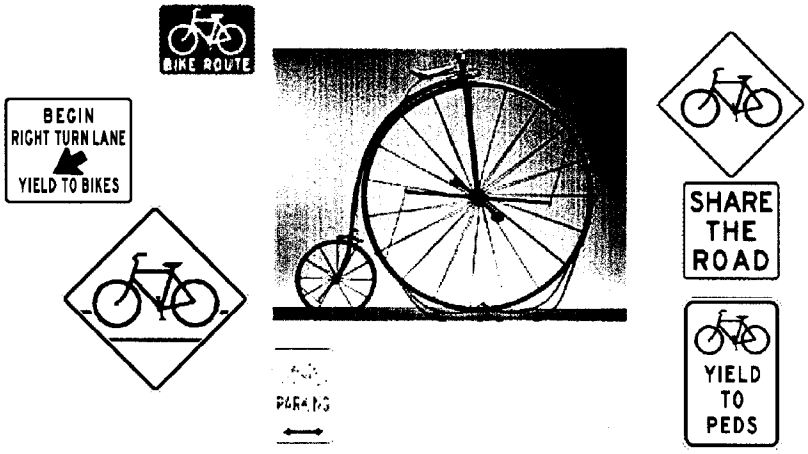
CITY OF
CUPERTINO

CUPERTINO BICYCLE TRANSPORTATION PLAN



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Adopted by: City of Cupertino City Council

December 1998

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EXECUTIVE SUMMARY

The Bicycle & Pedestrian Advisory Committee (BPAC) of the City of Cupertino was formed in 1990 under the leadership of Don Burnett, now serving his second term of office as a member of the Cupertino City Council. Don's initial work in identifying the importance of transportation alternatives to the automobile laid the foundation for the BPAC's continuing efforts. The objective of the BPAC is to encourage walking and bicycling as a safe, practical and healthy alternative to the use of the family car. With the growing congestion of South Bay freeways, and the inherent limitations of car pools, van pools and public transit, commuting to work and/or school by bicycle is the solution of choice for a growing number of Cupertino residents.

In 1998, the BPAC prepared the Cupertino Bicycle Transportation Plan (Plan) with Wilbur Smith Associates of San Francisco. The Plan is conformance with requirements of Caltrans' Bicycle Lane Account Program. The following is summary description of the Plan:

Chapter No. 1 defines the purpose of the Bicycle Transportation Plan as one which will foster and support the use of the bicycle for commuting, utility and recreational purposes by citizens of all ages and skill levels. Given Cupertino's dry and mild climate and relative flat terrain, year-round bicycling is not only possible, but also an enjoyable to alternative to congested freeways and arterial streets during rush hour traffic. It is difficult to obtain reliable figures on the number of bicycle commuters. Best estimates indicate that seven-tenths of one percent (0.7%) of Cupertino residents' bicycle to work, as compared to a countywide average of 1.5%. With the implementation of the recommendations and physical improvements outlined in this Plan, projections suggest that a six-fold increase can be attained in the number of bicycle commuters, which would equate to 4.0% of Cupertino's resident population of 50,800 (1999 estimate).

Chapter No. 2 of the Plan describes a recommended bikeway network of twenty-two interconnected routes on major Cupertino streets and residential avenues, and on bike trails such as the proposed De Anza National Historic Trail and the Stevens Creek Trail. The completion of these bicycle and pedestrian trail facilities will provide improved links to alternative transportation systems. Additionally, the description of each route contains *Implementation Measures, Bicycle Friendly Features*, and *Long-Term Improvements* that will contribute to the utilization of the routes by bicyclist. The BPAC has prioritized the improvements proposed for each route using safety and connectivity as the primary prioritization criteria. Additionally, estimates of the improvement costs and available funding sources are included for each route.

Chapter No. 3 of the Plan discusses the importance of providing bicycle education for children, adults, motorists and law enforcement officials in order to promote observance of the rules of the road and the safety of the cyclist. These programs would also emphasize the development of basic pedestrian skills for children in kindergarten through the third grade. Success in providing the skill and knowledge necessary for children to safely walk or bicycle to school would do much to reduce morning and afternoon traffic congestion in the vicinity of Cupertino's schools. Santa Clara County Sheriff's Department deputies likewise play an important role in encouraging safe behavior and enforcement should be viewed as an integral part of the bicycle education program.

Chapter No. 4 provides an inventory of the bicycle parking available at business, school and shopping locations throughout Cupertino, and discusses the most appropriate types of bike parking facilities for both short and long-term parking. The availability of suitable and secure parking facilities is a significant factor in encouraging bicycle commuting and the use of a bike for utility purposes. This chapter also critiques the current City ordinance relating to off-street bicycle parking, and recommends that rather than relating bicycle parking to a percentage of auto parking requirements it be based on the square footage of multi-family housing and commercial district developments.

Chapter No. 5 discusses programs to promote bicycling. Many people are not aware of the advantages that bicycle commuting can provide, such as, an excellent way to get needed exercise, a fun way to beat the traffic, a gentle and non-polluting means of helping the environment, and a cost effective mode of transportation. In the present climate of mandated reduction in automobile use, a variety of Transportation Demand Management (TDM) programs have been implemented by state and local governments, and private industry. These programs focus on education and incentives to get commuters out of single occupant vehicles. Bicycle commuting is an often overlooked or underutilized opportunity for attaining significant reductions in automobile use.

Chapter No. 6 presents the Plan for implementing Cupertino's bikeway network as described in Chapter No. 2. It is estimated that the total cost to complete the entire bikeway network, including the two trail systems and the construction of a bicycle/pedestrian bridge linking Mary Avenue as it crosses Interstate Route 280, is about $15 million. The actual implementation of the Plan will be accomplished incrementally and in a variety of ways. Many projects will be incorporated into the capital improvements program process. Others will happen as part of regular maintenance and operations, while some will be accomplished as areas of the City are developed and improved. This Chapter also addresses outside funding sources available to finance the design and construction of projects, improvements and programs, and the means be which each funding request must be prioritized to assure its consideration.

Finally, a current and approved Cupertino Bicycle Transportation Plan is required in order to compete for funding available for projects and programs that encourage bicycling as an alternative transportation mode. With the recent passage of the federal transportation legislation known as the Transportation Equity Act for the 21st Century (TEA-21), and the availability of funds from state, regional and county sources, the City of Cupertino is in a position to greatly enhance the use of alternative transportation, of which the bicycle can be a key contributor. Recreational bicycling is at a peak not seen since the turn of this century. With education, encouragement, and continued progress in the creation of a network of bikeways, sharing the road in commuting and utility with bicyclists may become a hallmark of the 21st Century in Cupertino.

Chapter 1
LAND USE, BICYCLE USAGE AND CONFORMANCE WITH OTHER PLANS

A. INTRODUCTION

This chapter describes the setting of the City of Cupertino and the major land use features of the City. It presents data on the existing bicycle usage in the City and an estimate of the increase in bicycle commuting resulting from the implementation of the recommendations contained in this plan. Finally, it addresses the way the Cupertino Bicycle Transportation Plan coordinates with other local and regional plans. The conformance of this plan with the Bicycle Lane Account requirements is presented in Appendix A.

The City of Cupertino has a current estimated population of 50,800 people as of January 1, 1999. It has a mild climate with daytime highs ranging from 57 degrees in January to 81 degrees in July. With an annual rainfall of 14.05 inches, little or no rain between May and October, and relatively flat terrain, Cupertino has an ideal setting to maximize the utilization of bicycles for commuting, utility and recreational purposes.

B. LAND USE

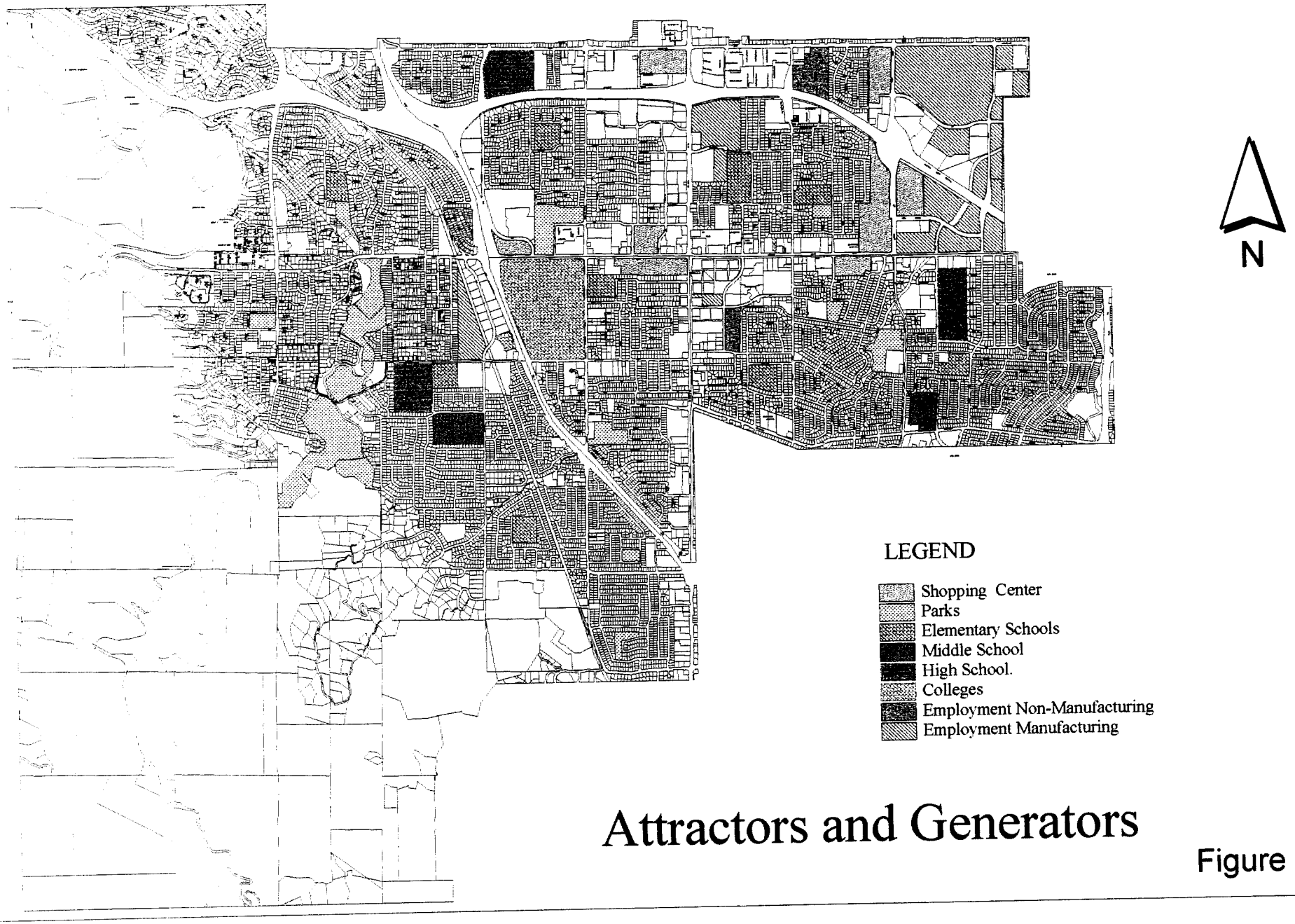
The existing land use is presented on the attached Figure 1. Cupertino's population is housed in a mix of single family residential neighborhoods, as well as higher density apartments and condominiums. There are also many employment and educational opportunities; the top employers in Cupertino are listed below. Additionally, there are a community college, two university extension centers, three high schools, three junior high schools, nine elementary schools, fifteen neighborhood and regional parks, and several shopping centers. These are all listed below. There are adjacent communities to the north (Sunnyvale and Los Altos), to the south (Saratoga) and to the east (San Jose and Santa Clara), while to the west are the foothills. The foothills are predominantly undeveloped, but there is the Kaiser Cement plant at the western end of Stevens Creek Boulevard and the Stevens Creek County Park and Reservoir off Stevens Canyon Road to the south.

Figure 2 depicts the locations of these major attractors and generators of bicycle trips. These will all be considered when developing the citywide bicycle network.

Employment:

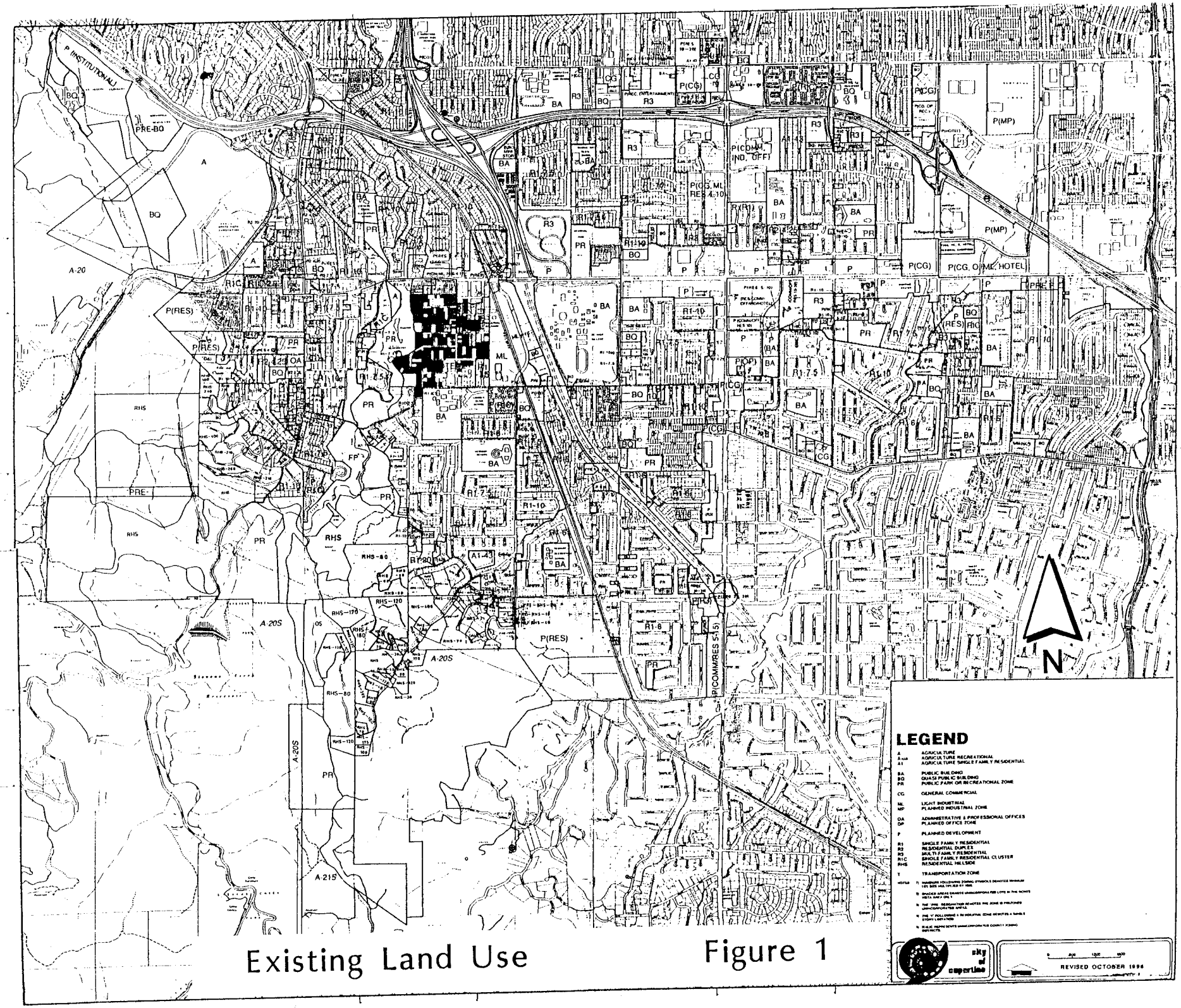
Manufacturing Employment
Hewlett Packard
Apple Computer
Compaq Computers
Honeywell-Measurex

Non-Manufacturing Employment
Foothill/DeAnza Community College District
Cupertino Union School District
Fremont Union High School District
Pacific Gas and Electric



Attractors and Generators

Figure 2



Existing Land Use Figure 1

Symantec
Rational Software
Behring Diagnostics
Siemens
JC Penney
Sears
Target
Mervyns
City of Cupertino

Colleges and High Schools:

De Anza College
University of San Francisco Cupertino Campus
UCSC Extension -Cupertino Campus
Homestead High School
Monta Vista High School
Cupertino High School

Parks:

Blackberry Farm
Deep Cliff Golf Course
McClellan Ranch Park
Memorial Park
Hoover Park
Jollyman Park
Linda Vista Park
Stevens Creek County Park
Rancho San Antonio County Park
Monta Vista Park
Portal Park
Somerset Square
Three Oak Park
Varian Park
Wilson Park
Creekside Park

Major Shopping Centers:

Vallco Fashion Park
Cupertino Crossroads
The Oaks Center
Marketplace
Cupertino Village Shopping Center
DeAnza Center
Homestead Square

C. BICYCLE USAGE

According to the 1990 census, 0.7% of Cupertino residents bicycle to work. Countywide, 1.5 % of county residents bike to work, which is slightly higher than the Bay Area average of 1.2%. The Santa Clara County bike commute modal split is skewed by the presence of Stanford University. Stanford University has an extremely high bike commute rate of 45.6%, which influences the adjacent City of Palo Alto with a bicycle commute rate of 5.8%. Excluding these two locations, the county average would be 0.8%. Therefore, Cupertino is a fairly typical Santa Clara County suburb. When one looks at the bike commute rate for those who live and work within the Cupertino-Saratoga Superdistrict, the bike commute rate is higher. For trips that remain within Superdistrict 10, bicycle commuting rate is 1.2%. The pertinent tables from the census reports are contained in Appendix B.

The bike commute rate is affected by a number of external factors including the presence and quality of bicycle facilities and roads in general, the number of households with access to a motor vehicle, and the distance residents live from their work. According to the 1990 census, the number of households with no vehicles actually increased in Superdistrict 10 from 3.7% to 4.1% between 1980 and 1990.

In Superdistrict 10, it is estimated that the mean commute distance for workers who drive alone is 8.5 miles, (up one mile since 1980). The mean bicycle commute distance is 3.7 miles, and 86.7 % of bicycle commuters commute less than six miles. Given the commuting characteristics described above, there is significant potential to increase the level of bicycle commuting in Cupertino. With the implementation of the physical facilities outlined in this plan, it is estimated that the bicycle commute share can increase to four percent, six times that of the 1990 level.

D. CONFORMANCE WITH EXISTING PLANS

Several existing and ongoing plans address bicycling directly or indirectly in the study area including county-wide plans and local plans. The Countywide Trails Master Plan addresses the need for new and improved trails in Cupertino. These include the de Anza National Historic Trail, a recreational trail that will trace the route of the De Anza Party in their overland march from Mexico to the San Francisco Bay, and the Stevens Creek Trail, a paved recreational trail leading from Stevens Creek Reservoir to the marshlands of the South Bay near Moffett Field paralleling Stevens Creek. Cupertino's Park and Recreation Department is currently developing funding and community support for the building of the De Anza trail. These are described in more detail in Chapter 2.

The County Congestion Management Program addresses the need for Transportation Demand Management measures to reduce traffic congestion and improve air quality. The Santa Clara Valley Transportation Authority (VTA) buses are all equipped with bike racks. Local planning includes the new Creekside Park which has a bike/pedestrian bridge connecting the adjacent neighborhoods to the park. Many employers in Cupertino also have bicycle program, which are discussed more thoroughly in Chapter 5.

Chapter 2
RECOMMENDED BIKEWAY NETWORK

A. INTRODUCTION

This chapter presents the recommended bikeway network for the City of Cupertino. The complete network is comprised of existing bikeways and proposed bikeways. They are illustrated together in Figure 3. The following pages provide more detail about the proposed bikeways and other improvements that will improve bicycling conditions in the City of Cupertino.

The route descriptions are presented in two formats. The first is an informational sheet for each route that describes the route and the recommended improvements. The second is in a data base format contained in Appendix C. The routes are presented in geographical order route-by-route. The north-south routes are presented first, followed by the east-west routes.

This chapter also includes background information on the characteristics of bicyclists, a brief discussion of the route selection process and a description of the bicycle route classifications.

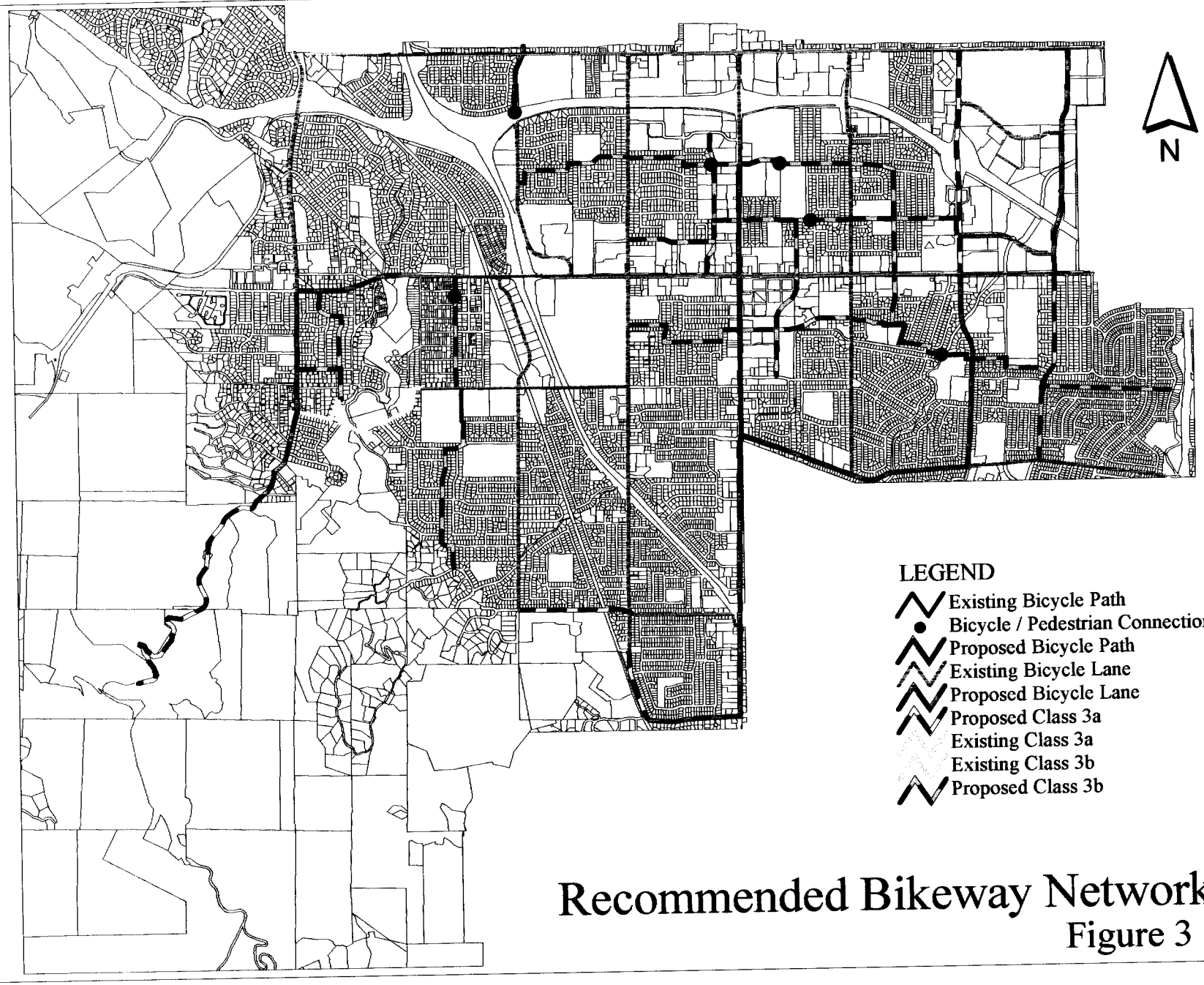
B. METHODOLOGY

The primary considerations in developing the bikeway network were to serve all the existing and potential users, to improve safety and to serve all attractors and generators with direct, non-circuitous routes. Opportunities and constraints for routes selection were determined via extensive field reviews, analysis of existing bikeway locations, and other sources such as aerial photographs, collision histories, review of existing planning documents, input from area bicyclists, and analysis of attractor and generator locations.

1. Types of Bicyclists

In developing a bikeway network, the primary objective is to engineer one that will serve the needs of all types of bicyclists. There are many types of bicyclists with varying levels of skill and willingness to ride in traffic. These range from the experienced adult cyclist to the casual adult cyclist to the child cyclist. There are many gradations of cycling competency and confidence and just as many opinions as to what makes an ideal bike route. For example, some experienced cyclists avoid separate bike paths, preferring to share the roads with cars. Other cyclists will ride in bike lanes only if parallel residential roads are unavailable.

Children also have special needs; children being those approximately ten years and older whose parents feel confident in their ability to walk or bike by themselves. Parents are most likely to allow their children to ride only on residential streets, whose major arterial intersections are controlled by traffic signals. As their children get older, many parents will allow them to ride on busier streets with bike lanes.



Recommended Bikeway Network

Figure 3

In order to serve all types of bicyclists, the bikeway network consists of both the major roads in Cupertino plus a network of cross-city parallel residential streets.

2. Transportation versus Recreation

The bikeways of the Cupertino Bicycle Transportation Plan (Plan) do not distinguish between routes used primarily for transportation or recreation. Many routes which at first appear to be primarily recreational are indeed used for commuting or other transportation purposes, and vice-versa. Just as roadways are built and maintained for motorists without regard to trip purpose, all the recommended routes described in this plan should be considered important regardless of whether primarily used for transportation or recreation. It is acknowledged that some routes may be more often used for transportation than recreation or vice versa. This is accounted for in the prioritization criteria. It is also acknowledged that some funding sources are exclusively for transportation bicycle facilities.

The recreational trails included in this Plan would provide a completely separate right of way for the exclusive use of bicyclists and pedestrians. Bicyclists would need to observe reduced speed limits to avoid colliding with walkers, joggers, and those on roller-blades, but may find that these trails provide improved commuting access to places of employment, and an enjoyable source of family-oriented recreational activity. Those in charge of the design and construction of the trail systems are encouraged to consult with Cupertino Bicycle & Pedestrian Advisory Committee (CBPAC) during the planning phase of these projects.

