from neighborhood to downtown.
    - Use development as way to build trails.

Written Comments on maps:

- Add Tahoe-Pyramid Lake Trail to maps.
- Connect Truckee and Nevada City/Grass Valley via Highway 20 bike lanes
- Extend Donner Pass Road proposed Class II west of Donner Lake toward the pass
- Need bike parking at: High School, New Sierra College, and the Middle School
- Pave proposed pathway on NW side of Highway 89 between Donner Pass Road and Euer Valley Road
- Minimum facility for Donner Pass Road and Hwy 89 should be Class II
- Extend Class II or shoulders on Highway 89 north to Sierraville
- Pave pathway between downtown and Glenshire (comment 8x)
- Glenshire connection needed (general comment)
- Glenshire Class II is needed

Western Nevada County Bicycle Master Plan Workshop Notes March 20, 2007

Verbal comments from attendees:

- Sometimes as a rider I do not feel safe even in a Class II bike lane. What are the next step up in markers or bumps that can be placed on the stripe. Mentioned reflectors and rumble strips.

- Bike lanes often have broken glass, trash, weeds, as well as vegetation (limbs, etc.) growing out into the bike lane. There needs to be more maintenance.

- One respondent who rides on Zion St. noted that the limbs and trash should be maintained and pointed out that maintenance should be coordinated across different jurisdictions.

- Special Development Areas should be required to provide bicycle facilities.

- County has a history of diffusing and deferring opportunities to do bicycle improvements.
- Need project phasing: Class III or II now but long-term should be Class I. Need to watchdog roadway projects.
- Big difference between Class I and Class II facilities. I would like the study to identify where Class I trails may not currently be existing, but look at opportunities for future Class I trails.
- Look at road standards, zoning ordinances, or a thought process flow chart for agencies when they consider paving. For example if they planned to do a bicycle lane on Bitney Springs Rd. they should pave or construct the uphill side first.
- Bike lanes on Ridge Rd. are there because someone at the County recognized the opportunity to widen the shoulders as part of a PG&E under-grounding project and need to look for more opportunities to put in bike lanes.
- Like to ride on Rough and Ready Hwy. and Bitney Springs Rd. and would like to see improvements.
- Don't need bikes lanes on downhill side of the road. We need more lanes for climbing. Downhill you are going at a high speed of travel with the traffic. Uphill should be the priority. Examples are Rough and Ready Highway and East Main Street.
- Bill Haire, Nevada County Land Trust, working on trail connectivity plan and need to take these into consideration. Access to trails is important.
- Awareness and education are key. Bitney Springs Rd. needs road signs like on E. Main. Use Share the Road signs as well. There is a charter school located on Bitney Springs Rd. and it would nice if kids could ride safely.
- Class II versus Class I. Class I facilities are more expensive and take longer to get funding and constructed and you may have to wait several years. Class II are easier and cost a lot less.
- Trails should be considered for transportation and included in this network.
- Plans should be made more available to the public.
- Need to have "recreational" trails defined to force developers to acknowledge that they exist and stop them from being able to raze them.
- Nevada County Irrigation ditches and utility corridors should be shown on map
- Interested in transportation routes not recreational trails.

- Class I path priorities:
    - Between Grass Valley, the Brunswick Basin, and Nevada City.
    - Litton Trail
- Trails and pathways have mixed use, both recreation and transportation.

Written comments on maps:

- New facilities:
    - Class I or II on Newtown Road between Bitney Springs Road and Hwy 49
    - Class I/II between Hwy 20 and Hwy 80 along old Hwy 40 route (Hwy 20 to Class I to Eagle Lake Road to Class I to Hampshires Rock Road to Donner Pass Road) (comment x2)
    - Class III on Allison Ranch Rd. and/or Old Auburn Rd. as optional recreational route
    - Class III on Loma Rica Drive
    - Extend Class II on Sacramento between Boulder and Zion in Nevada City
    - Class II/I/II Hollow Way/new pathway/Railroad Ave parallel to Hwy 49/20 east side of highway
    - Class I along NID ditch on east side of Nevada City/Grass Valley connecting Brunswick to Loma Rica Ranch to Banner to Red Dog
    - Bicycle parking needed at Brunswick Basin shopping center
    - Lockers/showers/change facility needed at Brunswick Basin shopping center
    - Extend Class III east of Grass Valley on Bennett Road to old Centennial Drive ROW; Class I on this ROW between Bennett and Idaho-Maryland Road
    - Continue Wolf Creek Pathway north along Sutton Rd. to Brunswick Rd.
    - Doris Dr route (would require Class I connection)
    - Class I Litton Trail extension south to Alta/Rough and Ready/Butler/Wolf Creek extension south

- Examples of priority roads improvements on uphill side:
    - Freeman Lane in Grass Valley
    - Bitney Springs Road
    - Rough and Ready Highway
    - Pleasant Valley Road (Bitney Springs Road north to Highway 49)
    - Highway 49 SB between Alta Sierra and Lake of the Pines
    - Hwy 49 both sides between Alta Sierra and Grass Valley

- Safety improvements:
    - Warning signage on Boulder Street
    - Banner Mtn Road east of Nevada City
    - Red Dog Rd
    - North Bloomfield Rd
    - STR signs on S. Pine Bridge in Nevada City
    - STR signs and outreach to school drivers dropping off on Searles Ave
    - Ensure safe bicycling conditions on Sutton Way and in area around proposed Dorsey Drive interchange

  - STR signs on Ridge Rd. between Rough and Ready and Alta Dr.