C. BIKEWAY CLASSIFICATIONS

Chapter 1000 of the Caltrans Highway Design Manual (HDM) describes three types of bicycle facilities. The HDM definition is presented in italics.

1. Class I Bike Path.

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

Bike paths are an important component of every bikeway network. Some are long enough and well-located enough to provide a car-free environment for a large portion of a bicycling trip. Other bike paths are used to close gaps in a route such as connecting two dead-end roads or traversing parks.

Bike paths are popular with casual bicyclists and families with children, and they can be popular with experienced bicyclists if well-designed and located convenient to their route. However, their popularity with slow cyclists including families with children and non-bicyclists such as joggers, roller bladers, parents with baby strollers, people walking their dogs, etc., limits the usefulness of a bike path to cyclists who ride over 15 mph. Serious bicyclists can rarely ride as fast on a bike path as they can on city roads. This is due both to the design of the bike path and also due to the high numbers of slower users.

Bike paths should be designed in accordance with accepted design guidelines to account for all the other users. The width of the bike path should be increased depending on the stratification of the users. The design guidelines in Appendix D present recommended cross-sections depending on the number of pedestrians anticipated.

2. Class II Bike Lane.

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

The bike lane is for the exclusive use of bicycles with certain exceptions: for instance, right-turning vehicles must merge into the lane prior to turning, and pedestrians are allowed to use the bike lane when there is no adjacent sidewalk.

Bike lanes should be used when traffic volumes exceed a certain threshold, e.g., 4,000 vehicles per day. Below this traffic volume, there should be adequate gaps in oncoming traffic for motor vehicles to safely pass bicyclists.

The Highway Design Manual specifies the minimum width for bike lanes under three conditions:

1. Next to a curb - on-street parking allowed: minimum width is five feet where there is a vertical curb and the parking stalls are marked (or a continuous parking stripe is present). Where parking and/or turnover is infrequent and no parking stalls are marked, twelve feet is the minimum.
2. Next to a curb - on-street parking prohibited: minimum width is four feet with the proviso that there is at least 36 inches to the longitudinal joint where the asphalt meets the gutter pan.
3. On roadways without curb and gutter - where infrequent parking is handled off the pavement: minimum width is four feet.

It also states that, "for greater safety," widths wider than the minimums should be provided "wherever possible."

3. Class III Route.

Provides for shared use with pedestrian or motor vehicle traffic.

In the soon-to-be-published revision of the 1991 American Association of State Highway and Transportation Officials' *Guide for the Development of Bicycle Facilities*, Class III is called a *Designated Shared Roadway* rather than a *Bike Route*. Class III has traditionally been used to designate anything from low volume residential roads that have no need for bike lanes to arterials with heavy traffic volumes where widening to provide bike lanes would be infeasible.

In order to eliminate the resulting confusion over what a Class III route means, this plan subdivides Class III into two categories in order to more precisely describe the features of the bike route. This also helps to differentiate the various types of bicycle improvements envisioned for each roadway.

a. Class IIIA- Shared Roadway

The designation *Class IIIA* will be used where bike lanes or wide shoulders would be preferable, but are politically or economically infeasible due to right-of-way or topographical constraints. Bike lanes should be considered in any long-term reconstruction or redevelopment plans of the adjacent properties where a new roadway cross-section is possible.

By their very nature, wide curb lanes and Class III bike routes require no special markings, and typically only bike route signs are installed. However, these routes should be well maintained in terms of providing a uniform pavement surface and frequent street sweeping.

In addition, it is recommended that mid-block pavement stencils be considered in the right-hand portion of the lane. This would be used on roadways with heavy traffic volumes and narrow lanes, i.e., more than 600 vehicles per hour per lane and curb lane widths of 14 feet or less. These stencils would be supplemented with the "Share the Road" signs currently used in Cupertino. The City of Denver currently uses a stencil and the City of San Francisco has recently begun to use this stencil. (Appendix D contains the design specifications of the stencil developed by the City of Denver).

b. Class IIIB - Bicycle Boulevards

Many of the roadways that have been included in the bikeway network are predominately residential roads. Many residential roads make excellent bike routes because traffic volumes are low and speeds are slow. Bike lanes are not designated on streets with low traffic volumes, and residential roads often do not have adequate width for bike lanes.

Some residential streets in Cupertino have existing barriers which limit the movements of motor vehicles, e.g., southbound Tantau at Stevens Creek Boulevard, or Lazaneo Drive at Randy Lane. This reduces motor vehicle traffic and makes them more attractive as bicycle routes. However, some streets also have numerous STOP signs along the route which impede the travel of bicyclists. Removing STOP signs along the bike route helps to encourage bicycling, provided cross traffic is required to stop. Streets that have low traffic volumes and few or no STOP signs make excellent routes for adults of all abilities and older children. (Palo Alto's Bryant Street was redesigned to have low traffic and few STOP signs and is now referred to as a Bicycle Boulevard. See Appendix F for a more complete description and history.)

This Plan includes several bicycle boulevards; i.e. residential streets that are linked together to form a continuous route across a good portion of the City. In order to improve conditions for bicycles on these routes, some connections need to be constructed, traffic control at intersections may need to be installed, unwarranted STOP signs should be considered for removal, and some traffic calming may be needed. But in most cases, the routing builds upon the location of existing traffic barriers and traffic control devices.

It should be stated that, in some instances in the past, all-way STOP controls have been used to appease community concerns regarding motorists driving above the posted speed limit. STOP signs add significantly to the travel time of bicyclists, and have been demonstrated to be

ineffective in slowing traffic speed between stops. This strategy should not be used on designated bike routes.

D. BIKEWAY CLASSIFICATIONS IN THE CUPERTINO BICYCLE TRANSPORTATION PLAN

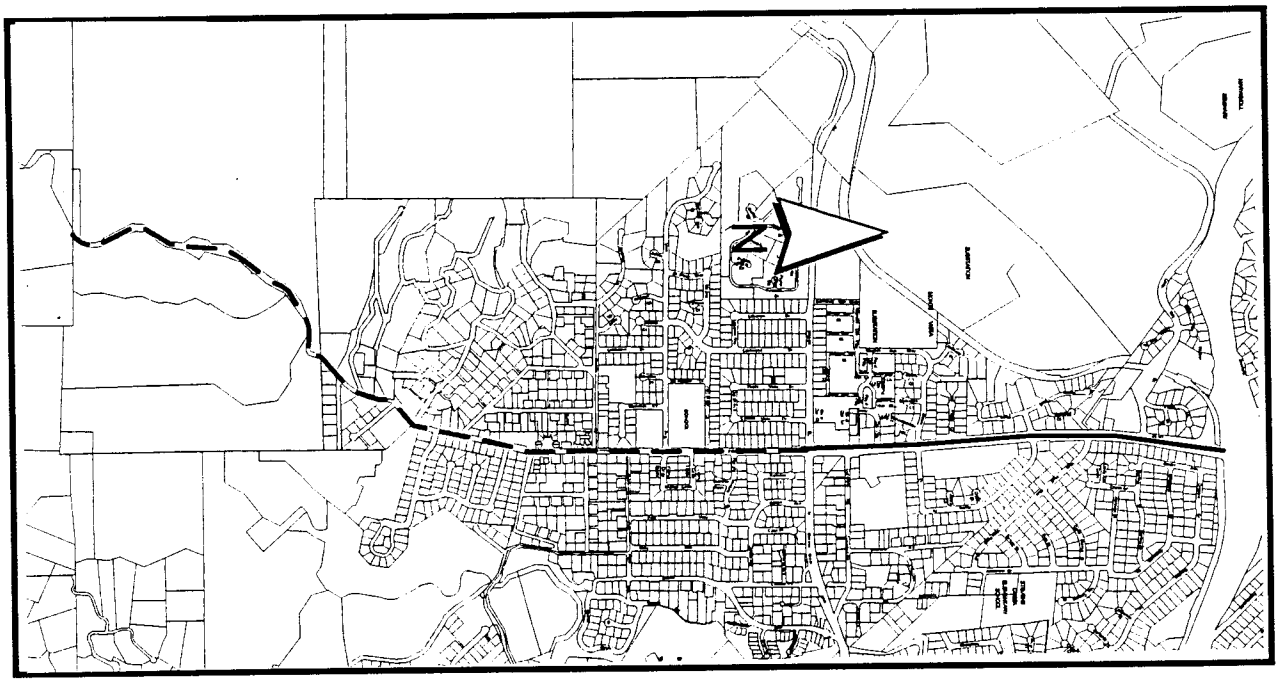
The following categories are used to describe the bikeway network for the City of Cupertino.

- Class I-Bike Path - Paved section
- Class II - Bike Lanes
- Class IIIA Shared Roadway - Signed Route
- Class IIIB- Bicycle Boulevard - Signed Route primarily on residential streets.

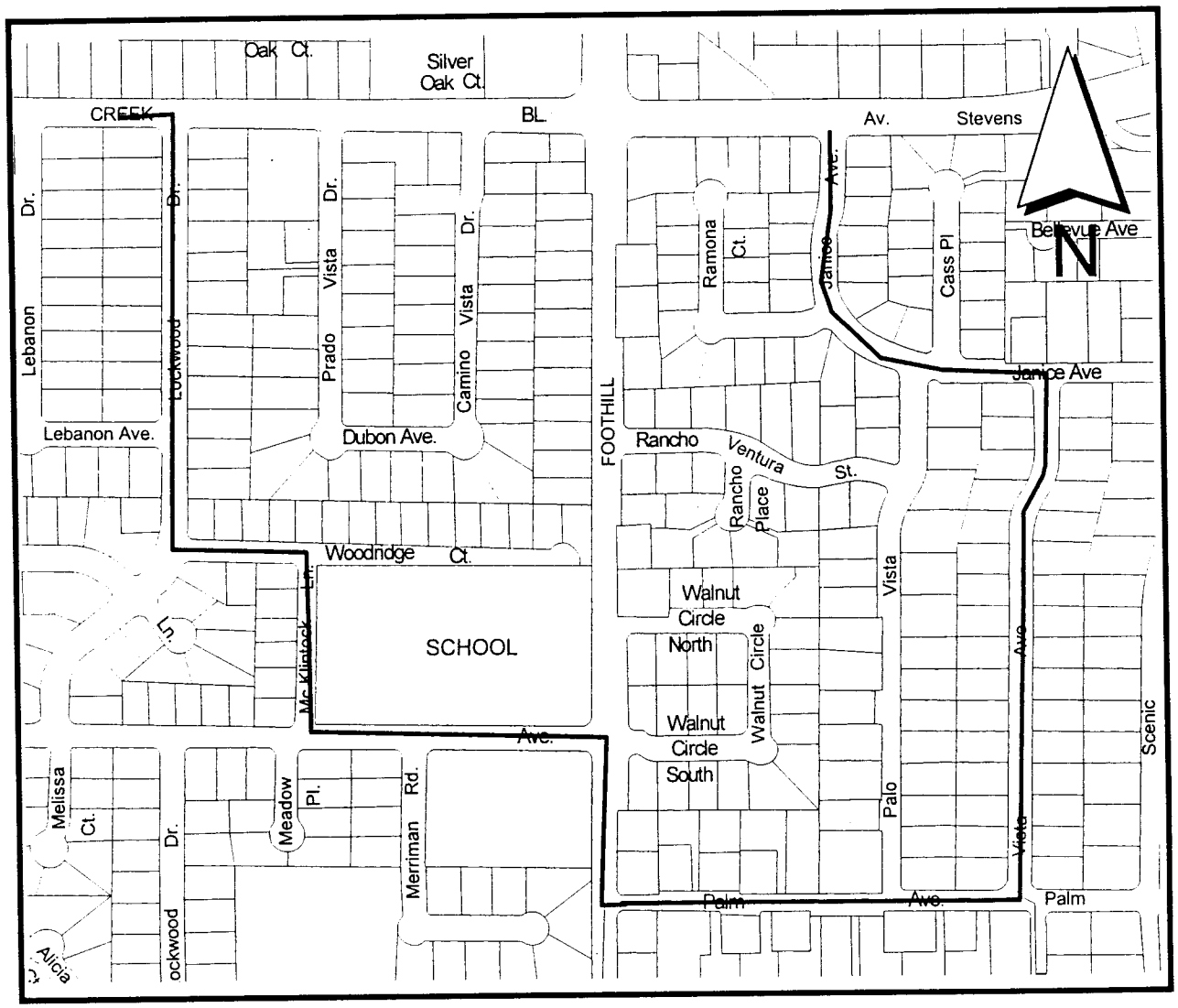
E. ROUTE DESCRIPTIONS

The following sheets describe each of the routes in the Cupertino Bicycle Transportation Plan. The existing and proposed bikeway class is given along with location and limits, and the main attractors and generators served by the route. The main implementation measures are described along with the existing or proposed bicycle friendly characteristics of the route, and the needed long-term improvements, if any. If the project(s) have been funded, this information is included. If it has not been funded, the routes were prioritized using the criteria described in Chapter 6, and the ranking – high priority, medium priority or low priority, is indicated.

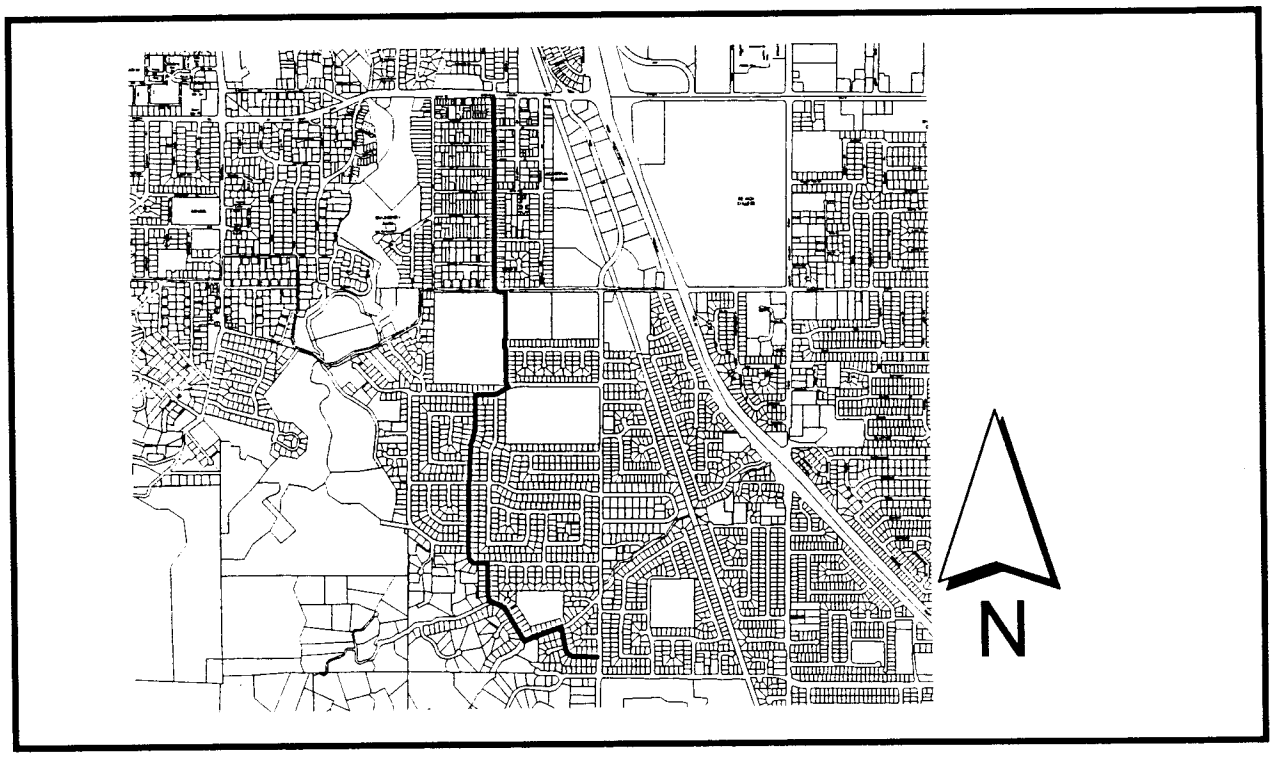
Route 1 - Foothill Blvd./Stevens Canyon Road	
Designation:	**Class 2 Bike Lane and Class 3A Bike Route**
Location and status:	1. Existing Class 2 bike lanes from I-280 to Stevens Creek Blvd. 2. Proposed Class 2 bike lanes from Stevens Creek Blvd. to Ricardo. 3. Proposed Class 3A from Ricardo to the Cupertino City limit near Stevens Creek County Park.
Implementation Measures:	1. Widen roadway to provide Class 2 bike lanes: from Stevens Creek Boulevard to Ricardo. 2. Widen and designate as Class 3A Bike Route: Stevens Canyon Road between Ricardo and the City limit.
Bicycle Friendly Features:	1. Improve/restripe bike lanes at I-280 ramps. 2. Install signs warning entering and exiting motor vehicles to yield to bikes at freeway ramps.
Long-term Improvements:	Provide wide shoulder on Stevens Canyon Road from Ricardo to the City limit.
Attractors/generators/ links (within ¼ mile of route)	Stevens Creek County Park, De Anza National Historic Trail, Rancho San Antonio Park, Monta Vista Park and Recreation Center.
Length:	**Existing:** 0.8 mi. **Proposed:** 0.9 mi. **Total length:** 1.7 mi.
Cost:	1. Foothill Blvd: $500,000, 2. Stevens Canyon: $1 million
Priority:	High
Notes:	This includes an upgrade of an existing Class III route.



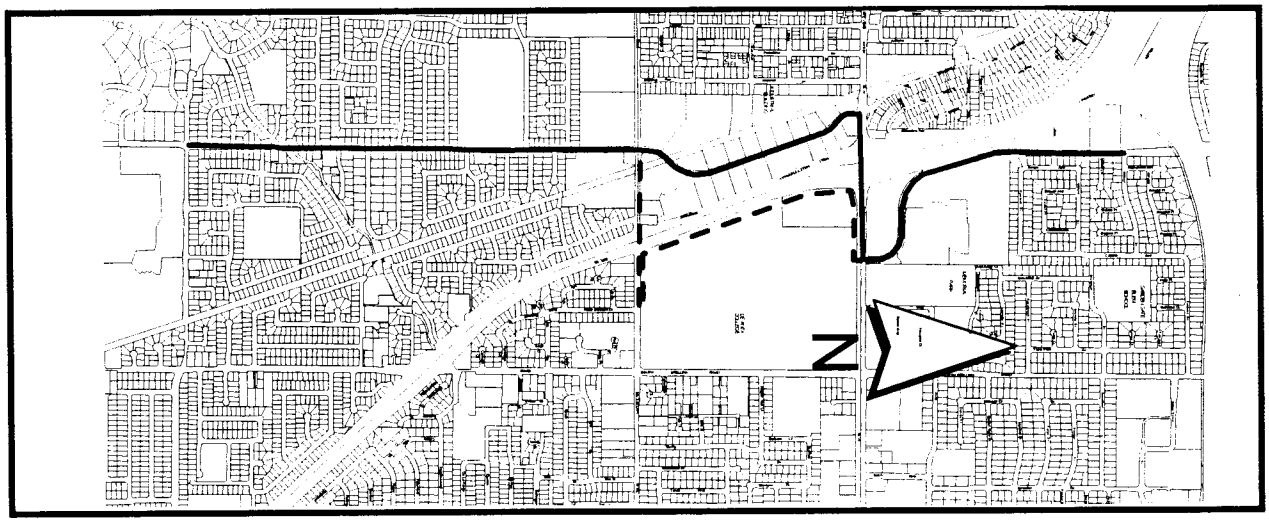
Route 2 - Mira Vista Rd./Palm Ave./Janice Ave.	
Designation:	**Class 3B Bicycle Boulevard**
Location and status:	Sign routes as a bike route
Implementation Measures:	Signing for Class 3 bike route
Bicycle Friendly Features:	Low traffic volumes. Long smooth speed bumps
Long-term Improvements:	
Attractors/generators/links (within ¼ mile of route)	Residential, McClellan Ranch Park, Monta Vista Park
Length:	**Existing:** 0 mi. **Proposed:** 0.5 mi. **Total length:** 0.5 mi.
Cost:	$30,000
Priority:	Low



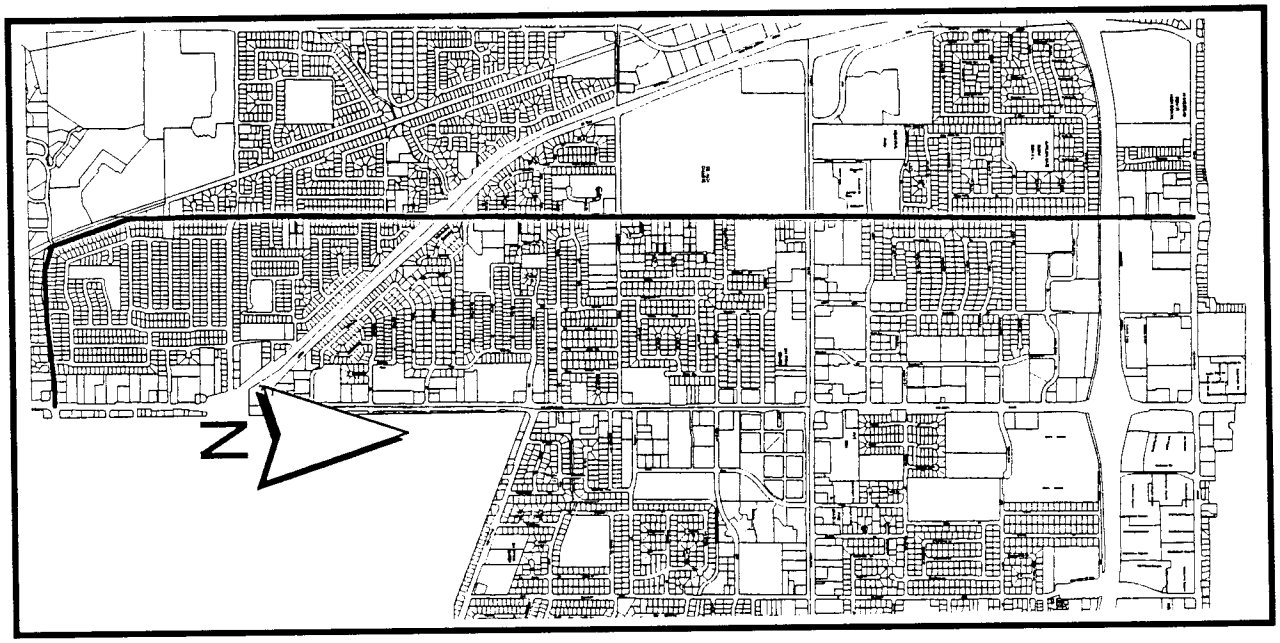
Route 3 - Orange Avenue/Fort Baker Drive/Santa Teresa Drive	
Designation:	**Bicycle Boulevard / Class 3B**
Location and Status:	From Stevens Creek Boulevard/Orange Avenue (existing signal) to Lindy Lane.
Implementation Measures:	1. Install signing at existing traffic barrier at Orange/Granada Avenue allowing bikes to pass. 2. Improve existing pathway connection from McClellan to Ft. Baker Drive though CUSD property in between Monta Vista High School and Lincoln Elementary School.
Bicycle Friendly Features:	1. Existing low traffic volumes. 2. Existing traffic barrier at Granada. 3. Consider converting 4-way stop to 2-way stop at Orange and Almaden. 4. Consider traffic control at Orange and McClellan near school path through Lincoln Elementary School.
Attractors/generators/links (within ¼ mile of route)	Monta Vista High School, Kennedy Jr. High, Lincoln Elementary School. Residential frontage, Cupertino Post Office.
Length:	**Total length:** 1.5 mi.
Cost:	$230,000
Priority:	Medium



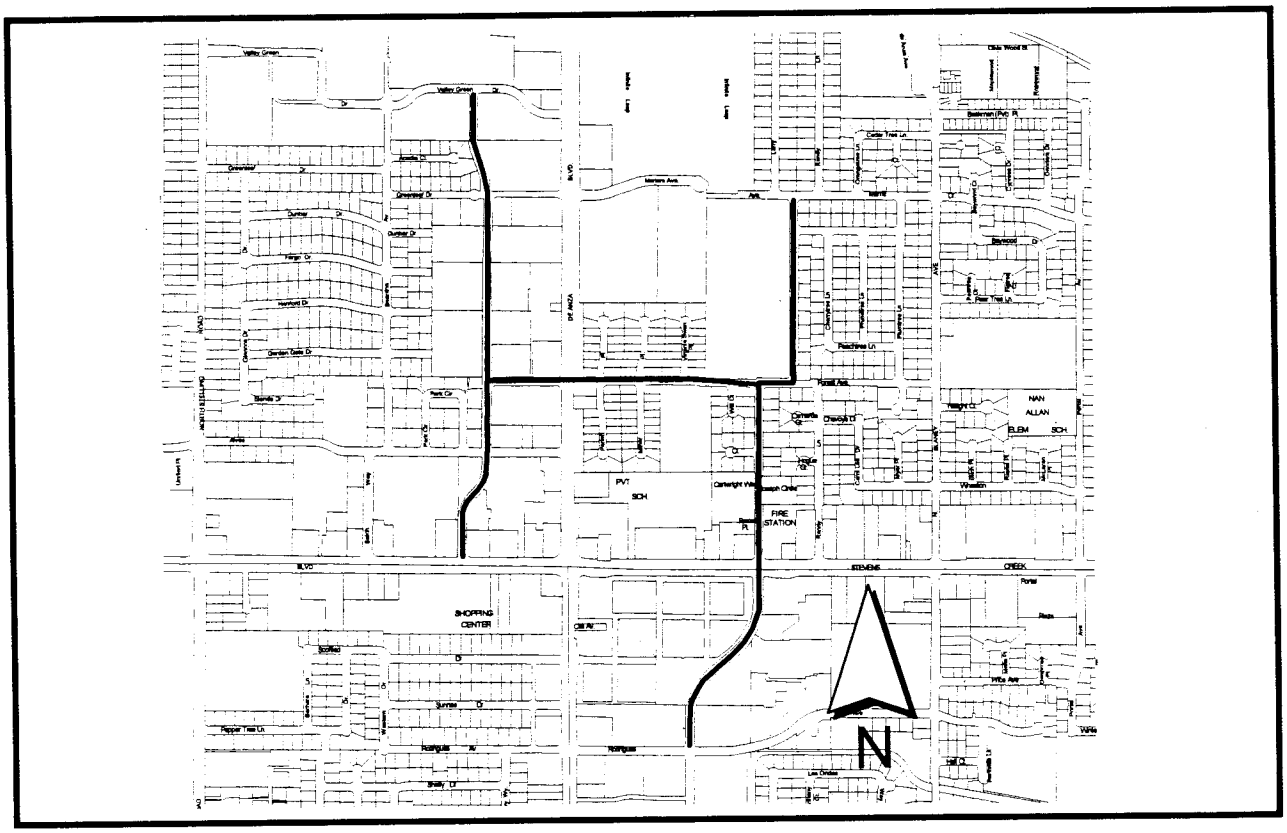
Route 4 - Mary Avenue/Bubb Road	
Designation:	**Class 2 Bike Lane**
Location and Status:	1. Existing bike lanes on Mary Ave. from I-280 to Stevens Creek Blvd. 2. Existing bike lanes on Stevens Creek from Mary Ave. to Bubb Rd. 3. Existing bike lanes on Bubb Road from Stevens Creek Blvd. to Rainbow Drive.
Implementation Measures:	1. Bicycle /Pedestrian overcrossing of I-280 to connect discontinuous Mary Ave. 2. Restripe Mary Ave. fronting Homestead High School to provide either a separate bike path from the parking or a typical roadway section with bike lanes. 3. Remove obsolete diamond pavement markings in the bike lane on Bubb Road.
Bicycle Friendly Features:	There is a signal at Bubb and Stevens Creek. However, this is a heavily trafficked intersection, and left turns can be intimidating.
Long-term Improvements:	Continue route on peripheral roadway through De Anza College campus to McClellan to eliminate necessity of bicycling on Stevens Creek.
Attractors/generators/links (within ¼ mile of route)	Homestead High School, DeAnza College, various shopping centers, Kennedy Jr. High, Measurex, UCSC Extension, Memorial Park, Cupertino Post Office. Connects to bike lanes to Mary Ave. in Sunnyvale.
Length:	**Total length:** 2.3 mi.
Cost:	1. $3,700,000 2. $40,000 3. $15,000
Priority:	High



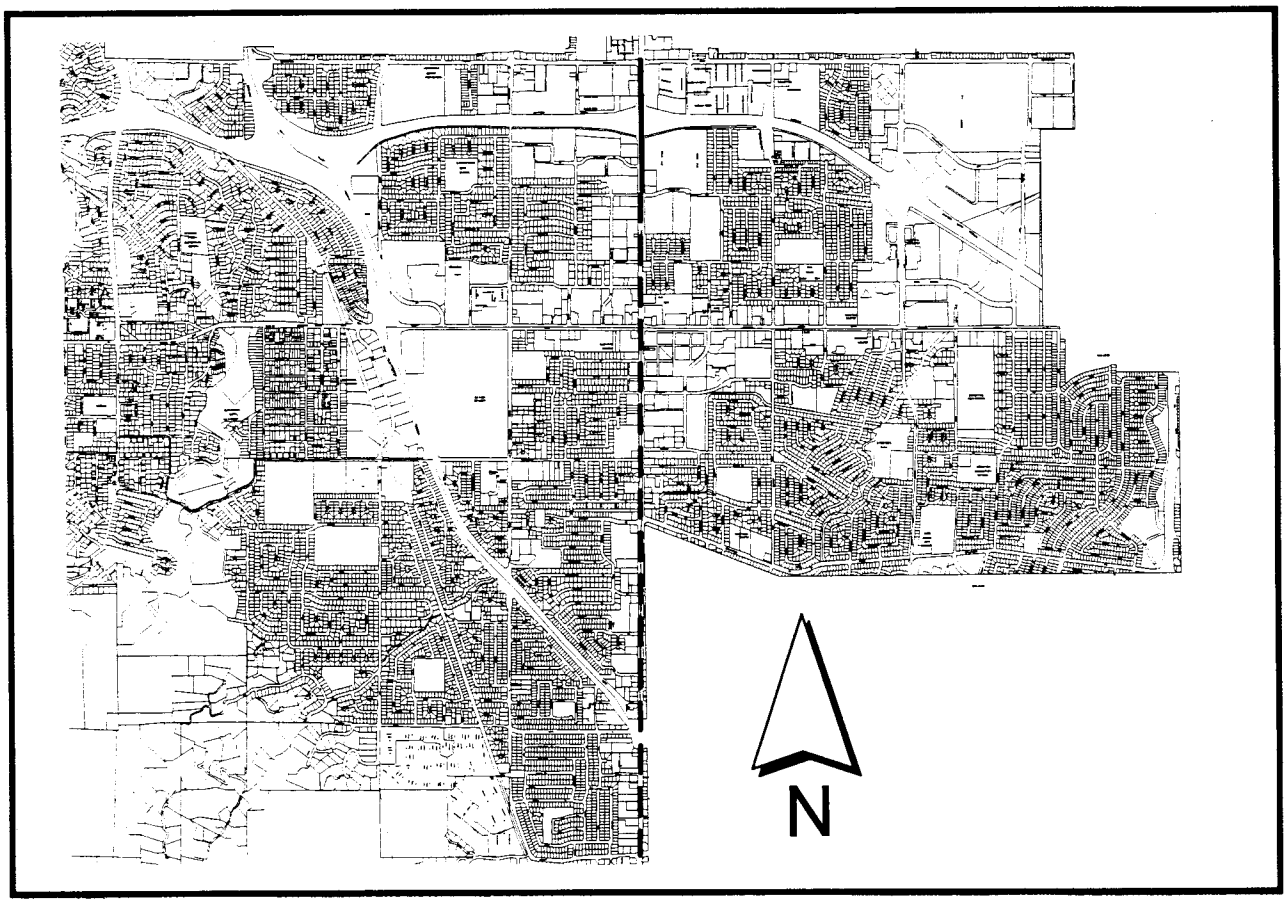
Route 5 - Stelling Road	
Designation:	**Class 2 Bike Lane**
Location and Status:	1. Existing bike lanes are striped most of the way between Homestead Road and south of Rainbow. 2. Gaps in bike lane exist northbound between Jollyman Lane and Lilac Way, and both directions between south of Rainbow Drive and Prospect Road.
Implementation Measures:	1. Widen east side to provide northbound bike lane between Jollyman Lane and Lilac Way. 2. Widen west side between Hwy 85 and Orion Ln. 3. Widen east side across Robindell Way 4. Widen both sides to provide bike lane between south of Rainbow Drive and Prospect Road. 5. Remove obsolete diamond pavement markings in the bike lanes on Stelling Road. 6. Replace stop signs with traffic circles south of McClellan.
Bicycle Friendly Features:	1. Repave existing bike lane north of Rainbow Drive.
Attractors/generators/links (within ¼ mile of route)	De Anza College, various shopping, Memorial Park, Hoover Park, Jollyman Park, Faria School, Garden Gate School, residential. Connects to Hollenbeck in Sunnyvale, and Prospect in Saratoga, but neither have bike lanes.
Length:	**Total length:** 2.4 mi.
Cost:	Item 6: $160,000
Funding:	Items 1 - 5 approved for TFCA funding $80,000 plus $20,000 local match for 98/99 fiscal year.



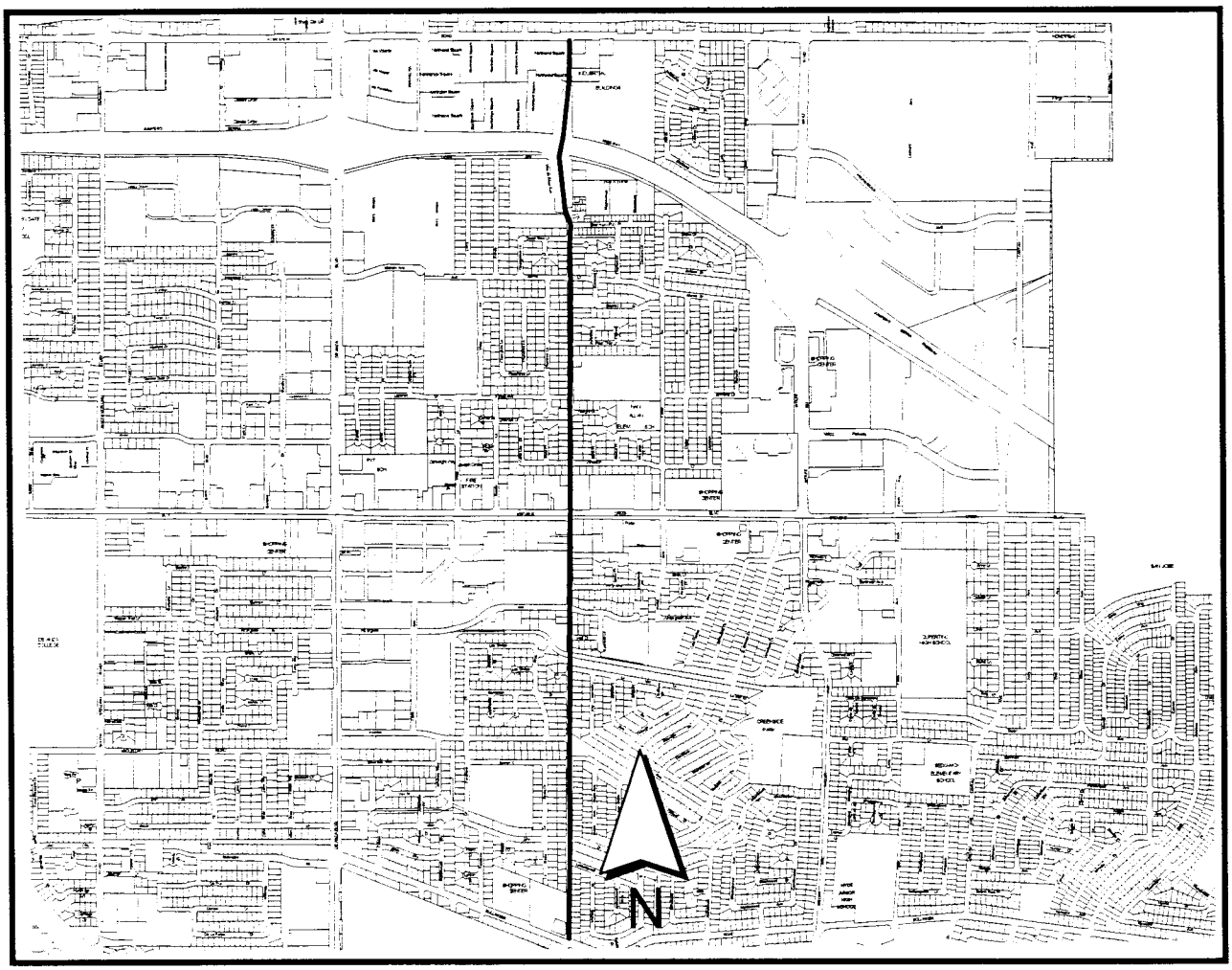
Route 6 Valley Green Dr./Bandley Dr. /Lazaneo Dr./Vista Dr. /Torre Ave.	
Designation:	**Class 3B - Bicycle Boulevard**
Location and Status:	1. Existing signed bike route on some sections. 2. Include Vista Dr. via Lazaneo Dr. to access Torre Ave. south of Stevens Creek Boulevard.
Implementation Measures:	1. Install route signs and destination signing for bikes. 2. Facilitate crossing Stevens Creek Blvd. for southbound cyclists by eliminating the necessity of using pedestrian walk-button located on sidewalk. 3. Create cutaway in forced right-turn curb.
Bicycle Friendly Features:	1. Existing traffic barriers on Vista Dr./Torre Ave. at Stevens Creek. 2. Existing low traffic volumes.
Attractors/generators/links (within ¼ mile of route)	City Hall, Apple Computer, University of San Francisco, Behr, Library, Collins Elementary School, residential.
Length:	**Existing:** 1.2 mi. **Proposed:** 0.8 mi **Total length:** 2.0 mi.
Cost:	$206,000
Priority:	Low



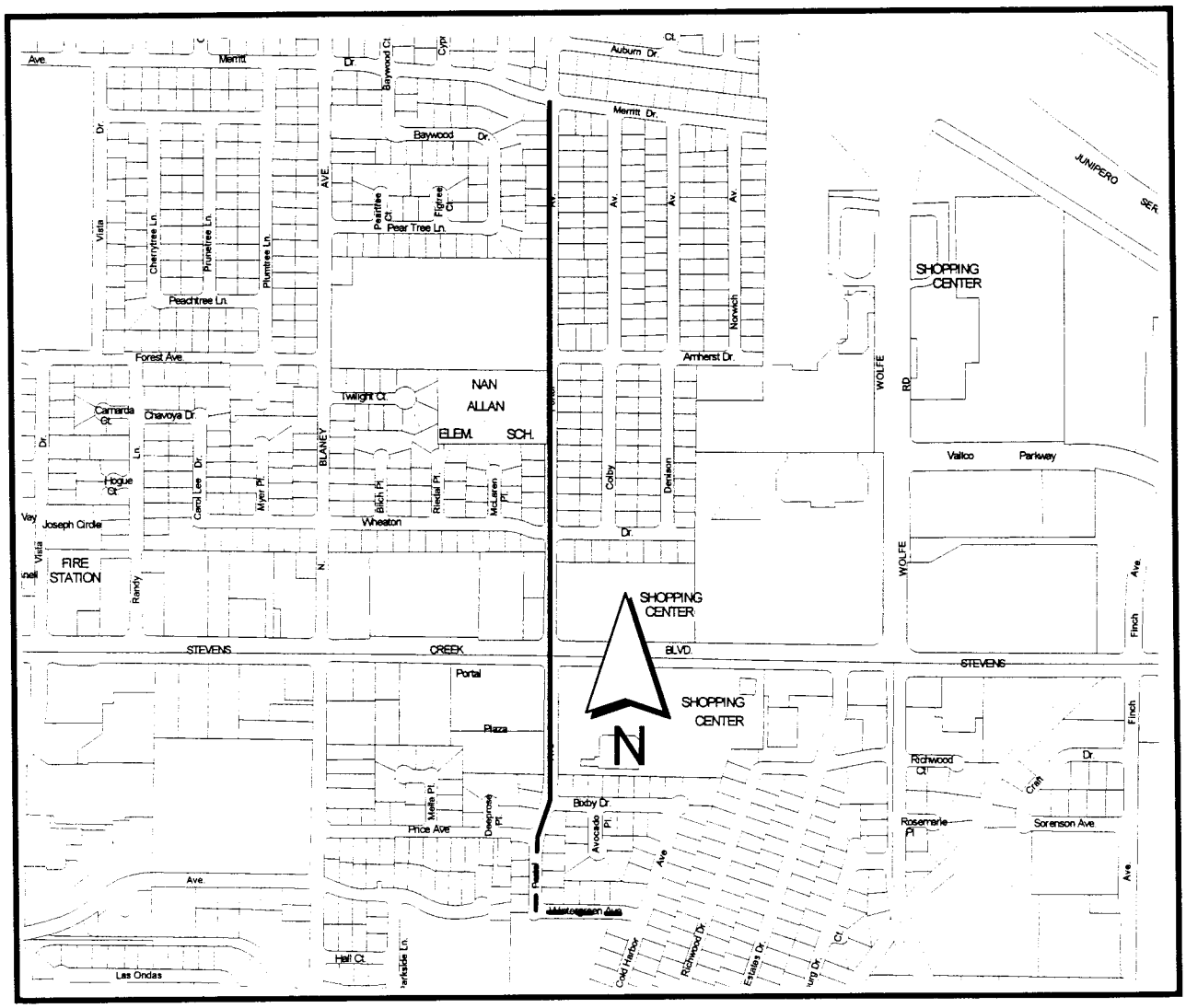
Route 7 - De Anza Boulevard	
Designation:	**Class 2 Bike Lane**
Location and Status:	1. Existing bike lanes are striped between Homestead Rd. and Mariani 2. Proposed bike lanes from Mariani to Prospect Rd.
Implementation Measures:	Restripe as necessary to provide five foot minimum bike lanes.
Bicycle Friendly Features:	
Long-term improvements:	
Attractors/generators/links (within ¼ mile of route)	Apple Computer, Symantec, City Hall, Library, USF Extension, various shopping centers. Connects to bike lanes in Sunnyvale and Saratoga.
Length:	**Existing:** 0.5 mi. **Proposed:** 2.5 mi. **Total length:** 3.0 mi.
Cost:	$60,000. Have funding, see below.
Funding:	Approved for TFCA funding $48,000 plus $12,000 local match for 98/99 fiscal year



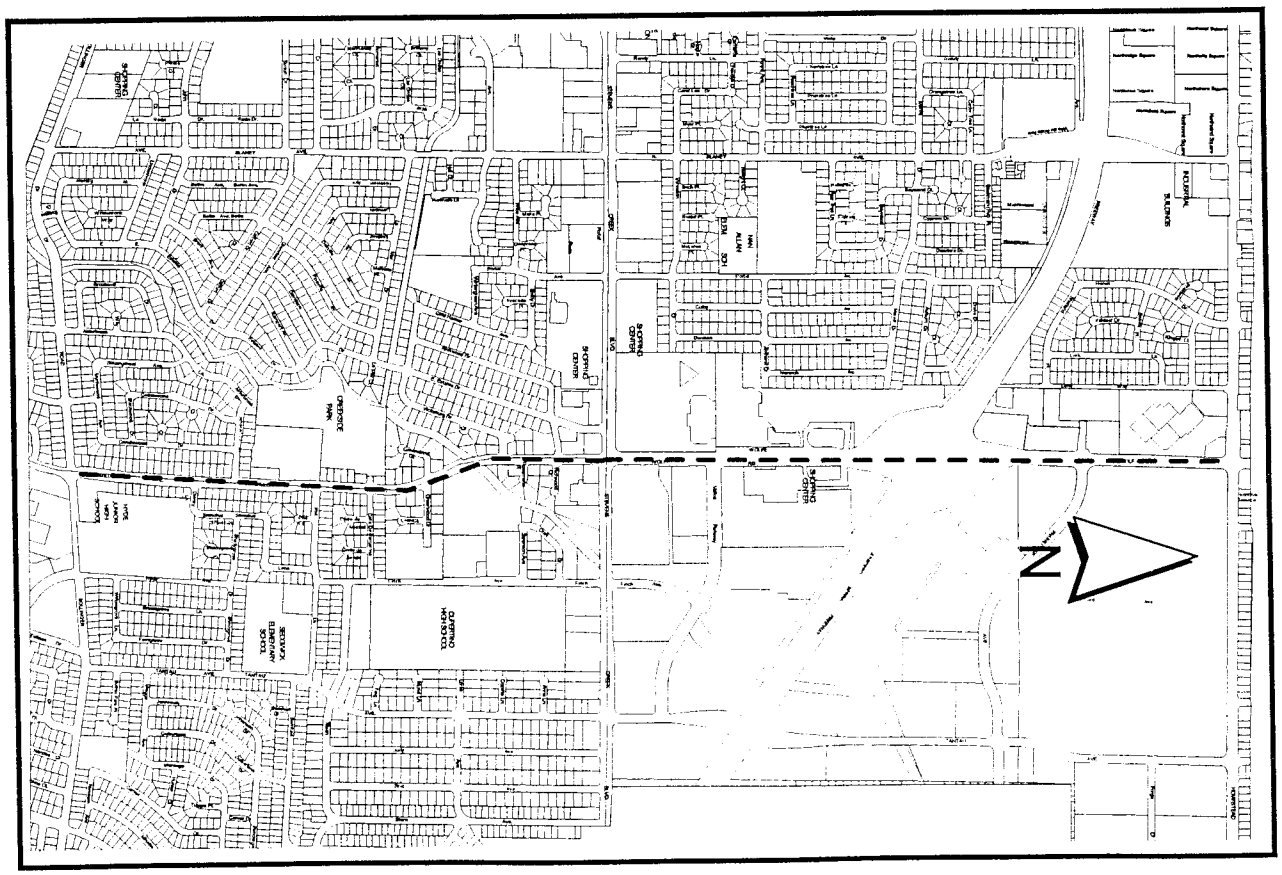
Route 8 - Blaney Avenue	
Designation:	**Class 2 Bike Lane**
Location and Status:	Existing bike lanes between Homestead and Bollinger Road
Implementation Measures:	Need marked bike loop detectors at Bollinger.
Bicycle Friendly Features:	Bike loop detectors at Stevens Creek and Homestead
Long-term Improvements:	Replace stop signs with other traffic calming measures.
Attractors/generators/links (within ¼ mile of route)	Collins and Portal Elementary schools, various shopping and office facilities, City Hall, Library and Symantec, residential.
Length:	**Total length:** 2.0 mi.
Cost:	$120,000
Priority:	High
Other:	Parking is prohibited on one-side to make room for bike lanes. Deadends into Homestead at Sunnyvale boundary. Blaney in San Jose lacks bike lanes.



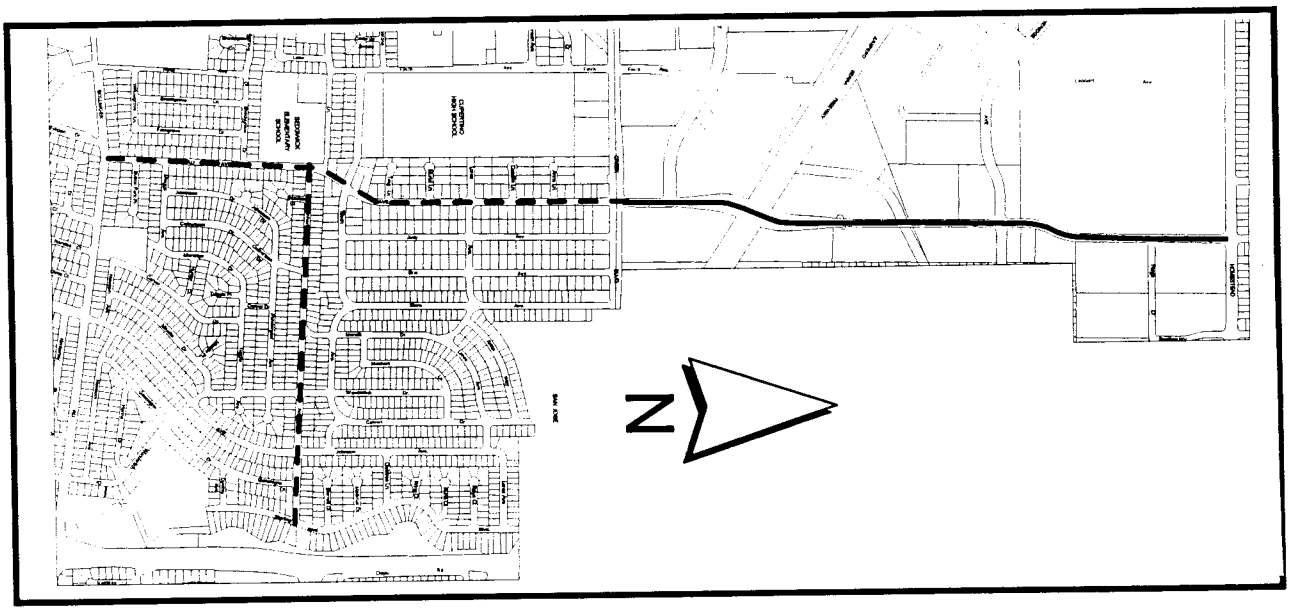
Route 9 - Portal Road	
Designation:	**Class 3B - Bicycle Boulevard**
Location and Status:	1. Existing signed bike route between Merritt and Price 2. Recommend continuing route to Wintergreen.
Implementation Measures:	1. Install route signs and destination signing for bikes. 2. Connect route to proposed path through Wilson Park.
Bicycle Friendly Features:	Existing low traffic volumes.
Attractors/generators/links (within ¼ mile of route)	Portal School, Vallco Fashion Park, Market Place Shopping Center, Wilson and Portal Parks.
Length:	**Existing:** 0.6 mi. **Proposed:** 0.2 mi. **Total length:** 0.8 mi.
Cost:	$130,000
Priority:	Low