- Need better maintenance and signage on existing bike lanes
  - Ridge Road
  - Sierra College Drive
  - Nevada City Highway
  - East Main Street
  - Hughes Street

- Other maintenance needs:
  - Potholes on Old Downieville Road
  - Low pavement quality on Searles Ave
  - Low pavement quality on Boulder

- Shopping Center south of Grass Valley between Hwy 49 and Allison Rd is cycling destination.

APPENDIX E: BASIS FOR COST ESTIMATES

BASIS FOR BIKEWAY COST ESTIMATES*						
		Unit	**Unit Cost**	**Quantity**	**Total Cost Per Mile**	**Notes**
Shared Use Pathway (Class I)	Clearing and Grubbing	SF	$0.75	12' x 5280' = 63,360 SF	$47,520	
	Earth / Excavation	CY	$20	(5280 ft x 12 ft x 1 ft)/27 cu ft/cy =21,120 cy	$46,933	assumes earth excavation of one foot below 12 foot wide paved area
0.2' thick	Asphalt Concrete Pavement	SF	$7	5280' x 12' = 63,360 SF	$369,600	assumes 10 foot wide paved area, $7 figure provided by Lafayette
10' paved width; 2' shoulders	Gecomposed Granite Shoulders	SF	$3	5280' x 2' = 10,560 SF	$42,240	assumes one foot paved shoulder on either side of pathway
	Bike Path Signing	Mi	$1,500	1	$1,500	
	Stripe	LF	$1	5280 LF	$5,280	
	TOTAL PER MILE				**$513,073**	
Bike Lane (Class II)	Bike Lane Stripe	LF	$2	5280'	$10,560	
	Pavement Markings	each	$50	20 per mile	$1,000	
	Traffic Signing	mile	$2,000	1	$2,000	
	Traffic Control	mile	$500.00		$500	
	TOTAL PER MILE				**$14,060**	
Bike Route (Class III)	Traffic Signing	mi	$1,500	1	$1,500	
	TOTAL PER MILE				**$1,500**	
Bike Route (Class III with Shared Roadway Bicycle Markings)	Traffic Signing	mile	$2,000	1	$2,000	
	Traffic Control	mile	$500.00	1	$500	
	Pavement Markings	each	$50	20 per mile	$1,000	
	TOTAL PER MILE				**$3,500**	
Bike Lane (Class II) with shoulder widening	Bike Lane Stripe	LF	$2	5280'	$10,560	
	Pavement Markings	each	$50	20 per mile	$1,000	
	Traffic Signing	mile	$1,500	1	$1,500	
	Traffic Control	mile	$500.00		$500	

	earth/excavation	CY	$15	782	$11,730	assumes two feet additional asphalt on each side
	asphalt concrete pavement	SF	$7.00	5280	$147,840	assumes two feet additional asphalt on each side
	TOTAL PER MILE				**$173,130**	
Bike Route (Class III) Rural Roads Improvement Proj Minor	Traffic Signing	mile	$1,500	1	$1,500	
periodic shoulder paving/repair	Traffic Control	mile	$500.00		$500	
	earth/excavation	CY	$15	391	$5,865	assumes average two feet additional asphalt on each side, periodically equal to 50% of total roadway length
	asphalt concrete pavement	SF	$7.00	2640	$73,920	assumes average two feet additional asphalt on each side, periodically equal to 50% of total roadway length
	TOTAL PER MILE				**$81,785**	
Bike Route (Class III) Rural Roads Improvement Proj Major	Traffic Signing	mile	$1,500	1	$1,500	
periodic shoulder widening incl grading and drainage	Traffic Control	mile	$500.00		$500	
	earth/excavation	CY	$25	587	$14,663	assumes average two feet additional asphalt on each side, periodically equal to 75% of total roadway length

	asphalt concrete pavement	SF	$7.00	3960	$110,880	assumes average two feet additional asphalt on each side, periodically equal to 75% of total roadway length
	TOTAL PER MILE				**$127,543**	

Estimated Costs Totals

	Total per mile cost		**base cost**	**survey/design (10%)**	**contingency (5-10%)**	**admin (5%)**
Class I	**$641,342**		$513,073	$51,307.3	$51,307	$25,654
Class II	**$17,575**		$14,060	$1,406.0	$1,406	$703
Class III	**$1,800**		$1,500	$150.0	$75	$75
Sharrows	**$4,375**		$3,500	$350.0	$350	$175
Class II with widening	**$216,413**		$173,130	$17,313.0	$17,313	$8,657
RR Imp Minor	**$102,231**		$81,785	$8,178.5	$8,179	$4,089
RR Imp Major	**$159,428**		$127,543	$12,754.3	$12,754	$6,377

*Costs Developed in 2006 for Lafayette Bicycle Plan by Lauren Buckland and updated in June 2007 by Eric Anderson for Nevada County Bicycle Master Plan