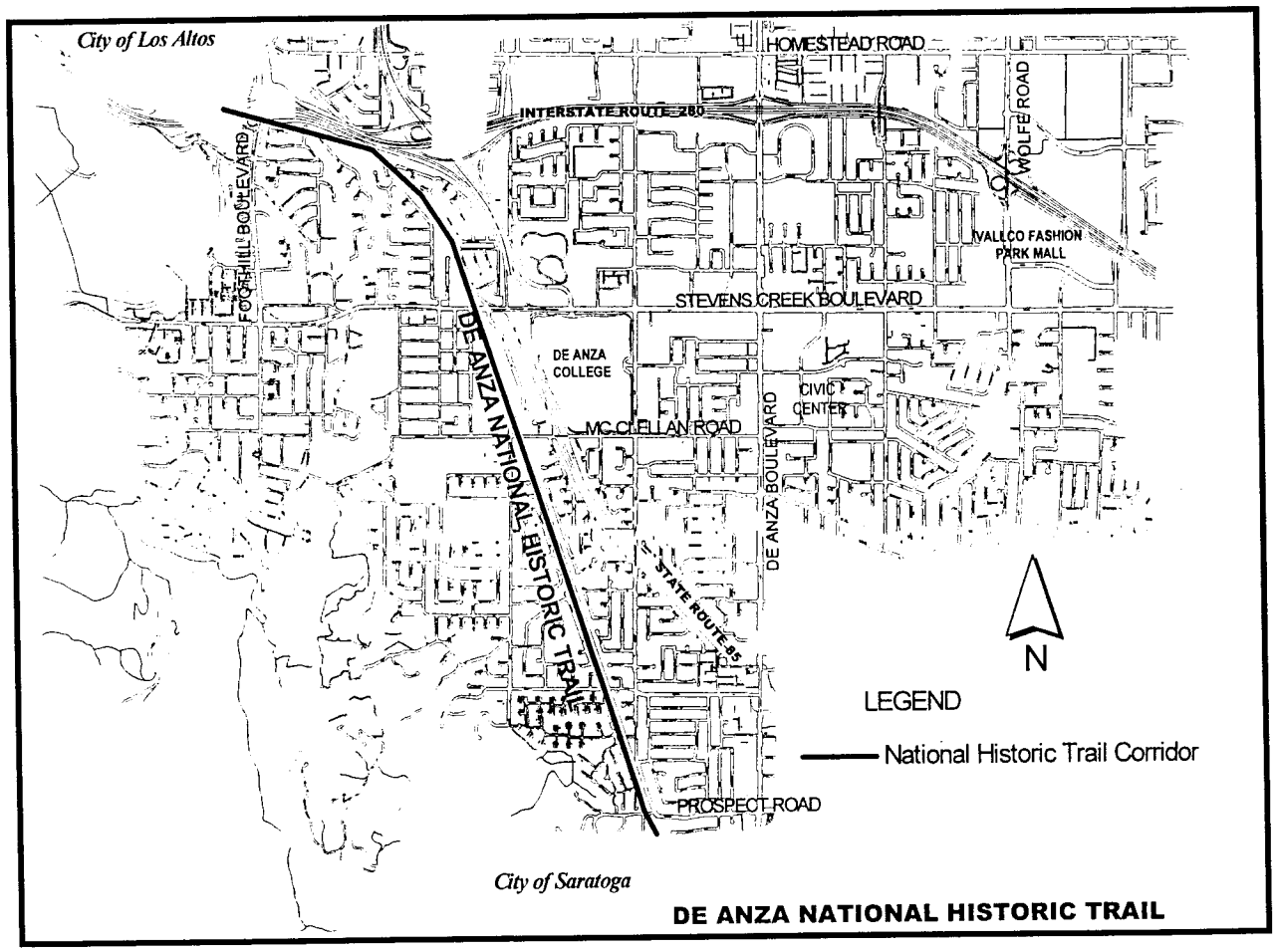
Route 10 - Miller Avenue-Wolfe Road	
Designation:	**Class 2 Bike Lane/Class 3A Shared Roadway**
Location and Status:	Proposed Class 2 Bike Lane between Stevens Creek Boulevard and Bollinger Road on Miller and between Stevens Creek and Homestead on Wolfe.
Implementation Measures:	1. Restripe Miller Ave. to have five foot minimum bike lanes on both sides where curb-to-curb width is 72 feet. Where width is less than 72 feet or there is a median, consider restriping from four to two travel lanes plus a center turn lane, and five foot bike lanes. 2. On Wolfe Rd., designate as Class 3A Bike Route. Later restripe for bike lanes.
Bicycle Friendly Features:	
Attractors/generators/links (within ¼ mile of route)	Vallco Fashion Park, Cupertino High School, Creekside Park, residential frontage Connects to existing bike lanes in San Jose.
Length:	**Total length:** 1.9 mi.
Cost:	$90,000
Priority:	High



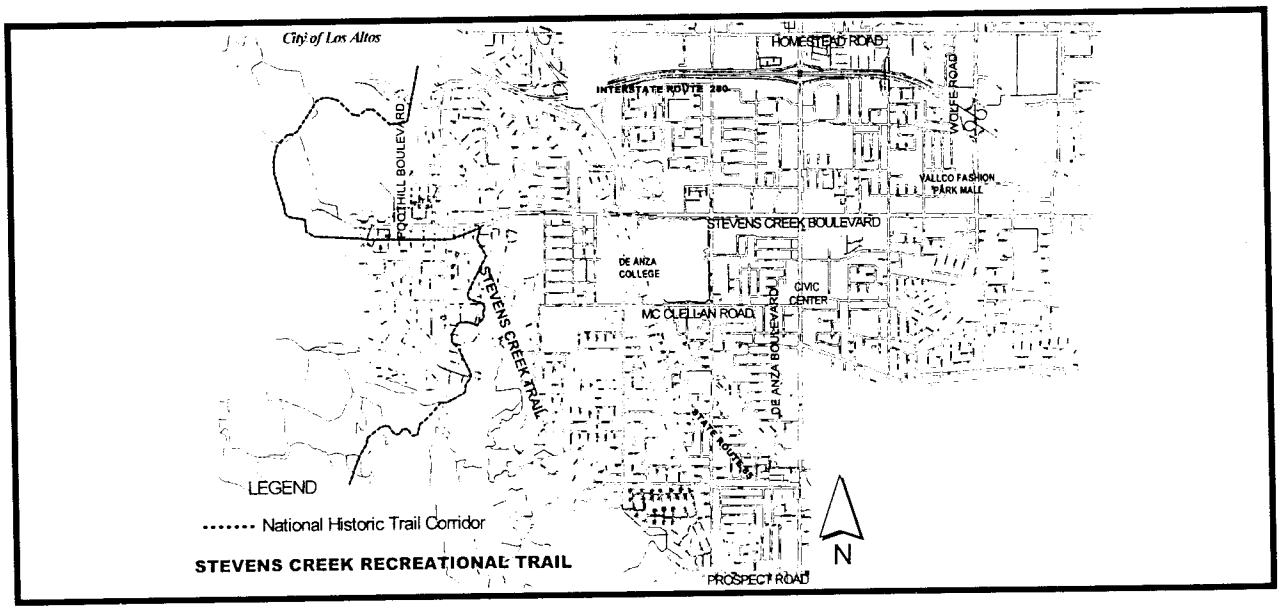
Route 11 - Tantau Ave./Barnhart/San Tomas Aquino Trail On Street Route	
Designation:	**Class 2 Bike Lane and Class 3B Bicycle Route**
Location and Status:	1. Existing bike lanes on Tantau Ave. between Homestead Road and Stevens Creek Blvd. 2. Proposed Bicycle Boulevard on Tantau Ave. between Stevens Creek Blvd. and Bollinger Road. 3. Bike Route on Barnhart between Tantau Avenue and Creek corridor.
Implementation Measures:	1. Install bike route signs. 2. Remove street parking from one side of Tantau between Stevens Creek Blvd. and Bollinger Rd..
Bicycle Friendly Features:	Existing traffic barriers for through southbound motor vehicle traffic at Stevens Creek Blvd. at Tantau Ave. reduce traffic volumes on Tantau Ave. south of Stevens Creek. The 36 foot curb-to curb width won't support bike lanes without removing parking which would be unpopular due to the residential frontage. The existing volume of traffic may support the use of this road as a bicycle boulevard/Class 3 designation.
Attractors/generators/links (within ¼ mile of route)	Compaq Computers, Hewlett Packard, Siemens, Cupertino High School, Sedgwick Elementary School, residential frontage.
Length:	**Existing:** 1.0 mi. **Proposed:** 1.0 mi. **Total length:** 2.0 mi.
Cost:	$65,000
Priority:	Medium
Other:	Part of San Tomas Aquino - Saratoga Creek Trail: Tantau Avenue from Pruneridge Avenue to Barnhart Avenue where, due to right-of-way constraints, it cannot remain within the creek corridor.



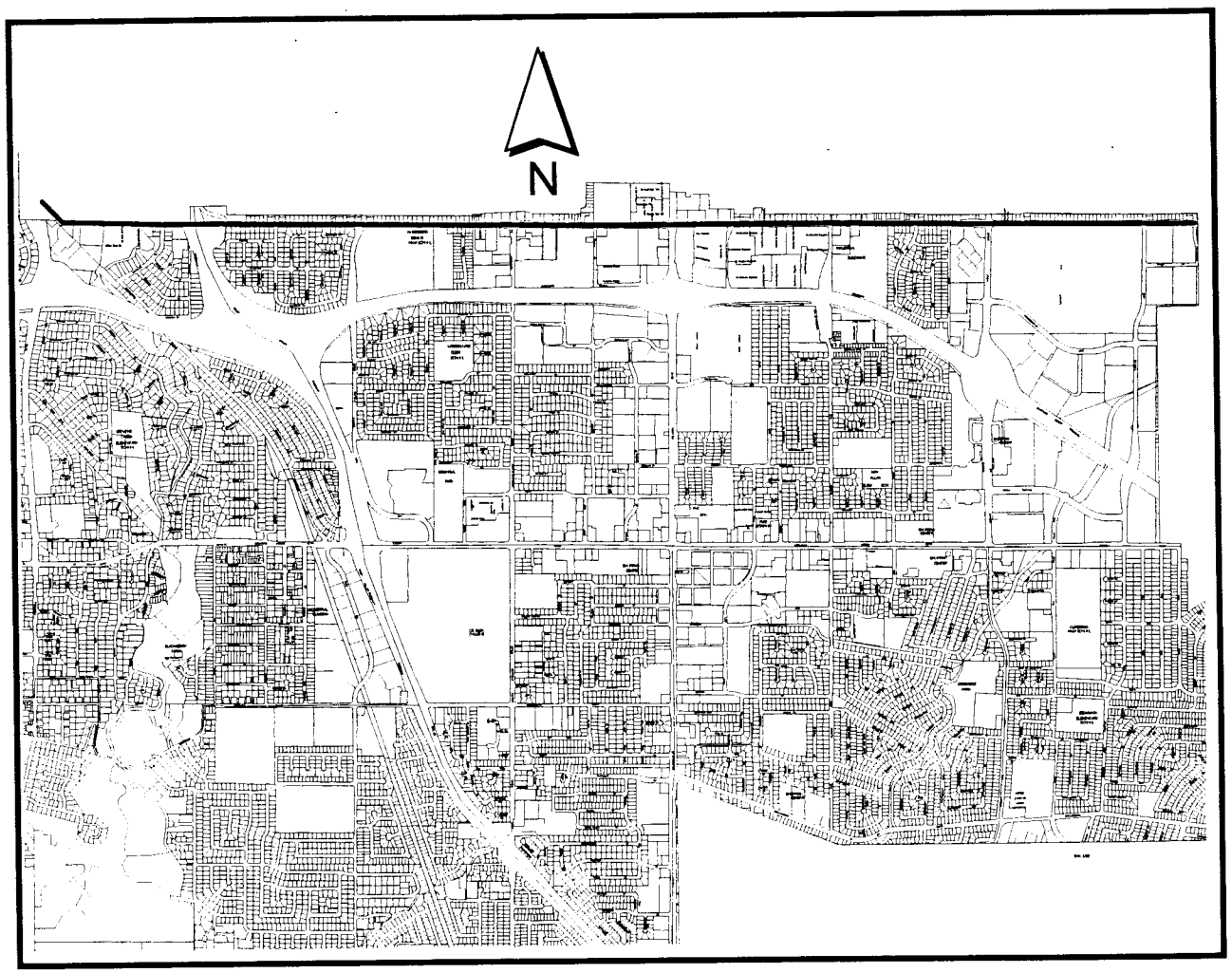
Route 12 - De Anza National Historic Trail	
Designation:	**Class I Bike Path**
Location and Status:	in process of development
Implementation Measures:	To be determined by separate feasibility study . Those in charge of the design and construction of the trail systems are encouraged to consult with Cupertino Bicycle/Pedestrian Advisory Committee during the planning phase of these projects.
Bicycle Friendly Features:	No auto traffic; Extra width or two separate paths required where use by non-bicyclists is heaviest
Long-term Improvements:	This is considered a long-term project
Attractors, Generators and Links	De Anza College, Cupertino Post Office, Stevens Creek Trail The trail will continue through Saratoga and Los Altos.
Length:	Proposed: De Anza Trail - three miles
Cost:	$3.4 million
Priority:	High



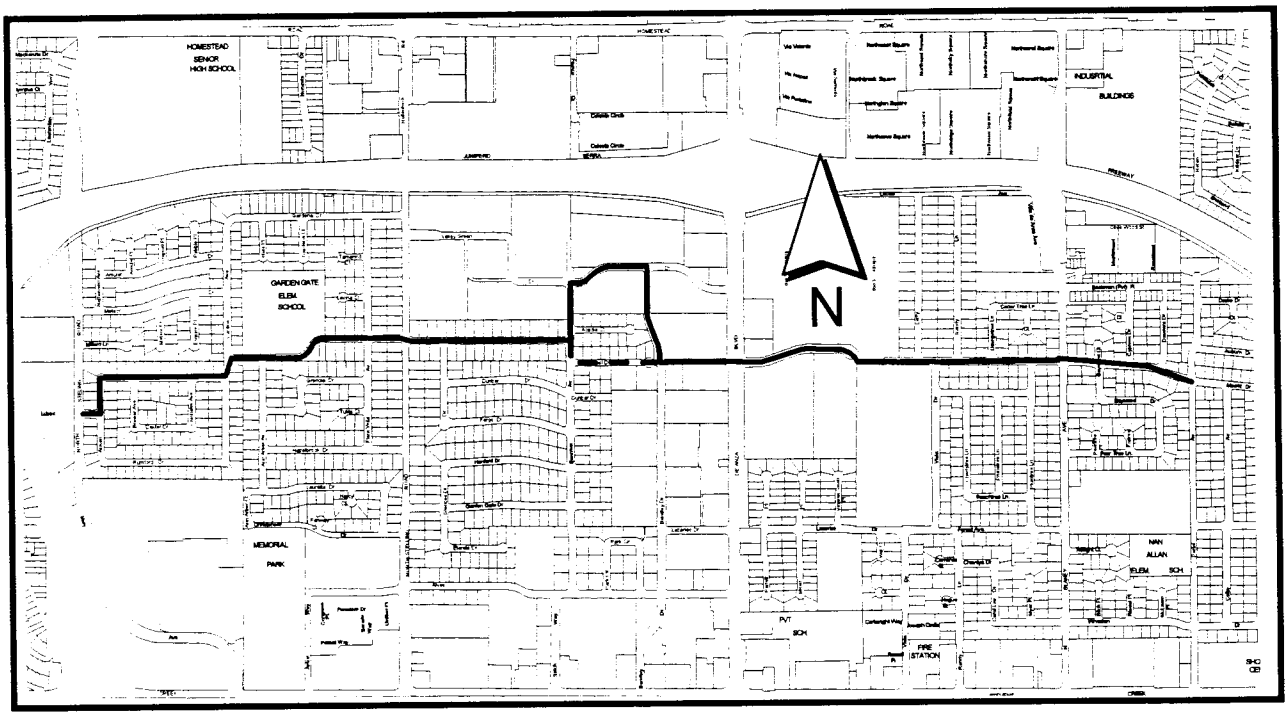
Route 13 - Stevens Creek Recreational Trail	
Designation:	**Class I Bike Path**
Location and Status:	In process of development, preferred route identified. Reach 1: Foothill Blvd to south to Cristo Rey Dr. west to Diocese Property, south through Diocese property to Stevens Creek Blvd. East on Stevens Creek Blvd to Blackberry Farm Reach 2: South from Stevens Cr. Blvd to Stocklmeir property through Blackberry Farm picnic grounds, along Scenic circle through McClellan park to McClellan Rd. Reach 3: South from McClellan Ranch park along USI Inc. easement thru Linda Vista park thru western portion of USI property to Stevens Creek County Park
Implementation Measures:	To be determined by separate feasibility study. Those in charge of the design and construction of the trail systems are encouraged to consult with Cupertino Bicycle/Pedestrian Advisory Committee during the planning phase of these projects.
Bicycle Friendly Features:	No auto traffic; Extra width or two separate paths required where use by non-bicyclists is heaviest
Long-term Improvements:	This is considered a long-term project.
Attractors, Generators and Links	Stevens Creek County Park, Rancho San Antonio County Park, spur trail to Varian Park.
Length:	Three miles
Cost:	$3 million - Feasibility study needed.
Priority:	High



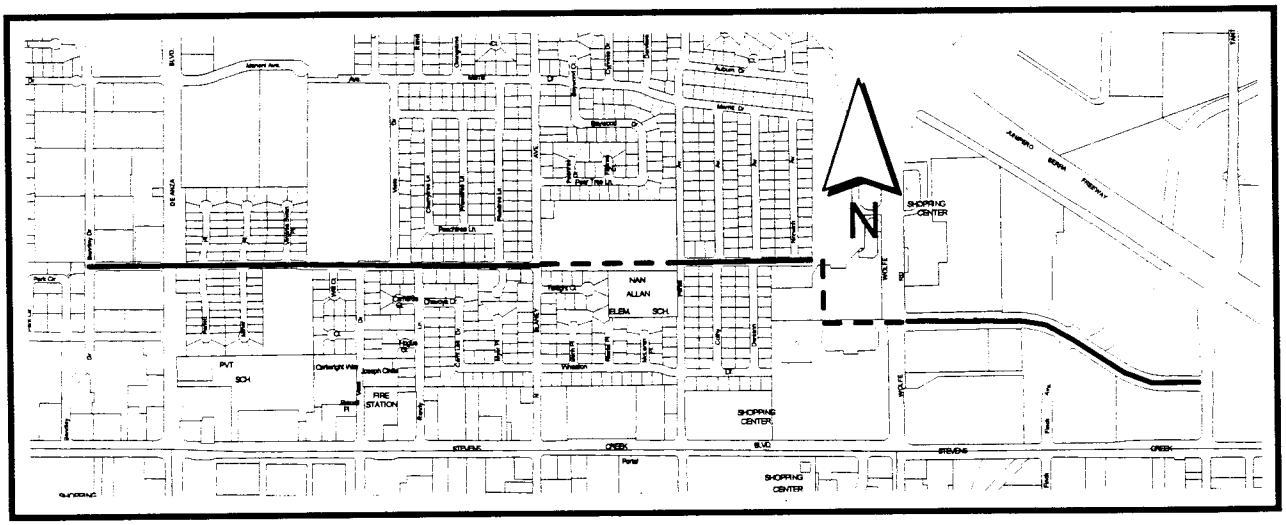
Route 21 - Homestead Road	
Designation:	**Class 2 Bike Lane**
Location and Status:	Existing bike lanes between Grant Avenue and Swallow Way
Implementation Measures:	Work with Sunnyvale and Santa Clara to connect to Cupertino's section with bike lanes.
Bicycle Friendly Features:	Bike lanes on north side of road are in Sunnyvale and are signed "Bike Lanes 7 AM to 7 PM."
Attractors/generators/links (within ¼ mile of route)	Homestead High School, Hewlett Packard, Seimens, PG & E, various shopping centers, Foothill Expressway to Los Altos. Continues as bike access to City of Santa Clara.
Length:	**Existing:** 3.4 mi. **Proposed:** 0 mi. **Total length:** 3.4 mi.
Cost::	$50,000
Priority:	Medium
Other:	Coordinate with City of Santa Clara



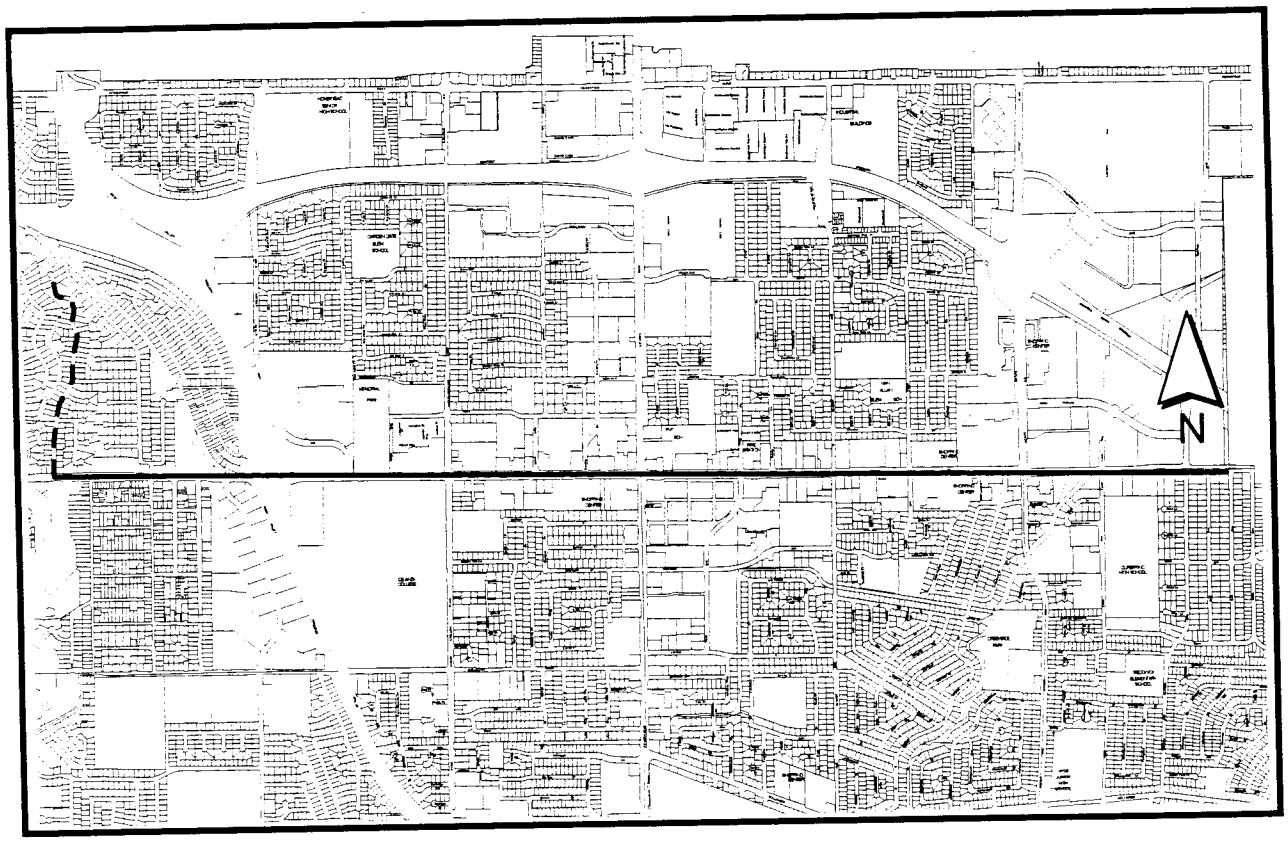
Route 22 - Greenleaf Dr./Mariani Ave./Merritt Dr.	
Designation:	**Class 3B Bicycle Boulevard**
Location and Status:	1. Existing signed route on Merritt between Mariani and N. Portal. 2. Existing designated bike route on Lubec/Anson/Milford/ Castine/Greenleaf/Beardon and Valley Green. 3. Existing bike lanes on Mariani east of De Anza Blvd. 4. Existing path between Mariani and Merritt. 5. Proposed bicycle boulevard between Mary Ave. and Portal.
Implementation Measures:	1. Revise route to use Greenleaf Dr. directly to Bandley Drive rather than the more circuitous Beardon to Valley Green to Bandley Drive. 2. Enlarge pedestrian connection at Greenleaf and Bandley Drive so that bikes can enter. 3. Widen and improve bike path connecting Mariani with Merritt.
Bicycle Friendly Features:	Existing low traffic volumes. Existing traffic barriers between Mariani and Merritt.
Long-term Improvements:	Consider revising traffic control along this route so that east-west bike travel has right-of-way at all intersections with local streets.
Attractors/generators/links (within ¼ mile of route)	Apple Computer, Garden Gate Elementary, Collins Elementary School, Portal Elementary School, residential frontage.
Length:	**Total length:** 1.5 mi.
Cost:	$250,000
Priority:	Low



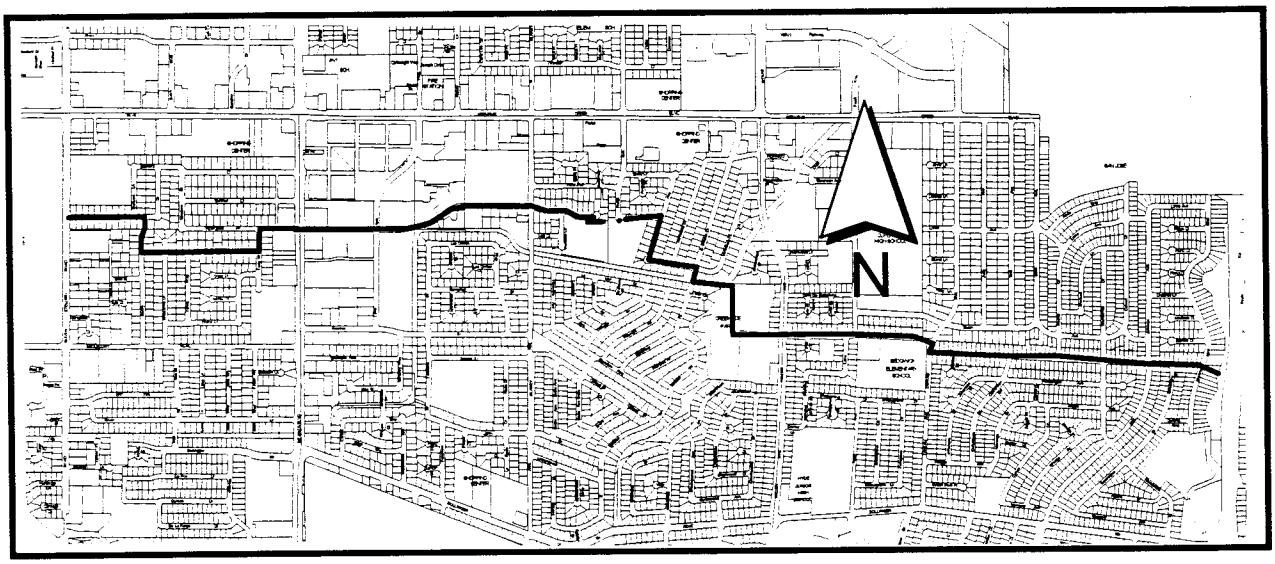
Route 23 - Alves Dr./Bandley Dr./Lazaneo Dr. /Forest Dr./ Pathway/ Amherst/Vallco Parkway	
Designation:	**Class 3B Bicycle Boulevard**
Location and Status:	1. Existing bike route between Bandley and Blaney Avenue. 2. Existing bike lanes on Vallco Parkway. 3. Connect discontinuous segments with pathways and develop as bicycle boulevard between Stelling and Vallco Fashion Park.
Implementation Measures:	1. Designate and install bike route signs on Alves Dr. between Stelling and Bandley. 2. Construct path adjacent to Portal Elementary School on vacant dirt strip between the ball field and the fence. 3. Construct path or use existing service road adjacent to fence in Portal Park. 4. Construct path through park to connect to Portal Dr. 5. Continue route on Amherst until end. 6. Work with Vallco Fashion Park to provide break in fence to permit access to Vallco.
Bicycle Friendly Features:	1. Existing traffic barrier on Lazaneo Dr. west of Randy Lane. 2. Existing traffic barrier at Stelling Rd. and Alves Dr. 3. Existing low traffic volumes. 4. Existing 4-way stop at Forest and Blaney.
Long-term Improvements:	Facilitate crossing Stelling at Alves.
Attractors/generators/links (within ¼ mile of route)	Vallco Fashion Park, Compaq Computer, Apple Computer, CUSD, Portal Elementary School, Memorial Park, and Community Center. Residential frontage.
Length:	**Existing:** Class 3 - 0.7 mi. on Lazaneo/Forest Class 2 - 0.6 mi. on Vallco Parkway **Total length:** 1.3 mi.
Cost:	$500,000
Priority:	Medium



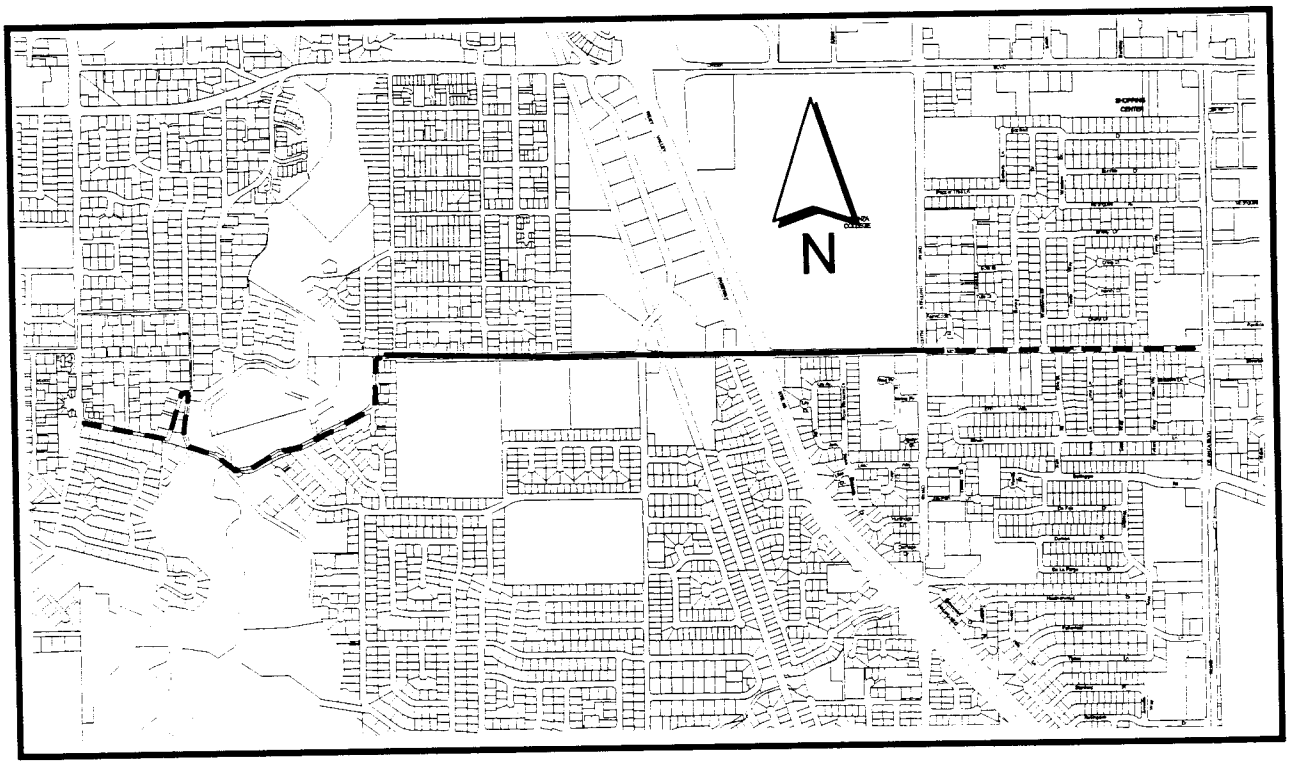
Route 24 - Stevens Creek Boulevard	
Designation:	**Class 2 Bike Lane**
Location and Status:	1. Proposed bike lanes between entrance to Stevens Creek Trail and Phar Lap Drive. 2. Existing bike lanes between Phar Lap Drive and Stern.
Implementation Measures:	1. Stripe to provide five foot bike lanes west of Phar Lap. 2. Stripe bike lanes west of Foothill Boulevard to connect to trail access.
Bicycle Friendly Features:	
Attractors/generators/links (within ¼ mile of route)	De Anza College, Compaq Computers, Vallco Fashion Park, various other shopping centers, Cupertino High School, Memorial Park, Cupertino Post Office.
Length:	**Existing:** 3.0 mi. **Proposed:** 1.0 mi. **Total length:** 4.0 mi.
Cost:	$25,000
Priority:	Medium
Funding:	TDA funding received for FY 1998/99- $30,174 to implement item No. 1.



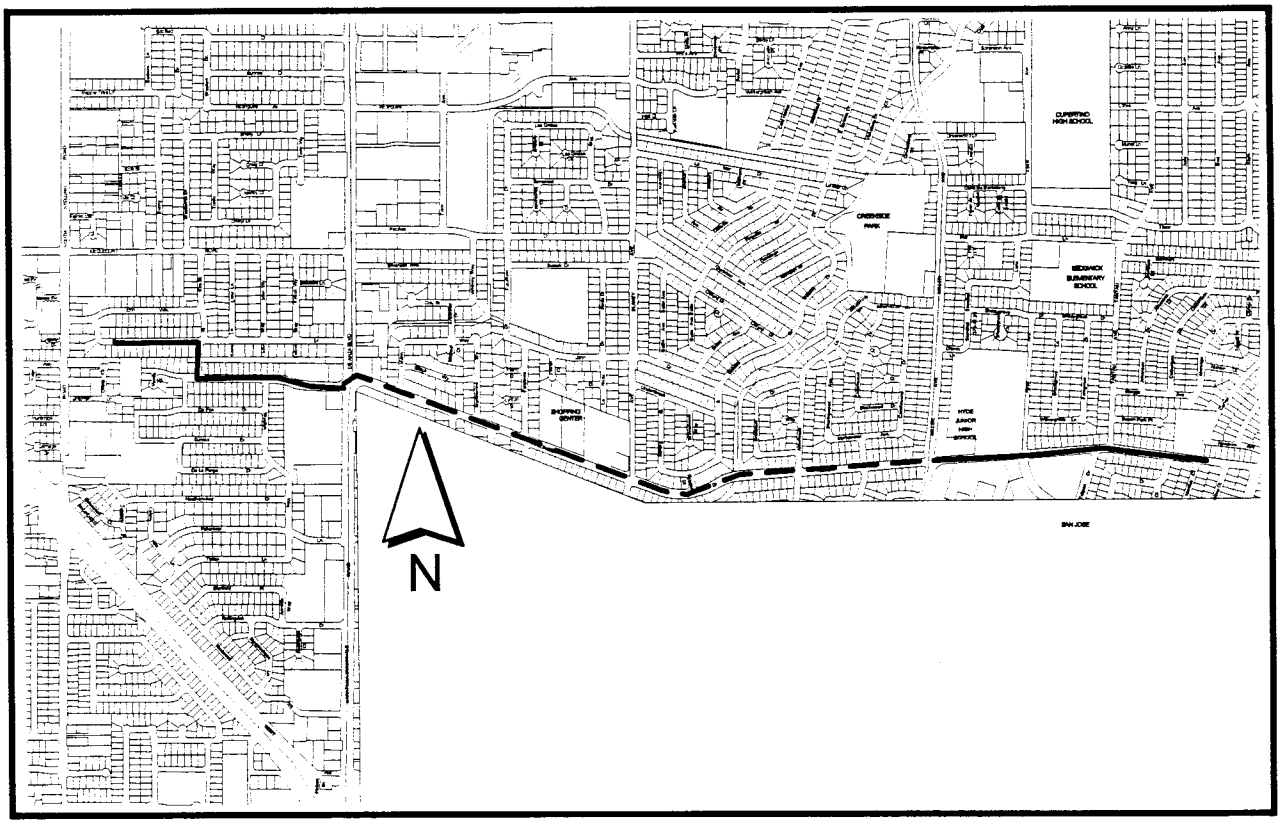
Route 25 - Peppertree Ln./Rodrigues Ave./Wilson Park/Vicksburg Dr./Creekside Park/Phil Ln./Barnhart Ave.	
Designation:	**Class 3B Bicycle Boulevard**
Location and Status:	Existing signed bike route between Stelling and Blaney.
Implementation Measures:	Develop continuous route from Stelling Rd. to Saratoga Creek Trail by connecting several existing and proposed route segments. This would involve: 1. Route and destination signing of the whole route as a Bicycle Boulevard. 2. Construct path to connect end of Rodrigues Ave. through edge of Wilson Park to corner of Vicksburg Dr. 3. Consider bike lanes on Rodrigues between DeAnza Blvd. and S. Blaney Dr.
Bicycle Friendly Features:	1. Existing traffic barrier at De Anza College/ Stelling Rd./ Peppertree Lane. 2. Existing four-way STOP at Rodrigues Ave. and Blaney Ave. 3. Existing bike bridge over Calabazas Creek connecting Creekside Park to E. Estates Dr. 4. Existing traffic signal at Creekside Park entrance and Phil Lane.
Long-term Improvements:	Recommend revised traffic control at Rodrigues Ave./Torre Ave.: Roundabout
Attractors/generators/ links (within ¼ mile of route)	City Hall, De Anza College, Cupertino High School, Library, Wilson Park, Creekside Park, Sedgwick Elementary School, Hyde Junior High School. Connects to Saratoga Creek Trail via Barnhart Ave.
Length:	**Existing:** 1.1 mi. **Proposed:** 0.6 mi. **Total length:** 1.7 mi.
Cost:	$270,000
Priority:	Medium



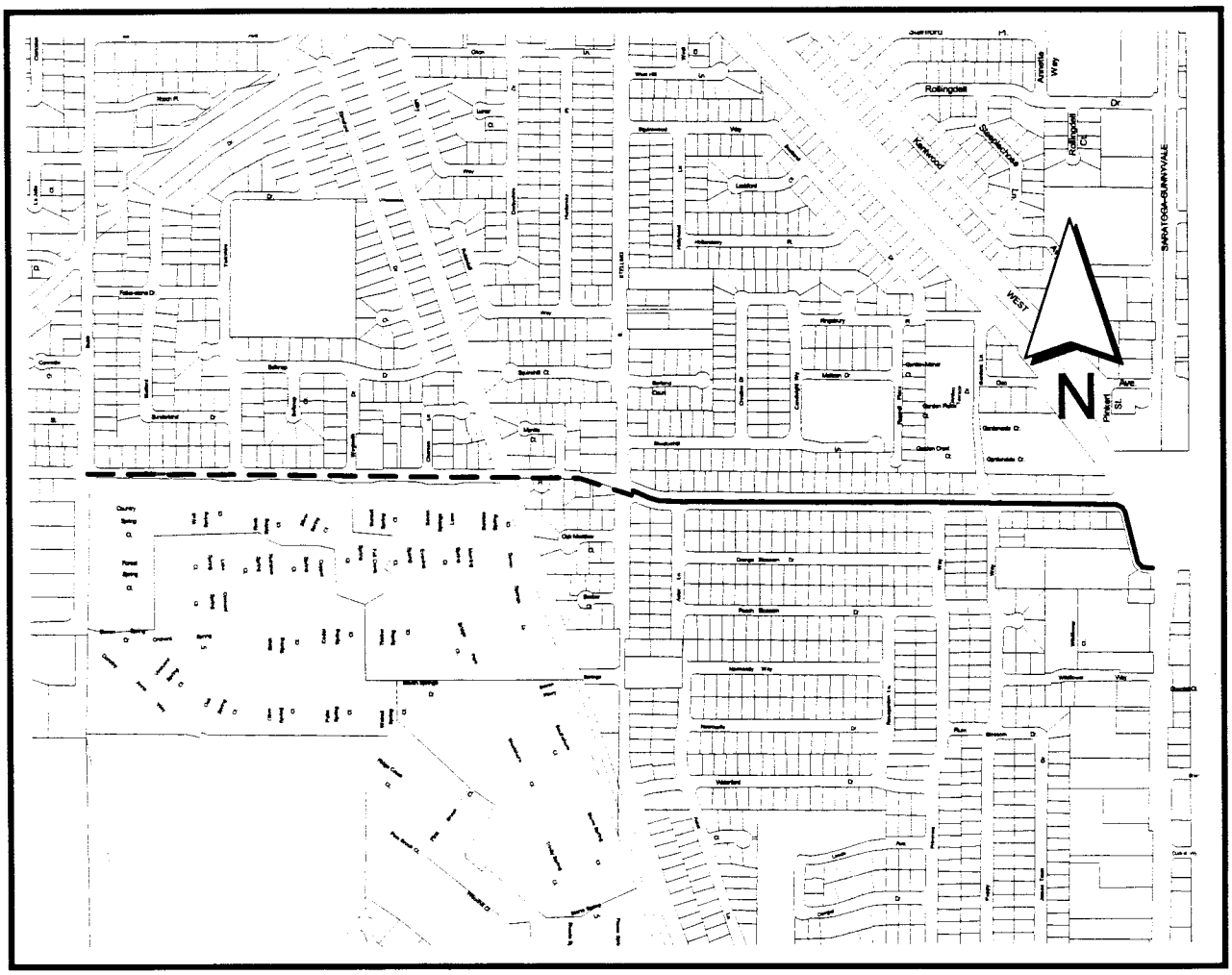
Route 26 McClellan Road/Pacifica	
Designation:	**Class 2 Bike Lane Class 3A Bike Route**
Location and Status:	Existing bike lanes between Byrne and Stelling Road. Sign remainder as bike route and widen and/or pave existing shoulder where feasible between Foothill Blvd. and Byrne and between Stelling and De Anza Blvd.
Implementation Measures:	1. Install route and destination signing along entire route. 2. Prohibit parking between Stelling and De Anza Blvd. 3. Widen to provide four foot shoulders or bike lanes. 4. Remove/relocate pine tree on south side of roadway across from Bonny Dr.
Bicycle Friendly Features:	Install share the road signs and pavement stencils where there are no bike lanes.
Attractors/generators/links (within ¼ mile of route)	De Anza College, Monta Vista High School, Measurex Cupertino Library, City Hall, McClellan Ranch Park, Lincoln Elementary School.
Length:	**Existing:** 0.9 mi. Byrne to Stelling **Proposed:** 1.3 mi. **Total length:** 2.2 mi.
Cost:	$1,200,000
Priority:	Low



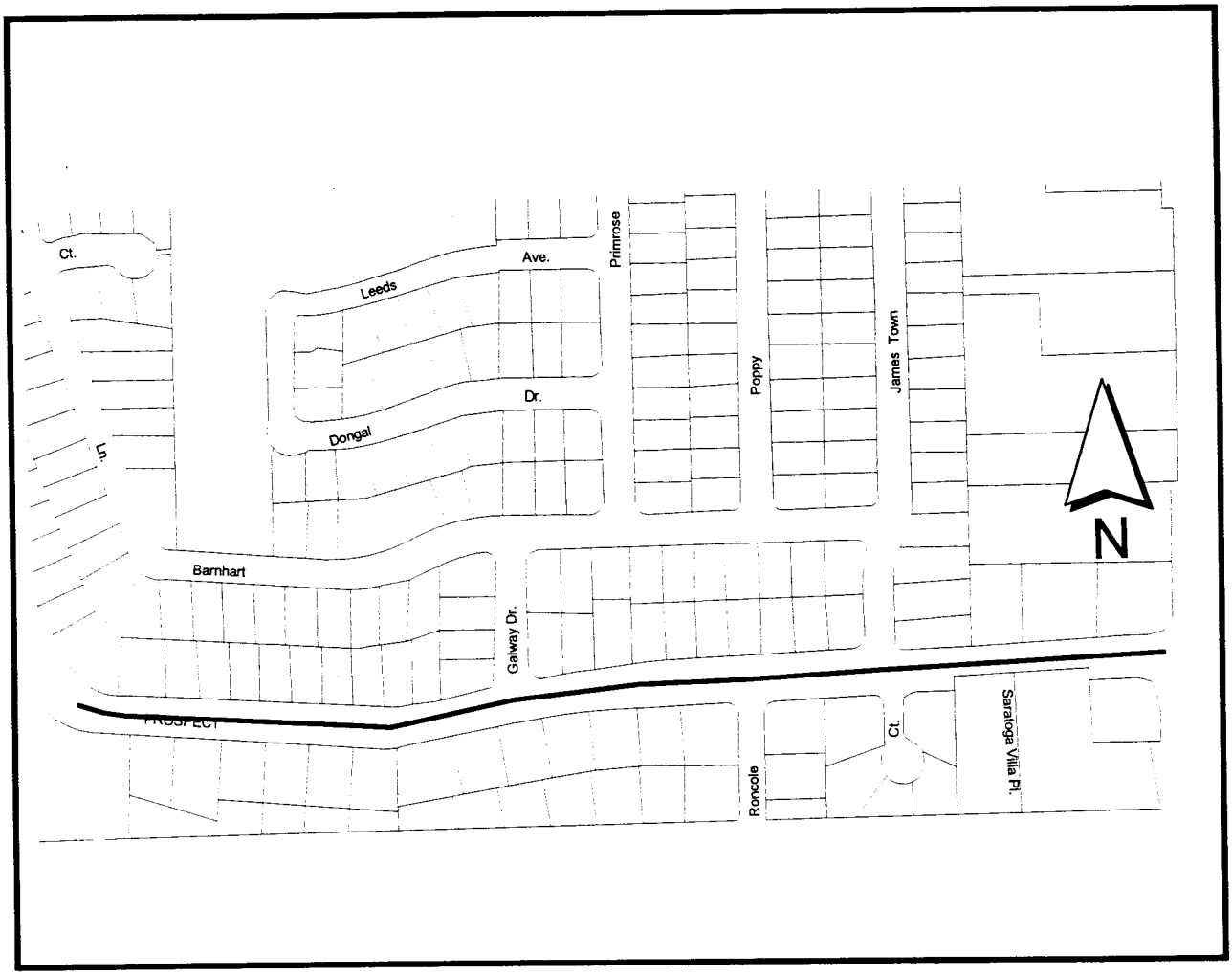
Route 27 - Bollinger Road/Kim St./Kirwin Ln.	
Designation:	**Class 2 Bike Lane**
Location and Status:	1. Existing bike lanes between Miller Ave. and east city limit. 2. Proposed bike lanes between De Anza Blvd. and Miller Ave. 3. Existing bike route west of De Anza Blvd.
Implementation Measures:	Stripe five foot bike lanes between De Anza Blvd. and Miller Ave. Travel lanes may need to be narrowed, or consider redesigning street from four to two travel lanes plus a center turn lane.
Bicycle Friendly Features:	
Attractors/generators/links (within ¼ mile of route)	Hyde Junior High School, shopping, Jollyman Park. Continues as bike lanes in San Jose.
Length:	**Existing:** 1.1 mi. **Proposed:** 1.1 mi. **Total length:** 2.2 mi.
Cost:	$50,000
Priority:	High



Route 28 - Rainbow Drive	
Designation:	**Class 2 Bike Lane and Class 3A Bike Route**
Location and Status:	1. Existing bike lanes between Stelling Rd. and DeAnza Blvd. 2. Recommended bike route between Stelling and Bubb Roads.
Implementation Measures:	Install bike destination and routing signs
Bicycle Friendly Features:	Install share the road signs and pavement stencils where there are no bike lanes.
Attractors/generators/links (within ¼ mile of route)	Regnart Elementary School, Three Oaks Park, shopping. Continues as bike lanes in San Jose.
Length:	**Existing:** 0.5 mi. **Proposed:** 0.5 mi. **Total length:** 1.0 mi.
Cost:	$20,000
Priority:	Low



Route 29 - Prospect Road	
Designation:	**Class 2 Bike Lane**
Location and Status:	Recommended bike lanes between Stelling and East City limit at De Anza Blvd.
Implementation Measures:	Widen and stripe five foot bike lanes
Bicycle Friendly Features:	
Attractors/generators/links (within ¼ mile of route)	Hoover Park, residential frontage, Stelling, De Anza Trail Continues as bike lanes in Saratoga/San Jose
Length:	**Existing:** 0 mi. **Proposed:** 0.4 mi. **Total length:** 0.4 mi.
Cost:	$100,000. Have funding, see below.
Funding:	Part of Stelling Road bike lanes project funded by TFCA for $80,000. Local match is $20,000.



Chapter 3
BICYCLE PARKING

A. TYPES OF BICYCLE PARKING DEMAND AND FACILITIES

To provide appropriate bicycle parking, the type of parking demand must be matched with an appropriate bike parking facility.

Bicycle parking demand falls into three general categories:

- short-term - 2 hours or less
- long-term - 2 hours to full day
- overnight - one night to two weeks or more

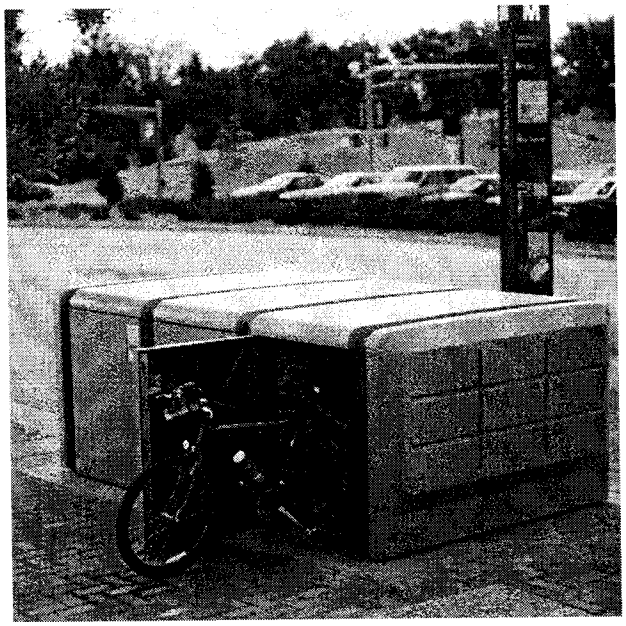
Bicycle parking facilities also fall into three general categories. Cupertino Ordinance 19.100.040 (O) defines the classes of bicycle parking as the following:

Bicycle Parking. Bicycle parking shall be provided in multi-family residential developments and in commercial districts. In commercial districts, bicycle parking facilities shall be one of the following three classifications types:

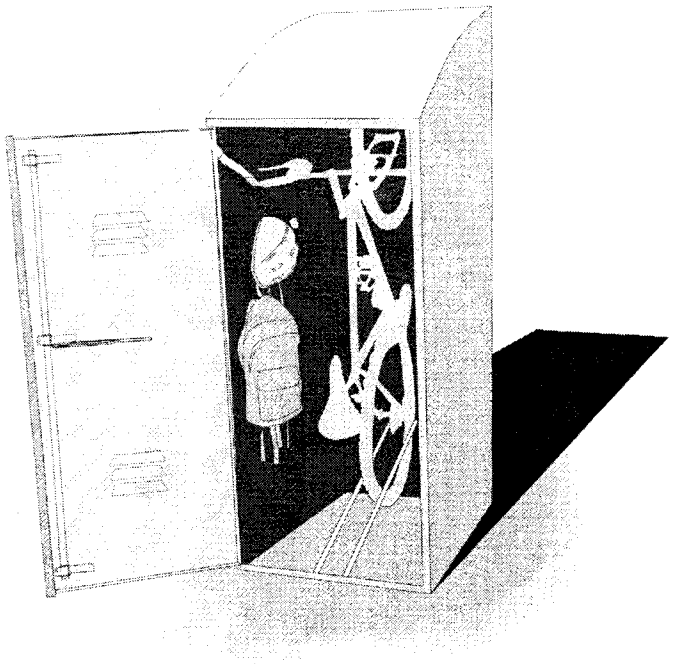
- ***Class I Facilities*** *- These facilities are intended for long-term parking and are to protect the entire bicycle or its individual components and accessories from theft. The facility also protects the cycle from inclement weather, including wind-driven rain. The three design alternatives for Class I facilities are as follows.* See Figure 4.

  1. *Bicycle Locker. A fully enclosed space accessible only by the owner or operator of the bicycle. Bicycle lockers must be fitted with key-locking mechanisms.*
  2. *Restricted Access. Class I bicycle parking facilities located within a locked room or locked enclosure with roof accessible only to the owners and operators of the bicycles. The maximum capacity of each restricted room shall be ten bicycles. In multiple family residential developments, a common locked garage area with Class II 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.*
  3. *Enclosed Cages. A fully enclosed chain link enclosure with roof for individual bicycles, where contents are visible from the outside, which can be locked by a user-provided lock. This facility may only be used for multiple family residential uses.*

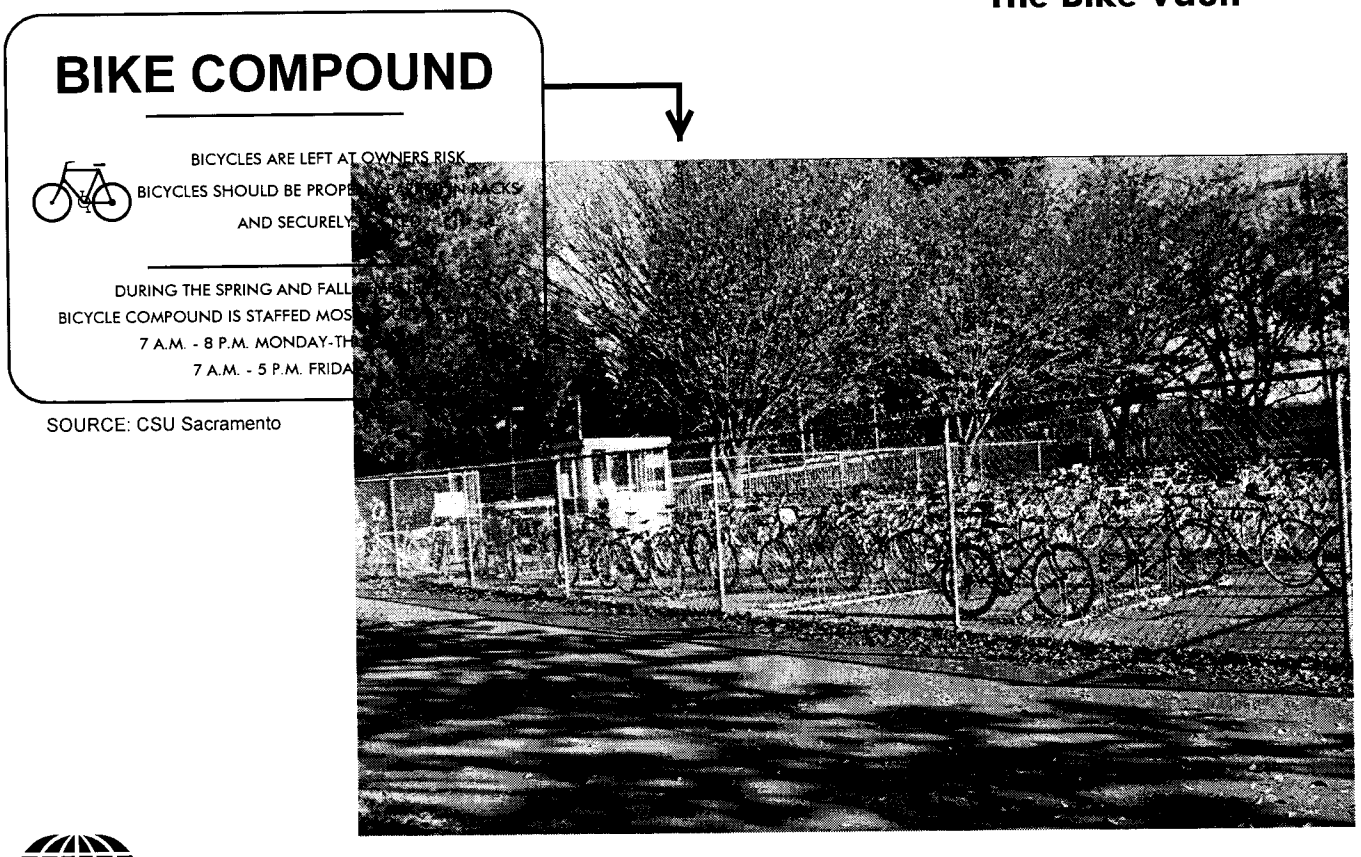
- ***Class II Facilities*** *- Intended for short term parking. A stationary object which the user can lock the frame and both wheels with a user provided lock. The facility shall be designed so that the lock is protected from physical assault. A Class II facility must accept U-shaped locks and padlocks. Class II facilities must be within constant visual range of persons within the adjacent building and located at street floor level.* See Figure 5.



Bike Locker



The Bike Vault™



SOURCE: CSU Sacramento

WILBUR SMITH ASSOCIATES

Figure 4

TYPICAL CLASS I BIKE PARKING

330880-PARKING_CLASS-12/18/98

Crank Case™ Racks

Bike Lid™ Rack

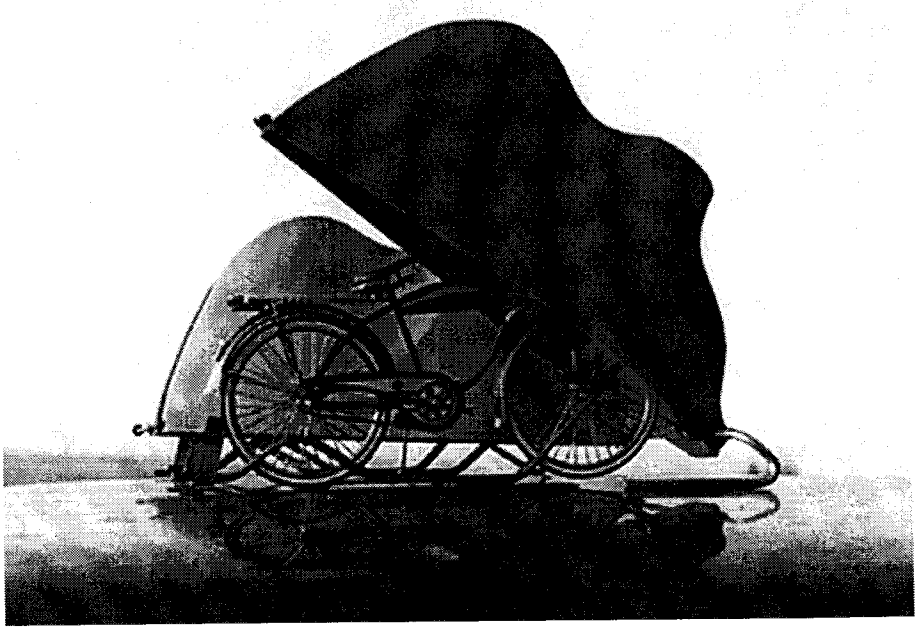


Figure 5

TYPICAL HIGH SECURITY CLASS II BIKE RACKS

- ***Class III Facilities*** *- Intended for short term parking. A stationary object which the user can lock the frame and both wheels with a user-provided cable or chain and lock, sheltered from rain, if possible.* See Figure 6.
- ***Other*** *- Other styles of bike racks besides theses three classes are still found in Cupertino. These racks, commonly known as "wheelbenders" and defined as Class III in some communities, support only one wheel by the rack. They are the type that were (and still are unfortunately) quite popular in school yards. They are never recommended except in guarded areas or locked cages or rooms, where they are used in Class I situations.* See Figure 7.

The characteristics of the bicycle parking facility needed to serve these three categories are distinct. Examples of the three types of demand along with the appropriate way to accommodate this demand are presented below.

B. MATCHING DEMAND WITH FACILITY TYPE

Short Term

Typical Situation - Short-term bike parking should generally be provided in situations where the bike will be parked for two hours or less. Typical sites are retail commercial, office buildings for visitors, libraries and other similar sites to accommodate errands.

Appropriate type of parking facility: Short-term parking demand can be accommodated by properly designed and located bicycle racks. Racks should at a minimum be able to support the weight of the bike by its frame (not just its wheel) and at least one wheel and the frame should be able to be locked to the rack with a U-type lock or chain and padlock. Acceptable rack designs are illustrated on the previous Figures 5 and 6.

In addition, wherever possible, providing bike racks inside of buildings, space permitting, is an easy way to dramatically increase the security of the parked bicycles.

Long-term Parking

Typical Situation - Long-term parking is used typically by commuters and employees. Racks are notoriously inadequate because bikes parked for long periods are subject to theft, especially of their components, as well as to vandalism and wear and corrosion from inclement weather.

Appropriate type of parking facility - Employee or commuter bike parking needs are best met by either supplying bike racks in a sheltered supervised location, such as a parking garage with an attendant, in a locked room or nook or cranny inside the building, or by bike lockers.

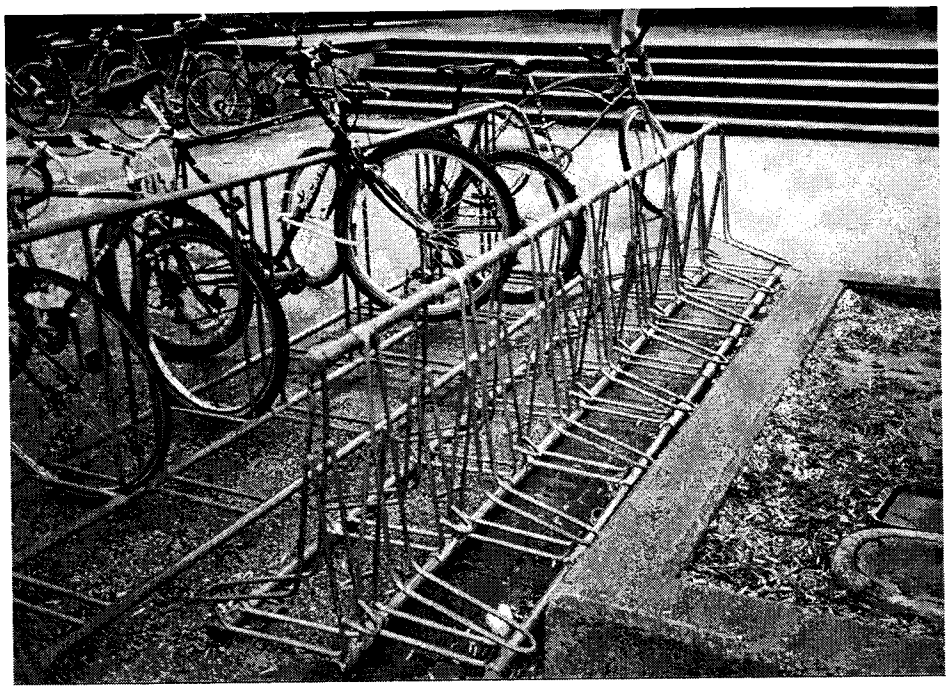
Each of these methods have advantages and disadvantages. For example, bicycle lockers in most typical applications are reserved in advance, usually by a key deposit and a monthly fee. While many bike commuters are willing and able to reserve in advance and pay the fee to guarantee that they will have a safe and secure parking space, many are not able to do so. Also this rental system

Figure 6

TYPICAL CLASS III BIKE RACKS

330880-PARKING_CLASS-11/13/98

WSA WILBUR SMITH ASSOCIATES



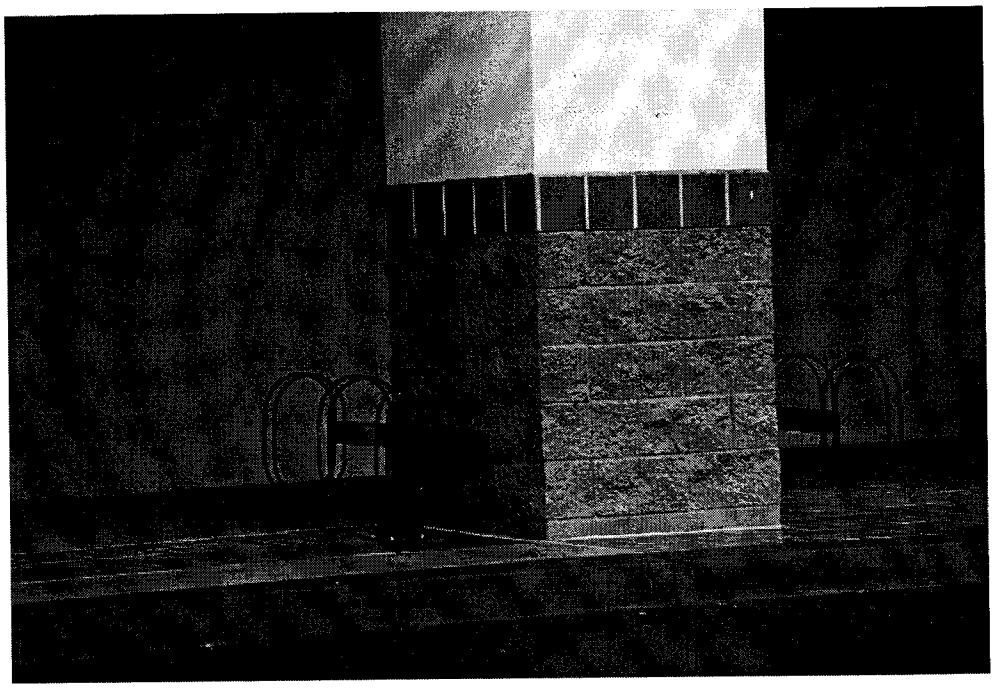
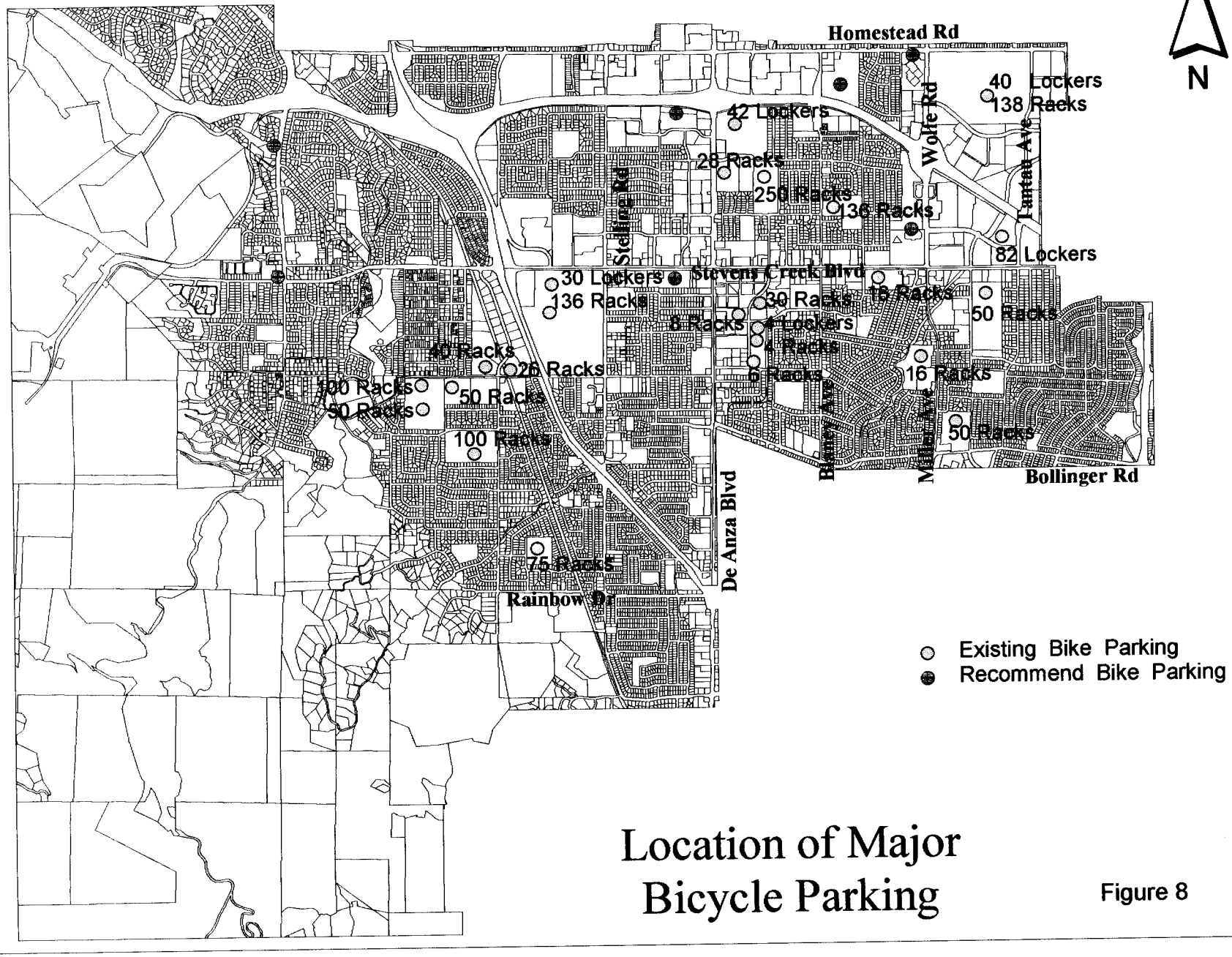


Figure 7

TYPICAL NON-STANDARD BIKE RACKS



Location of Major Bicycle Parking

Figure 8

does not serve the occasional commuter or one who cannot, for whatever reason, pay to reserve in advance.

Overnight Parking

Typical Situation - There are a few destinations where overnight bike parking would make the difference in whether a trip is made by bicycle. Typical examples are airports and AMTRAK Stations. While Cupertino does not have either an airport or a train station, existing or future locations that might attract bicycle parking demand of one day or more should be monitored and addressed as needed such as the future transit center at Vallco Fashion Park. It is unreasonable to expect passengers to leave their bicycles for days at a time at unsupervised bicycle racks outside the station.

Appropriate type of parking facility - Similar to long-term bicycle parking with the caveat that users of lockers may be even less able or willing to comply with restrictions such as reserving in advance, key deposits, etc.

C. PARKING INVENTORY

An inventory of existing bicycle parking in Cupertino was performed by volunteers from the CBPAC. The results of this inventory are presented in the following tables. The existing parking clumps of twelve or more bicycles are depicted in Figure 8. The detailed inventory sheets are contained in Appendix E.

D. RECOMMENDED BICYCLE PARKING

City ordinance 19.100.040 (O) specifies the regulations for off street parking requirements including bicycle parking. Bicycle parking is required in multi-family residential developments and in commercial districts. Table 19.100.040-A specifies the required bicycle parking supply in terms of percentage of required auto supply, either Class I or Class II. This method for calculating bicycle parking requirements works as long as auto parking is required. However, it will be important not to waive bicycle parking if for any reason auto parking requirements are reduced or waived. An alternate method of calculating bicycle parking requirements is to base it directly on the size of the building in terms of units or square footage.

Despite this ordinance and Cupertino's strict definition of bicycle parking types, there are numerous locations with only bicycle racks or "wheelbender" racks. All these are recommended to be upgraded to Class II or III parking.

While comprehensive recommendations regarding the location of new bicycle parking facilities are beyond the scope of this study, the following are locations where the need for Class II parking has been identified by the CBPAC:

- Vallco Fashion Park
- Cupertino Crossroads

- The Oaks Center
- Marketplace
- Cupertino Village Shopping Center
- DeAnza Center
- Homestead Square

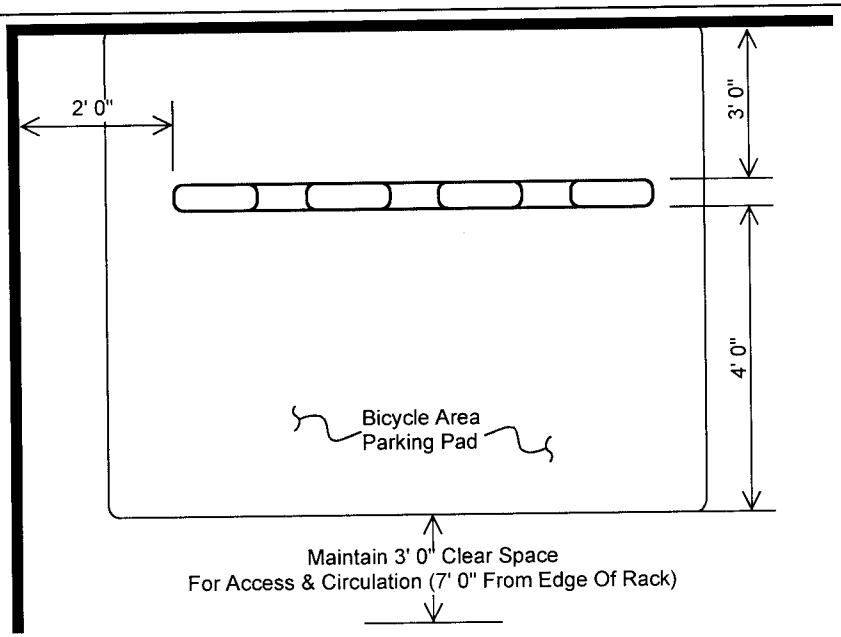
In addition, the parking inventory conducted by the CBPAC volunteers should be consulted, and all locations with non-standard "wheelbender" racks should be upgraded to Class II or Class III.

Bike Rack Placement Criteria

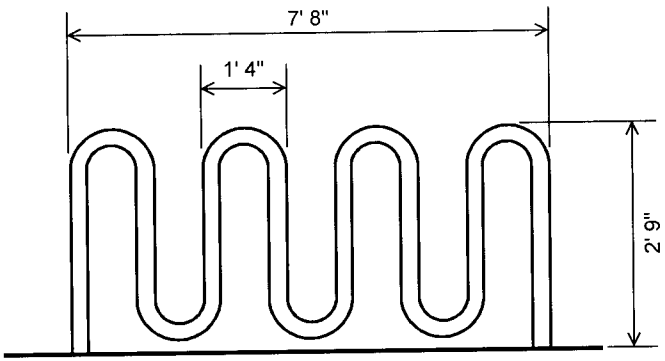
The placement of bike racks is very important for three reasons: to avoid adversely impacting pedestrian circulation, to ensure that they can be used to their maximum design capacity, and to have high visibility to deter thieves and vandals. The City parking ordinance specifies "Spacing of the bicycle units shall be figured on a handlebar width of three feet, distance from bottom of wheel to top of handlebar of three feet and six inches and a maximum wheel-to-wheel distance of six feet." The following Figures 9 through 12 contain rack placement dimensions for popular bike rack designs and bicycle lockers located either in plaza type areas or against walls.

E. SHOWERS AND LOCKERS

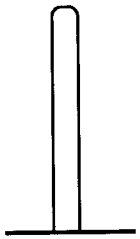
In the City of Cupertino, there are relatively few locations for employers and commuters to showers and change their clothes. A survey performed by the CBPAC volunteers revealed that there are few locations with showers and lockers. The sites with showers and lockers tend to be the obvious land uses such as the Deep Cliff Golf Course and high schools and De Anza College. In addition, several employer sites have showers and lockers including Compaq Computer and Taligent, Inc. have showers and lockers for their employees as well as other commuting incentives. See Appendix H. It is recommended that the City consider an ordinance that requires new construction or the expansion of existing buildings to provide showers.



PLAN VIEW



PROFILE VIEW

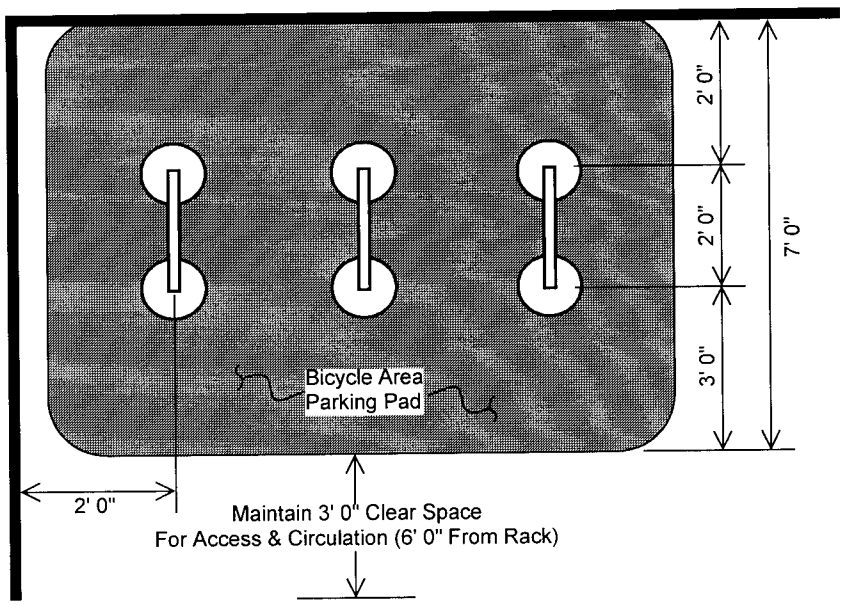


SIDE VIEW

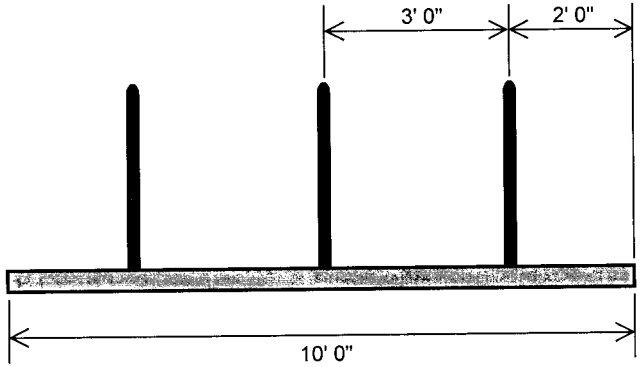
NOTE: Drawing is not to scale. Dimensions of rack itself are for reference only.

Figure 9

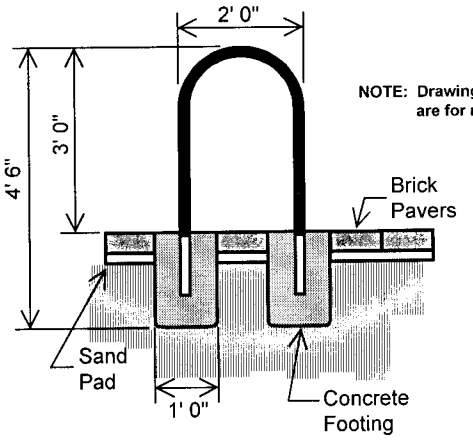
MINIMUM PLACEMENT DIMENSIONS AND CLEAR SPACE REQUIREMENTS - "WAVE" STYLE BIKE RACKS



PLAN VIEW



PROFILE VIEW



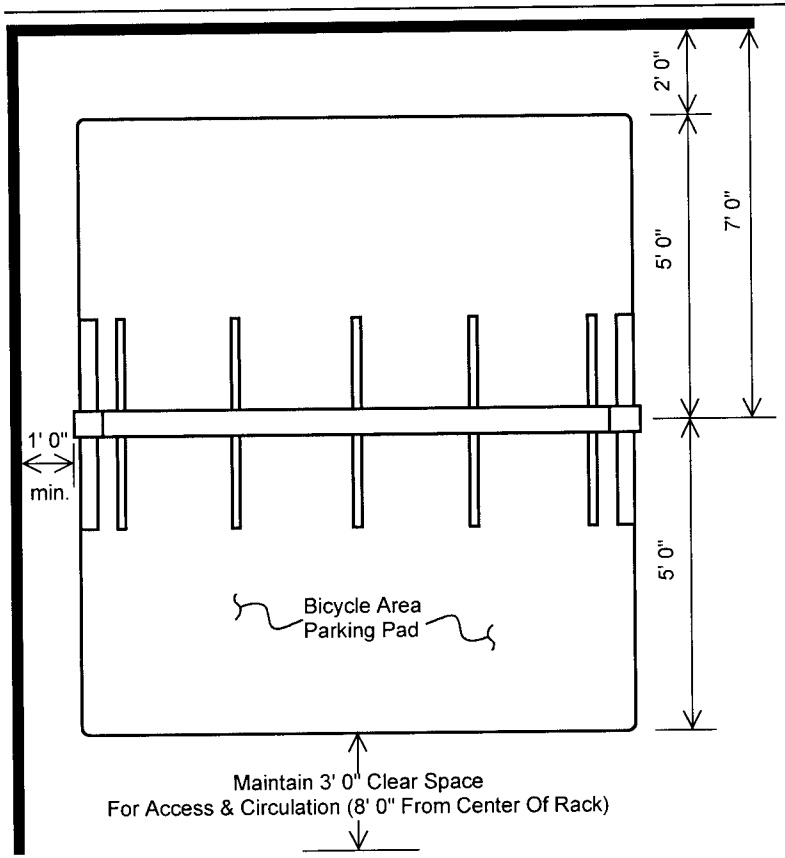
NOTE: Drawing is not to scale. Dimensions of rack itself are for reference only.

SIDE VIEW

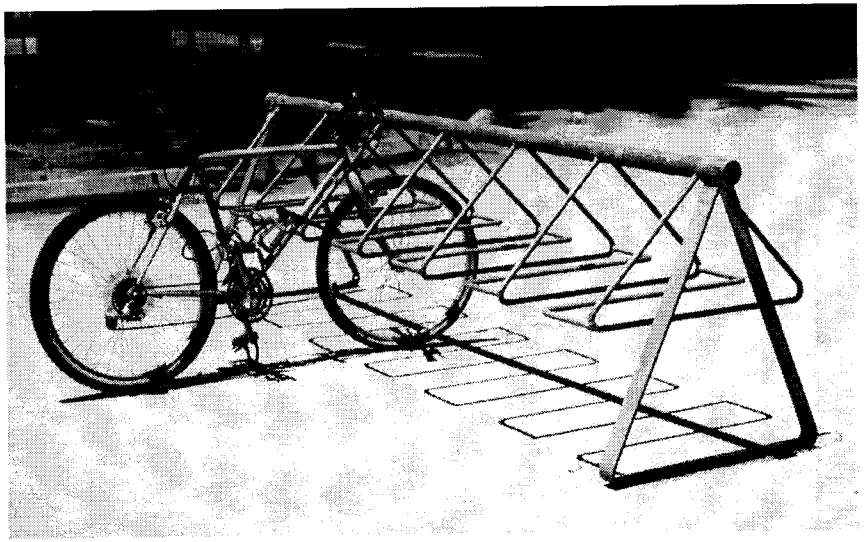
Figure 10

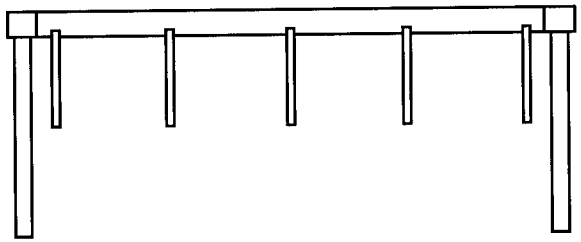
MINIMUM PLACEMENT DIMENSIONS AND CLEAR SPACE REQUIREMENTS - "INVERTED U" STYLE BIKE RACKS

330880-INVERT-U-12/18/98

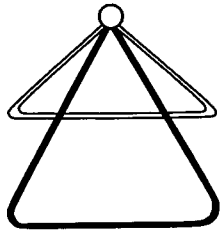


PLAN VIEW





PROFILE VIEW

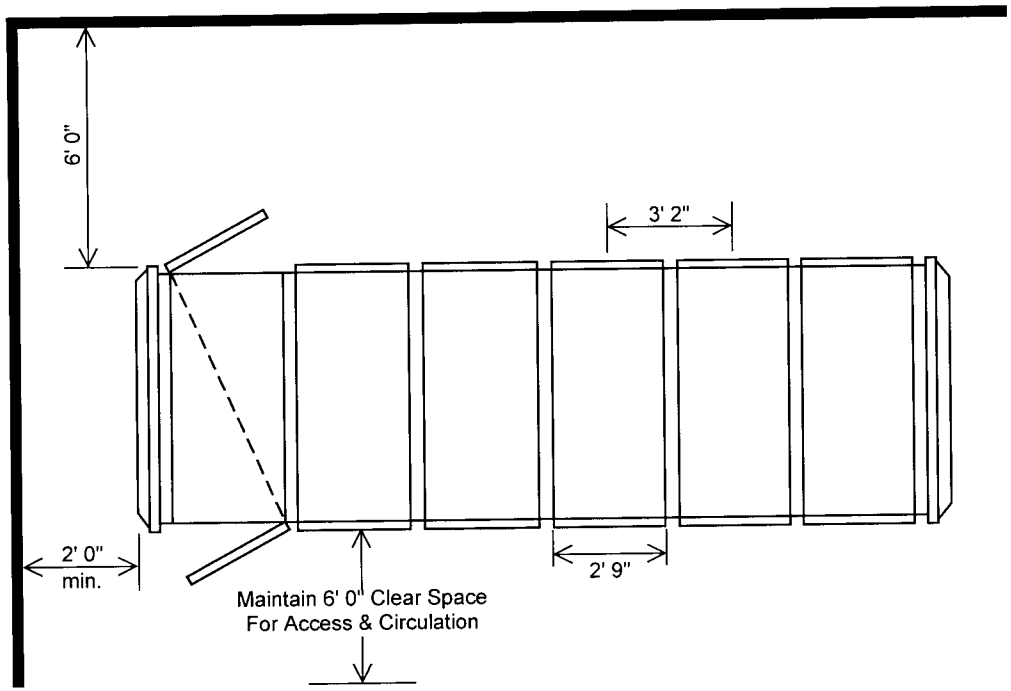


SIDE VIEW

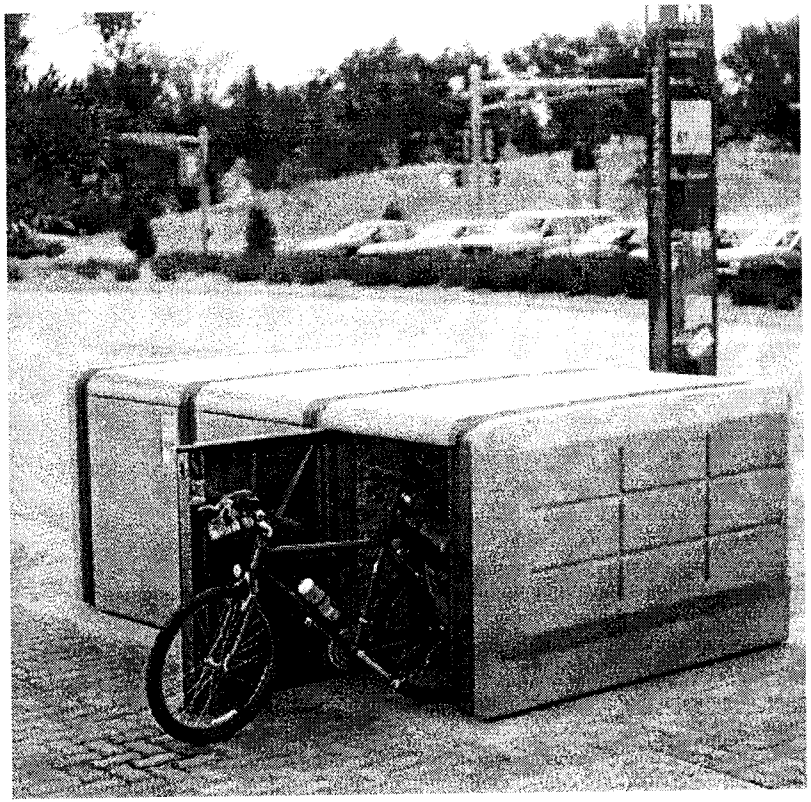
NOTE: Drawing is not to scale. Dimensions of rack itself are for reference only.

Figure 11

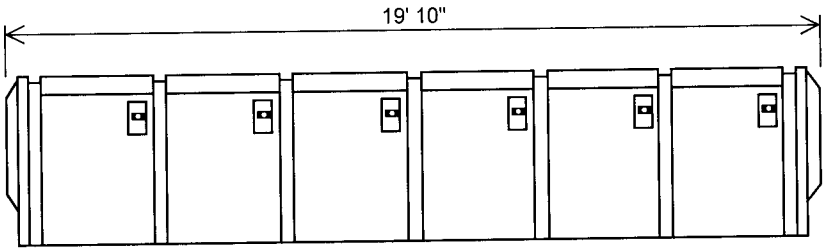
MINIMUM PLACEMENT DIMENSIONS AND CLEAR SPACE REQUIREMENTS - "COAT HANGER" STYLE BIKE RACKS



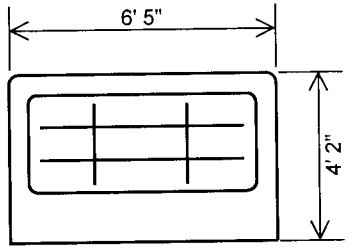
PLAN VIEW



NOTE: Drawing is not to scale. Dimensions of rack itself are for reference only.



PROFILE VIEW



SIDE VIEW

Figure 12

MINIMUM PLACEMENT DIMENSIONS AND CLEAR SPACE REQUIREMENTS - BIKE LOCKERS

Chapter 4
BICYCLE EDUCATION AND SAFETY

A. INTRODUCTION

Unfortunately, too many bicyclists in the United States lack the basic skills or knowledge to safely ride a bicycle in traffic. Bicycle education programs are designed to increase bicycle safety by improving the ability of cyclists to ride with traffic as well as heighten motorist awareness. The difficulties faced in helping cyclists develop this skill and knowledge stems from the wide range of age groups that require this training and the necessity to tailor the programs for each one. For example, young children should be taught the basic rules of the road in conjunction with hands-on bicycling instruction. Adults benefit most from a program designed to impart the responsibilities of bicycle riding, demonstrate how to safely share the road with motor vehicle traffic, and provide tips on the benefits and methods of bicycle commuting. Bicycle education programs should be directed at the following groups:

- Child Bicyclists
- Adult Bicyclists
- Motorists
- Law Enforcement Officials

Attempts by a community to provide all these programs can definitely put stress on a system that is already overloaded; money and man-power are in short supply in every jurisdiction. For this reason, a community must explore all possible avenues in designing and implementing a bicycle education strategy. Public agencies such as city planning, public works, police, community development and school districts must be brought into the effort. Community and civic organizations, employers, local businesses, and cycling clubs should also be tapped as resources. Some of the most successful programs are the result of coalitions of public agencies and private groups working together toward a common goal.

In general, bicycle education programs can be described as those which develop awareness and provide information, such as posters, brochures and videos; and those that change behavior and/or develop skills, such as programs with on-bike instruction. Programs can take many forms including hands-on riding instruction, teaching of adults who supervise children, public awareness programs, instruction for motorists, law enforcement and community events. The key to any bicycle education program is to reach your target audience. In other words, getting people to participate. Bicycle promotion programs, discussed in the following chapter, are intended to increase the community's awareness of the benefits of bicycling and can also serve to improve safety for bicyclists.

As previously mentioned, bicycle education programs can take many forms and are generally directed at either child and adult bicyclists and/or motorists, law enforcement officials or the community at-large. Children are at the greatest risk for injury due to bicycle-related accidents. Therefore, children tend to receive more attention with bicycle education strategies than adults, motorists and law enforcement officials. The following sections will include discussion of the characteristics of the bicycle education programs most suitable for each group listed above. Additional information on education programs and relevant resources will be included in the Appendix.

B. CHILD BICYCLISTS

Most bicycle safety efforts target elementary school-aged children and their parents. Programs for beginning bicyclists, between the ages of five and eight, focus on parents and the role they play in selecting the proper size and type of equipment, in supervising their child's use of that equipment, and in teaching the basic mechanical skills needed to start, balance, steer, and stop a bicycle. Parents may be reached through parent-teacher associations and children through programs sponsored by the schools, day care centers, summer camps and boys and girls clubs.

Children pose a special safety problem as they learn to ride bicycles. Learning to ride by the rules, look for traffic and use hand signals are not second nature, these skills must be taught. Bicycle education programs should start early as children learn to ride and be modified as the years go by to focus on the needs of each age group. There is a critical window for learning and integrating traffic skills defined by children's development on one end and the age at which they are most at risk for crashes and injuries on the other end. Children between the ages of nine and ten are the optimal target for learning how to enter and exit the roadway; scan ahead, behind and to the side while riding straight; and communicate and cooperate with other road users.

Bicycle education programs directed at children should include basic instruction on rules of the road and training to develop the skills necessary to ride a bike. Bicycle education for children has traditionally taken place in the schools. In Cupertino, the Cupertino Union School District has contracted with two bicycle education companies (*Safe Moves* and *ALTRANS*) to conduct their programs for the elementary and junior high schools. *Safe Moves* provides a hands-on bicycle training program at the elementary and junior high schools. *ALTRANS,* short for Alternative Transportation Solutions, is currently conducting a three-school pilot program (Lincoln Elementary School, Kennedy Junior High School, and Monta Vista High School) focused on encouraging students to use alternative means for getting to school, i.e. walk, bike, carpool and transit. The program consists of once-a-year classroom and assembly presentations with a year-round presence maintained with newsletters, trip planning services, poster contests and monthly giveaways for alternative transportation commuters. The program is expected to expand to all Cupertino schools next year.

Professor William Moritz at the University of Washington has proposed that the one-shot method of Driver's Education for high school sophomores be replaced with a curriculum that spans most of their primary and secondary school career. Four major areas of instruction would be taught at four stages of the students' development. In grades K-3, students would learn basic pedestrian

skills, stranger danger, crossing residential streets, using pedestrian push buttons, taking a school bus, etc. Older students in Grades 4 to 5 are ready to learn bike safety and handling skills, including bike operation on streets with supervised bike rides on neighborhood streets. (This is being done in many states including Hawaii, Montana, Florida, and North Carolina). Later, in Grades 7-9, they would learn basic mobility skills regarding how to get around town including using transit for utilitarian and recreational trips (how to read a bus schedule, execute a transfer, take rapid transit), and more on safe bicycling practices. By the time students reach Grade 10, they will have already become transit-independent and would be able to go places without having to be driven by someone. In tenth grade, students would take driver's education, as they do now. But driver's education would include focused instruction on how motorists should interact with pedestrians and bicyclists, how to predict their movements, pass safely, learn when different modes have the right-of-way, etc.

Bicycle education for children should include the following elements:

- **Kindergarten through Third Grade** - Pedestrian and bicycling safety education/safety training. *Safe Moves, ALTRANS* or other classroom/on-bike/transportation safety programs.
- **Fourth and Fifth Grades** - *Safe Moves, ALTRANS , Basics of Bicycling* (curriculum developed by Bicycle Federation of America) or other classroom/on-bike program to teach bike-handling skills.
- **Middle School and High School** - Can cover commuting as well as recreational uses, touring, racing; conducted by volunteer cycling advocates. High School - include bicycle education as part of driver's training courses. *Effective Cycling* (developed by the League of American Bicyclist) should serve as the foundation for training cyclists to ride safely in traffic and on the road.
- **Local Universities** - Promote cycling on campus, introduce *Effective Cycling* as physical education course (similar to racquetball, tennis, etc.).

Bicycle Helmets - Bicyclists under the age of 18 are required by California state law to be wearing a properly fitted and fastened bicycle helmet. Before 1994 when this law went into effect, over 25% of bicycle accidents involved head injuries. Of these, more than one-half were life threatening. Many communities have developed special programs to encourage the purchase and use of bicycle helmets. Helmet companies and bicycle shops have offered discounts for community and school programs to provide helmets at little or no cost.

C. ADULT BICYCLISTS

There are few materials and programs that focus on the adult rider, with the exception of *Effective Cycling*. Most adult bicyclists have not had any formal bicycle education in childhood outside of learning the basic mechanical skills. At the same time, there are misconceptions, myths and outdated advice that further challenge adult bicyclists' safety. For instance, some believe a bicyclist should ride facing traffic, and it is still common to see a bicyclist at night without the required headlights and reflectors. Bicycle education programs developed for the adult cyclist

need to educate cyclists about bicyclists' rights and responsibilities on the road and techniques for sharing the road with motorists.

The *Effective Cycling* course by the League of American Bicyclists (LAB) would serve the public need for cycling education and can be offered at bike shops, bike clubs, schools, churches and community centers. Promotional events such as *Cycle Commute Cupertino*, held in conjunction with Bike to Work Week also provide an opportunity to enhance bicycle education and encourage motorists to share the road. While it is often difficult to get adults to attend classes; community events such as charity bike rides, bike fairs and bicycle rodeos are useful in attracting adults and families in more recreational surroundings. Bicycle commuting programs sponsored by Cupertino's major employers have been successful in educating adult bicyclists and creating new bicycle commuters. Since most adult cyclists are also motorists, they can also be reached through programs discussed in the next section.

D. MOTORISTS

Motorists are probably the most difficult group to reach with bicycle education. Existing motorist-oriented programs typically reach their intended audience only at specific points. Some amount of bicycle education is distributed during driver education courses, driver licensing exams and traffic schools for violators, but, these events will only occur once every several years and are generally felt to be ineffective in changing driving behavior.

Public awareness campaigns are most useful for educating motorists on how to safely share the road with bicyclists, while at the same time reminding bicyclists of their rights and responsibilities. Media campaigns, community events, and family activities can be useful in raising awareness regarding bicycle/motorist safety. Parents who attend bicycle education events with their children may learn something themselves about bicycle/motorist safety that can help to reinforce the safe-cycling of their children.

E. LAW ENFORCEMENT OFFICIALS

To make bicycling safer, the Santa Clara County Sheriff's Department must enforce traffic regulations for children, adult bicyclists and motorists. Deputies are hesitant to cite bicycle offenders, especially children, because they believe it will result in negative publicity for the Department. As a result, children and adult bicyclists are under the impression that they are not required to observe the rules-of-the-road while on a bicycle. Accident analysis reveals that the majority of reported bicycle/automobile accidents are caused by bicyclists who failed to follow the rules of the road. The most common violations causing accidents are cyclists who ride on the wrong side of the road, cycle at night without lights, or are unpredictable as they proceed down the road. Consequently, enforcement should be viewed as an integral part of the bicycle education program, and as a most effective way to reduce the frequency of bicycle/automobile accidents.

In 1994, California made it easier to use enforcement as a bicycle education and safety tool. Changes to the Vehicle Code allow local authorities to reduce fines for bicycle offenses in their jurisdiction. Previously, bicyclists were fined at the same rates as motor vehicle offenders. For example, a bicyclist running a red light would receive a ticket for the same fine amount as a motorist. The Sheriff's Department has a reduced schedule of fines that it imposes on driving violations committed by bicyclists.

In order for Cupertino's bicycle traffic enforcement program to work effectively, deputies need education on how best to approach an offender and what violations should be earmarked for enforcement. The bicycle fine structure should be reviewed periodically to ensure that fines are not excessive, and deputies should be encouraged to impose them with sufficient regularity. Cupertino's bicycle traffic enforcement program should be accompanied by a media campaign to inform residents that bicycling offenders will be cited.

Other opportunities to link enforcement with education include bicycle traffic schools, run in a manner similar to auto traffic schools, and used to educate bicyclists on the safe and legal riding techniques. Fines would be waived by attending traffic school. Motorists who cause a bicycle-related accident could also be sent to bicycle traffic school where they could learn how to safely share the road. In lieu of a fine, child offenders can be required to attend a safety class with their parents, thereby providing the opportunity to educate both children and adults.

To enhance the observance of the traffic regulations by bicyclists, this Plan would encourage that a selected number of Sheriff's Department and the City's Code Enforcement personnel be assigned to patrol the area by bicycle. Throughout the country, many cities have demonstrated the effectiveness of community-based policing utilizing bicycles in place of patrol cars. Clearly, a deputy on a bicycle can speak with greater authority about unsafe cycling practices and code violations committed by bicyclists.

Chapter 5
BICYCLE PROMOTION PROGRAMS

A. INTRODUCTION

In the present climate of mandated reductions in automobile use, a variety of Transportation Demand Management (TDM) programs have been implemented by state and local governments and private industry. These programs have focused on education and incentives to get commuters out of single occupant vehicles. Carpools, van pools, and transit are the most popular alternatives. Bicycle commuting is an often overlooked or underutilized opportunity for attaining significant reductions in the use of single occupant vehicles.

The use of a bicycle for commuting and utility purposes has gained a good deal of publicity in the San Francisco Bay Area over the past few years. Demands for improved access to the Bay Area Rapid Transit (BART) and CalTrain have resulted in positive changes for bicycle commuters. Likewise, planned improvements to provide bicycle access to the San Francisco Bay and Richmond-San Rafael bridges will provide important bikeway links for the cycling commuter.

For this section, we have researched existing bicycle commuting programs in the Bay Area, and around the country, sponsored by both governmental agencies and private industry. Responses to our investigation have revealed a wide variety of programs, and a good deal of interest by those surveyed in the results of our study. As an aside, we found that some companies were reluctant to promote bicycle commuting over concerns for employee safety and employer liability. With some employers, bicycle access to company facilities is severely limited by barriers and dangerous traffic conditions, although this is not a problem in Cupertino. Whether these are legitimate concerns or convenient excuses, they were expressed by commute coordinators for several companies, resulting in company policies that fail to promote bicycling as a commute alternative. Senate Bill 1360, approved September 17, 1994, provides that an employee who voluntarily participates in an alternative commute program is not acting within the course of his or her employment (unless he or she is paid a regular wage or salary in compensation for those periods of travel) and thus would not be eligible for workers' compensation if injured. Paradoxically, however, it further states that ". . . An employee who is injured while acting outside the course of his or her employment, or his or her dependents in the event of the employee's death, shall not be barred from bringing an action at law for damages against his or her employer as a result of this section."

At those companies with bicycle promotion programs, the success rate was difficult to assess in quantitative terms, since information on the number of bicycle commuters before and after implementation of these programs was not available. However, Commute Coordinators did provide an estimate of the current number of bike commuters as a percentage of the employee base, and evaluate promotion programs based on a demand for the services, i.e., how many bicycle lockers are checked out, how full are bicycle parking rooms, how many participants

enrolled in incentive programs, etc. The complete database from our research is included in the appendix.

B. BICYCLE PROMOTION PROGRAMS

Promotional programs encouraging bicycle commuting are sponsored by a broad cross-section of employers, ranging from business and industry to schools, universities and local government. The most successful programs result from collaboration between the public and private sectors. The specifics of each program differ based on the potential audience, but experience has shown that an effective Bicycle Promotion Program must include the following elements:

- Identification of the many benefits of bicycle commuting;
- Incentives to reward the use of a bicycle as a commuting vehicle; and
- Recognition and support from the program's sponsor for each individual that commutes by bicycle.

Identify Benefits of Bicycle Commuting

Before the bicycle can be considered as an alternative mode of transportation, the availability, feasibility and benefits of bicycle commuting must be known. Many people are not aware of the advantages that bicycle commuting can provide, such as, an excellent way to get needed exercise; a fun way to beat the traffic; a gentle and non-polluting means of helping the environment; a cost effective mode of transportation, etc. An extensive advertising campaign must be developed to get the message out. The actual components of this campaign will depend upon what group is being targeted, i.e., employers, employees, students or the general population. A campaign will be most successful if it is tailored to a specific group, and addresses the questions and concerns of that group.

This campaign should include information about monetary, environmental and health benefits of bicycle commuting. It should also address and attempt to dispel many of the perceived obstacles to bike commuting. Many of the TDM programs currently in effect use newsletters, special events, and workshops to educate potential bicycle commuters. Information should be included on what kind of bicycle and other equipment is needed, where safe and secure bicycle parking is located, where bike shops are located, and the available transit-access options. Bicycle route maps, safety information, effective-cycling pamphlets and flyers of upcoming bicycle events can be distributed in employee paycheck envelopes or mailed with utility bills to reach the population of a city, county or region.

Some of the existing programs go even further and provide a bicyclist information network. These networks can be used by the potential bicycle commuter to learn what the best commute routes are for their personal needs, to locate experienced bicycle commuters in their area who are willing to advise and escort them during their first bicycle commutes, and to find out what events and activities are coming up. RIDES for Bay Area Commuters provides this service for potential bicycle commuters including information about bicycle access on bridges and transit throughout the area.

Many people are unaware of the opportunities that are available today to combine transit with the bicycle commute. VTA buses have front-loading bicycle racks and CalTrain has special racks for carrying bikes. In other counties, bicycles can be brought on to all ferries and bicycles can be brought on to BART during off-peak hours, and in the non-commute direction during peak hours. In addition, many CalTrain stations and BART stations have bicycle lockers available for rent.

Provide an Incentive to Use Bicycle Commuting

Many of the existing TDM programs use monetary or other incentives to entice the prospective participant out of their single-occupant-vehicle and into a carpool or transit. Many TDM programs include similar incentives for bicycle commuting, but these can often be expanded using the existing transit and carpool incentives as a guideline. The most effective incentives for bicycle commuting currently being used include:

Bicycle Infrastructure - Good bicycle routes providing access to the locations frequented by the bicycle commuter are critical to an encouragement program. Bicycle route maps and identifiable directional signs are necessary to guide the bicycle commuter new to the area. Obviously, developing a bicycle route network to serve its employees is beyond the ability of the company, but must be accomplished by local city and county governments. However, a company can lobby local government for improvements to bicycle access for its employees, or institute an "Adopt-a-Lane" program to construct, maintain or beautify bicycle facilities in the area. Interest and support by the business community in bicycle transportation will serve to increase the interest and support of local governments and potential bike commuters.

Parking - The provision of secure, protected, convenient and inexpensive bicycle parking is crucial to the success of bicycle commuting promotion.[1] Suitable bicycle parking can be provided with bicycle lockers, bicycle storage rooms, locked cages, and attendant parking. Allowing bicycles into the workplace is the least costly parking for the employer to provide. However, space is not always available in the workplace for the parking of bicycles and often bicycles are not allowed into the buildings themselves. It may be necessary for the employer and employees to work with building owners/operators to negotiate for permission to bring bicycles inside or for a suitable bicycle storage room. A number of communities have modified their parking ordinances to include requirements for bicycle parking and/or showers and locker rooms. This normally is applicable to requests for new building permits.

Cash Incentives - Several varieties of cash incentives to employees to encourage bike commuting were found in this research. As part of many TDM programs, a subsidy is given to employees who use transit or other alternative commute modes. Several companies have also made this cash

[1]At Hewlett-Packard in Silicon Valley, over 140 bicycle lockers have been in high demand since they were installed; there is currently a waiting list for their use. At Adobe Systems in Mountain View, bicycle parking is available in certain stairwell areas. Parking is controlled by a formal posted policy approved by Adobe's Facilities and Security Departments and the city's fire department. These parking areas are kept organized with bicycle floor stands like those used for bike display in bike shops. Sun Microsystems, Palo Alto, and Walker, Richer & Quin, Inc. of Seattle both have secure bike storage rooms with card-key access.

dividend available to bicycle commuters for each day that they commute by bicycle.[2] Discounts or credits at bicycle stores and/or company stores and cafeterias is another means for providing an incentive to employees for bicycle commuting.[3] The City of Palo Alto reimburses its employees $0.07/mile for authorized city business travel made on a bicycle.

Companies have been very creative in their attempts to lure employees out of their cars. In some of these programs, companies provide company bikes for a trial commute by the employee. Other companies assist the employee in the purchase of a bicycle. This latter program has taken many forms, including reimbursing the employee for the purchase after commuting for a period of time, providing financing for a new bike, or offering an easy payroll deduction plan.[4] Other possible encouragement might include paying employees for their bicycle commute time in excess of the time spent in the auto commute or giving bicycle commuters 15 minutes of additional vacation time for each day that they bike commute.

A parking cash-out program[5] is another opportunity to provide a cash incentive to employees while perhaps reducing costs to the employers. Under this program, the employee is able to "cash-out" parking privileges and receive the cash-equivalent or transit pass equivalent of the parking spot. Employers who lease parking spaces for their employees can reduce the number of spaces they require and pass this savings on to their employees while promoting commute alternatives.

Convenience Incentives - One of the primary obstacles to transit and bicycle commuting is the perceived inconvenience factor. TDM programs have addressed this concern with the Guaranteed Ride Home. In the event of sickness, family emergency, or even inclement weather, the bicycle commuter is provided with a taxi voucher or other means for a ride home. This is a small price to pay for the peace of mind of the employee and the increase in number of bicycle commuters. Many cities and companies provide fleet bicycles for employee use during business hours. Shuttles between company facilities have also been improved to include bike racks. Fleet bikes are often also available for the employee to use for their commute on a trial basis as discussed above.

Other convenience incentives are on-site bicycle repair kits for flat tire and broken chain emergencies, on-call repair services with a local bicycle shop, flex hours so the employee can avoid rush hour or darkness, showers and locker rooms for clean-up and changing after the

[2]At Apple Computer (Cupertino), Alza Corporation (Palo Alto), Cities of Menlo Park and Palo Alto, and General Electric (San Jose) employees are reimbursed $1/day for each day they bike commute. At Honeywell Satellite System Operations in Glendale, AZ, bike commuters are paid $0.25/day for their bike commute.

[3]Stanford University provides a yearly $70 voucher to any employee who does not buy a yearly parking permit good for bike services at the campus bike shop or for daily parking fees. The City of Palo Alto distributes monthly $20 vouchers for three local bike shops to any commuter who bikes 60% of the time. Fleetwood Enterprises in Riverside gives its regular bike commuters a safety package including helmet, reflective vest, and headlamp. The University of California at Davis gives regular bike commuters discount bus coupons for non-pedal days. NIKE in Beaverton, Oregon, gives employees a $1 credit at company store and cafeteria for each bike commute day.

[4] City of Palo Alto, and Fleetwood Enterprises (Riverside) offer company-owned bikes for trial bike commutes. Fleetwood Enterprises and Rockwell International (Southern California) go even further by subsidizing the purchase of a new bike and helmet.

[5] We were not able to find a parking cash-out program currently being used. Stanford University is evaluating the possibility of a cash-out program in the future.

commute, closet space for storage of clean clothes and relaxed dress codes for bicycle commuters.[6]

Support and Applaud Bicycle Commuting

Endorsement of bicycle commuting by those in charge is a significant aspect of a promotion program. Prospective bicycle commuters are more apt to try out this under-utilized mode if it is acceptable to the supervisors, elected officials and peers. Organized and advertised rides such as "Ride with the CEO" or "Ride with the Mayor" clearly demonstrate their support and enthusiasm. At one of the most successful state rides, *Cycle Oregon*, the Governor of Oregon gave the opening statement and then rode along with participants for a portion of the first day. Advertising campaigns aimed at informing commuters on the merits of bicycling should include endorsements by key officials as well as interviews with peers who currently commute by bicycle. Programs by a city or company to promote bicycle commuting should be as comprehensive as the programs established to encourage transit use. If cash subsidies are offered for transit use but not for bicycling, the message that bicycles are not as acceptable as transit is clearly being given.

Implementation of the programs discussed above will do a great deal toward encouraging bicycle commuting. Other interest-generating activities are monthly prize drawings for participants in the bicycle commute program. A *Bike-to-Work Day* program should be organized in conjunction with the annual national event in May. Similarly, *Beat-the-Backup Day* and *Earth Day* provide opportunities to coordinate bicycle events with existing regional events. But it is not enough to encourage bicycle commuting for one or two days a year. Bike days should be held on a regular basis, perhaps once a month. Competitions between departments or companies could be set up. A bicycle commute coordinator is essential to provide the information and encouragement for prospective bicycle commuters. Also, bicycle buddy programs to match new commuters with experienced commuters are helpful.

C. GUIDELINES FOR A BICYCLE PROMOTION PROGRAM

The following section is included to provide the businesses and government agencies in the City of Cupertino with the tools to promote bike commuting among their employees. The person leading this effort should be a member of City staff, preferably the Employee Transportation Coordinator or Bicycle Coordinator. A most imperative element to the success of this program is to have the support of key City officials. The City needs to clearly demonstrate its enthusiasm and support of bicycle commuting. Every City department must have a green light to prioritize bicycle commuting as a viable solution to traffic and parking problems. A commitment from the City to improve safety conditions (i.e., provide bike routes, remove traffic obstacles, and prosecute both motor vehicle and bicycle traffic offenders) and provide secure parking is crucial to this endorsement. It is also important that the public see the City and City employees are taking the lead in demonstrating the positive aspects of bicycle commuting by doing it themselves. Initially, the City of Cupertino should develop and administer a bicycle promotion program for City employees that can later serve as a role model for the Cupertino's largest employers. The bicycle promotion program can be incorporated into an existing Transportation Demand

[6] Hewlett Packard has bike repair stations on site. Silicon Graphics provides bike repair service from a mobile provider.

Management program especially for companies with over 100 employees which are mandated by law to have a TDM program to promote alternative modes of transportation.

To achieve the greatest response possible, it is imperative to get key decision-makers, both public and private, to support and participate in bicycle commuting. The TDM Coordinator at each company will be the key person in making bicycle commuting a success, since they are the individuals designated at their companies to promote commute alternatives. The TDM Coordinator will be able to implement company-wide mailings, on-site bicycle events and other tactical program elements of the bicycle promotion program. The Human Resource/Benefits Manager is another good source for distributing promotion materials and information and may serve as the program leader for those companies without a TDM Coordinator. Involving the CEO or president, mayor and city council will set the pace for the program and gain immediate attention company-wide.

Employer Resource Kit

An employer resource kit should be prepared by the City of Cupertino to assist local companies in shaping their bicycle promotion program. This packet should include:

- Sample letter from the CEO/President explaining the Pilot Employer Outreach Campaign and urging his/her employees to consider the bicycle when making commute choices. Local companies can use the text, fill-in the correct name, and distribute as the program kick-off.
- Articles about bicycling as a great commute alternative. These stories can be used in company newsletters, as all-staff memos, bulletin board fliers or any other outreach method in place at the company.
- A list of programs and events for use in the company's program. The list will provide details of existing events as well as new programs that could be implemented. City-sponsored events should be included in this list.
- A resource list detailing sample bicycle promotion programs, resource centers for bicycle promotion assistance, and local bicycle coalitions. This list will be invaluable for the companies that may not be aware of the benefits of bicycle commuting.
- Route maps showing the best bike commute routes in Cupertino to be distributed and posted. Many potential bike commuters could find the option more appealing with information about the fastest, safest and easiest routes to use.
- Bicycle Safety and Road Sharing Brochures developed through the education program discussed in Chapter 4.
- Listing of Local Bicycle Stores where employees can find the correct equipment for their bicycle commute.

Sample Bicycle Promotion Events and Activities

Special events to highlight the efforts in promoting bicycle commuting will help give attention to the program and provide an opportunity to educate about bike commuting. Events will motivate

employees to consider bicycle commuting and put potential riders in touch with peers who commute by bike.

"White bike program" - This program involves distributing a fleet of color-coded bicycles around the community. Potential users simply find a bicycle, ride it to their destination, and leave it for someone else to use.

Bicycle Hot Line - Telephone Hot Line for reporting potholes, missing bike route signs or other bicycle related hazards. The system could also be expanded to provide bicycle news on upcoming events.

Media Campaigns - Television and radio public service announcements can help reach a broad audience. A weekly bicycle newspaper column that can discuss local bicycling news as well as advertise upcoming events.

Bicycle safety demonstrations - These demonstrations can be held at a company during lunch hour, at schools, fairs or other city events. The City, local business, local bicycling clubs or advocacy groups, such as SVBC (Silicon Valley Bicycle Coalition) can sponsor these demonstrations.

"Cupertino Bicycle Safety Week" - This week-long event can promote the benefits of bicycling to a wide audience and for the full range of trip purposes, i.e. commuting, recreation, running errands. Programs in the schools can be coordinated as part of the program. This event can culminate in the "Bicycle Commute in Cupertino Ride" one evening bringing together all the participants. This event is a perfect opportunity for folks who haven't been on a bicycle in years to rediscover the joy of riding. This ride is not intended as a race, but as an opportunity for the participating "bicycle-commute teams" to compete against each other to see who will have the greatest number of riders. The winning teams can be awarded a trophy and discount coupon to a bicycle store. The goal is for each participant to have a fun, non work-related event combined with an enjoyable bicycle experience. As a result, some of the participants might consider bicycling as a viable commute alternative.

To maintain interest and attention to bike commuting after the "Bicycle Safety Week" is over, a monthly or quarterly City ride should be organized. These rides would be supervised and designed with clear safety guidelines and a pre-determined route. Additionally, a Bike Day can be instituted on the third Thursday of every month on which everyone is encouraged to only ride his or her bike.

Worksite Improvements - Companies that currently don't have a suitable park-and-lock area for bicycles should be encouraged to identify and designate such an area. Employees will be more likely to ride their bicycles to work if they have a safe space to park.

Incentive Programs - Incentive programs have had success in other commute alternative programs, and the implementation of such a campaign could be the vital link to the overall growth

of bicycle commuting in Cupertino. These programs, discussed in detail earlier in this chapter, provide a convenience or cash incentive to bike commute. They include:

- Cash dividends to bike commuters;
- Monthly drawings for cash or prizes;
- Mileage reimbursement for company business travel by bike;
- Discount coupons or credit at bike stores, company stores and cafeterias;
- Bike purchase financing;
- Credit of work time or vacation time;
- Flexible work hours;
- Guaranteed ride home;
- Fleet bicycles for day-use or bike-commute try-out;
- Showers and clothing lockers on-site or at a nearby health club;
- Relaxed dress codes; and
- Repair kits and on-call repair services.

City Employee Bicycle Pool and Bicycle Club - The City can set an example by promoting utilitarian bicycle use among its own employees. A program of providing a city employee bicycle pool, similar to a pool of city motor vehicles should be considered. Bicycle parking facilities, helmets, and safety vests would be needed in addition to bicycles. The City might consider offering a short bicycle safety course to employees before they participate in the program. The City should also encourage commuting bicyclists to form a Bicycle Club.

Sources for Information on Bicycle Promotion Programs

There are many bicycle commute advocacy groups who are available to assist in developing all or part of a bicycle promotion program. They are able to answer questions ranging from "What are the best bike lights for night riding" to "how do we put together a bicycle awareness program." A list of these organizations and their contact information is included in Appendix H.

Chapter 6
IMPLEMENTATION PLAN

A. INTRODUCTION

This chapter presents the implementation plan for the bikeway network for City of Cupertino. It describes the components of implementation including general cost estimates, the prioritization criteria, identification of likely funding sources, and the ways the projects will become reality.

B. PROCESS

The actual implementation of this plan will occur incrementally in a variety of ways. Many projects will be incorporated into the Capital Improvement Program (CIP) process and will be implemented as the CIP projects get funded. Others will happen as part of regular maintenance and operations practices and road resurfacing projects. Development and redevelopment in some areas of the City will present the opportunity to implement some of the recommendation of this plan. Finally, outside funding can be obtained to finance the design and construction of other projects, improvements and programs. The most likely funding sources are addressed in the last section of this chapter.

C. COST ESTIMATES

The cost to implement the projects presented in Chapter 2 were developed in conjunction with City staff. Unit costs are presented in Appendix I but it should be recognized that unit costs vary considerably depending on the size of the job and the location. For example, the unit cost of striping only 1000 linear feet can easily cost two to three times that of a 15,000 foot project. Pavement widening costs also vary considerably depending on the terrain, and other variables such as presence of utility poles, drainage ditches and culverts. The cost estimate for each route segment is presented in the route description sheets in Chapter 2 and in the table in Appendix C. It is estimated that the cost to implement the entire bikeway network outlined in this plan would be about $15 million.

D. ROUTE PRIORITIZATION CRITERIA

Before any projects can be implemented, the numerous projects identified in this plan must be prioritized. An objective set of criteria is essential to avoid controversy among various project proponents as well as to efficiently respond to funding applications. The prioritization criteria presented below were derived from criteria specified by various funding sources as well as knowledge of bicycle planning obtained from previous studies. The criteria used in three common funding sources is presented below as background information to the presentation of the prioritization criteria used in this study.

Bicycle Lane Account

- Will the project be used mostly by bicycle commuters?
- Does the project have the potential to increase bicycle commuting?
- Is the project the best alternative for this situation?
- Will the project improve continuity with existing bikeways?
- Will the project provide a direct route to activity centers?
- Is the project consistent with the (City's) Bicycle Transportation Plan?

Transportation Development Act Article 3

The Metropolitan Transportation Commission (MTC) processes each county's TDA applications but gives great leeway to each county to prioritize their own projects. Thus, MTC does not apply criteria directly to the TDA projects. However, its application sheet identifies the following evaluation criteria:

- Elimination of problem areas;
- Access to or bicycle parking in high activity areas;
- Bicycle/transit or pedestrian/transit use;
- Continuity of longer routes; and
- Local support.

Proposition 116

Many bikeway projects throughout the state were funded using Proposition 116 funds. Although Proposition 116 funds have all been allocated, the criteria used to allocate these funds were:

- **Need** with three subcategories: solves problem areas, serves commuters and best alternative;
- **Convenience** with four subcategories: removes obstacles/gaps, direct route to activity centers, links activity centers, promotes intermodal trips;
- **Safety** with three subcategories: eliminates hazards, improves personal safety of bicycle commuters, reduces theft;
- **Funding Considerations** with three subcategories: comparative costs, other funding sources, and ongoing financial support; and
- **Support** with two subcategories: letters of support and public participation.

E. CITY OF CUPERTINO PRIORITIZATION CRITERIA

Four main categories were used in prioritizing the bikeway projects. Two of the categories are subdivided resulting in a total of nine sub-categories. Each sub-category is scored on a three-part scale from High, Medium and Low. Safety has the most sub-categories - four. The net effect of this is that safety is weighted more than connectivity and connectivity is weighted more than commuting which has only one sub-category. The four main categories are:

- **Safety**- Safety for all users of the system is paramount. Projects that directly or indirectly improve safety are rated higher than others.
- **Connectivity** - Connectivity is important and projects that enable direct travel and that serve the most numbers of bicyclists are rated higher than others.
- **Commuter/Transportation Trips** - Projects which will be used primarily for transportation should be rated higher than those used primarily for recreation.
- **Local Support** - Routes which have demonstrated local support are rated higher.

The specific prioritization criteria for these four categories are presented on the next page in Table 1. At its November 16, 1998 meeting, the CBPAC then rated all the routes in this plan as either High, Medium or Low, using these criteria as a guide. A detailed scoring of all the projects within a priority level relative to each other may be developed by the CBPAC at a later date. Also, as projects are implemented and as future conditions change, it is anticipated that the CBPAC will revisit these priorities and revise them as needed. The priority of each route is indicated on each individual route description sheet. The ratings of all the routes are presented below in Table 2.

Table 1
PROPOSED PRIORITIZATION CRITERIA

Improves safety

1. Improves a safety problem or obstacle including railroad tracks, drainage grates, inconsistent shoulder width, street with limited sight distance, etc.
   Rationale *- Projects that eliminate an existing obstacle or hazard shall have priority.*

2. Improves routes with high vehicle volumes or high speed.
   Rationale*- Routes with high motor vehicle volumes have greater potential safety conflicts and thus should have priority. (One point for each 1000 vpd per lane plus one point for speeds over 45 mph up to a maximum of 5 points.)*

3. Improves routes or locations with high accident history.
   Rationale *- Locations that have had higher than normal bike accident rates (either bike-motor vehicle, single bike, bike-bike or bike-pedestrian) should have priority. One point for each reported accident along route within the last three years.*

4. Improves routes with narrow lanes or shoulders.
   Rationale*- Routes with the narrowest space for bicycles to ride have greater potential safety conflicts and thus should have priority.*

Improves connectivity

5. Closes gap between two streets or otherwise reduces/eliminates circuitous travel.
   Rationale *- Routes that provide continuity and directness should be ranked higher.*

6. Improves routes with high existing or potential bicycle traffic.
   Rationale *- All other things being equal, the route that has or would have the most bicycle traffic should have priority.*

7. Links with bike facilities in other jurisdictions.
   Rationale *- All other things being equal, the route which connects to adjacent jurisdictions should have priority.*

Facilitates commuter/utilitarian trips

8. Directly serves attractors/generators, including employment sites, schools, and shopping centers.
   Rationale *- Routes which provide access to major activity centers facilitating the use of the bicycle for transportation should be ranked higher.*

Local Support

9. Has special significant local support or is of particular interest to a community organization as measured by letters or citizens attendance at public meetings
   Rationale *- Routes that have special interest from the public interest, or private participation in funding, etc. have priority.*

Routes should be re-rated periodically to take into consideration new information, new funding sources, set-asides, updated accident statistics, etc. The ratings of most routes will not change but new circumstances may affect the ratings of some routes, and these should be taken into account.

Table 2 BICYCLE ROUTE IMPLEMENTATION PRIORITY LIST	
High Priority	
1	Foothill Boulevard./Stevens Canyon Road
4	Mary Avenue/Bubb Road
8	Blaney Avenue
10	Miller Avenue-Wolfe Road
12	De Anza National Historic Trail
13	Stevens Creek Recreational Trail
27	Bollinger Road/Kim St.-Kirwin Ln.
Medium Priority	
3	Orange Avenue/Fort Baker Drive/Santa Teresa Drive
11	Tantau Ave./Barnhart/San Tomas Aquino Trail On Street Route
21	Homestead Road
23	Alves Dr./Bandley Dr./Lazaneo Dr. /Forest Dr./ Pathway/ Amherst/Vallco Pkwy.
24	Stevens Creek Boulevard
25	Peppertree Ln./Rodrigues Ave./Wilson Park/Vicksburg Dr./Creekside Park/Phil Ln./Barnhart Ave.
Low Priority	
2	Mira Vista Rd./Palm Ave./Janice Ave.
6	Valley Green Dr./Bandley Dr. /Lazaneo Dr./Vista Dr. /Torre Ave.
9	Portal Road
22	Greenleaf Dr./Mariani Ave./Merritt Dr.
26	McClellan Road/Pacifica Drive
28	Rainbow Drive
Funded	
5	Stelling Road
7	De Anza Boulevard
29	Prospect Road

F. FUNDING OPPORTUNITIES AND STRATEGIES

Traditional Funding Sources

This section outlines the most probable funding sources to implement the recommended bikeway projects. While some funding sources are dedicated to the City, many are competitive. Lastly, the City of Cupertino receives funding for roadway projects that can be used to implement some bikeway projects in this Plan.

The following paragraphs describe in more detail the various funding sources that can be used to fund the projects in this report whether they be bicycle-specific or general transportation funds. Table 3 presents a more comprehensive list of the various local, regional, statewide, and federal funding sources that can be used for roadway, trail or traffic safety (including bicycle safety)

projects. The most likely funding opportunities for bicycle improvement projects in Cupertino are:

- Transportation Development Act Article 3 funds
- Bay Area Air Quality Management District funds - Transportation Fund for Clean Air (TFCA)
  40 percent Program Manager Monies/60 percent Regional
- Surface Transportation Program of the Transportation Equity Act of the 21st Century
  This is often used to fund projects with bicycle components. In fact, bicycle facilities enable the project to score higher.
- Office of Traffic Safety
  This funding source is often used for bicycle and pedestrian safety projects. It can be used for traffic calming programs as well.

Non-Traditional Funding Sources

In addition to the programs itemized in Table 3, there are several non-traditional funding sources that might be available for the long-term implementation of project and program recommendations. The following paragraphs briefly describe several of the unusual or innovative ways that communities have funded as part of their bicycle program.

Grant and Foundation Opportunities - Private foundations provide excellent opportunities for funding specific capital projects or single event programs. To qualify for these types of funds, the CBPAC, or an established non-profit group acting in their behalf, must exist. According to the 1994 "Foundation Directory," there are over 650 foundations within the State of California, many of them located in the Bay Area. The Directory only includes those organizations which held assets of $2 million or more, or gave $200,000 or more in grant awards in the previous year. In general, private foundations are initially established for specific purposes, e.g. children and youth needs, promotion of certain professional objectives, educational opportunities, the arts, and community development. There are four types of foundations located in the Bay Area:

- Independent Foundations
- Company-Sponsored Foundations
- Operating Foundations
- Community Foundations

A description of several foundations that favor environmentally-related projects is presented in the report "Guide to Bicycle Program Funding in California" published by the Planning and Conservation League Foundation, April, 1995. In general, private foundations prefer to fund programs that are special in nature such as conferences or children's education events, rather than programs viewed as city responsibilities such as constructing and maintaining roadways.

Adopt-A-Trail/Path Programs - Modeled upon the Southern California program of highway maintenance contributions, this program would post signs to indicate which individual or group has contributed to either the development, installation or maintenance of a particular bike facility.

Memorial Funds - These programs are advertised as potential donor projects to be funded via on-going charitable contributions or funds left to a particular project through a will. Most memorial projects include the location of a memorial plaque at a location specific to the improvement or a scenic vista point.

Revenue Producing Operations - As part of the development of a trail or bike path, plans can specifically include the location of a revenue producing operation adjacent to the proposed improvement. For example, bicycle rental facilities, food and drink establishments, bike storage facilities and equipment centers, and/or equestrian centers would be appropriate uses. The on-going lease revenues from these operations could then be used for trail/path maintenance.

Funding Strategy

Some funding sources do not provide more than one or two hundred thousand dollars per year. To fund a million dollar or more project with these sources would commit this one funding source for about ten years or more. This would be to the neglect of many other smaller projects that may be as beneficial. Although the prioritization criteria take into account the cost-benefit ratio, it still does not make sense to commit one source of funds for several years to only one project. Rather, smaller sources of funding such as TDA Article 3 and TFCA should be used for funding the less costly projects and larger pools of funding should be sought for the more expensive projects. For example, widening the shoulders of Stevens Canyon Road would be a good candidate for an STP project but not a TDA project.

G. CONCLUSIONS AND RECOMMENDATIONS

The recommended bikeway network consists of twenty-two routes which would cost a total of about $12 million to implement. These bikeways have been prioritized into high, medium and low categories, which will help the City staff focus their efforts on the projects of most importance to bicyclists. The identified funding sources and the assistance of the CBPAC will also assist City staff in bringing these projects to fruition.

The full implementation of the Cupertino Bicycle Transportation Plan will significantly improve the safety and mobility of Cupertino bicyclists. An increasing of the bicycle mode share will improve the quality of life of all Cupertino residents due to the resulting reduction in traffic congestion and neighborhood traffic impacts and improved air quality as well as pedestrian safety.

Recommendations to further Cupertino's progress into a bicycle-friendly city are:

1. Pursue funding and inter-agency cooperation in the development of the bikeway network.
2. Continue the active involvement of the CBPAC in the traffic engineering and transportation planning decisions that affect the safety of bicyclists on Cupertino's streets and intersections.

3. Expand and develop new bicycle safety programs to address the issues faced by bicyclists of all ages as well as motorists.
4. Expand and develop bicycle promotion programs to encourage and legitimize bicycle transportation for work, school, shopping, errands and other utilitarian trips.

Table 3

SUMMARY OF FUNDING SOURCES FOR BICYCLE PROJECTS AND PROGRAMS

Funding Program	Source	Eligible Use of Funds	Restrictions, Including Local Matching Funds	Maximum Dollar Allocation (Annual unless stated otherwise)	Application Due Date	Program Management/ Application/ Approval	Contact
Local Sources							
City of Cupertino	General fund	Bicycle Projects	na	na	na	na	
Regional Sources							
TFCA – County Program Manager's Fund	Regional-Bay Area Air Quality Management District, (BAAQMD) $4.00 surcharge on motor vehicle registration	Bicycle projects that reduce air pollution quality under 3 of 7 categories: Improve bicycle access & facilities; improve arterials. to encourage bicycling; and improve access to rail and ferries	Bicycle projects must be in an adopted county-wide bicycle plan or congestion management plan.	The City of Cupertino receives approximately ____ of $8 million Bay Areawide.	03/28	Apply through VTA. BAAQMD approval required.	VTA
TFCA – Regional Fund				$11 million (60% of total) in Bay Area. Maximum per project: $1 million. Minimum $10,000.	05/30	Apply directly to BAAQMD; BAAQMD approval required.	Michael Murphy, BAAQMD
Three Percent Toll Bridge Reserve - Regional Measure One	State: 3% of 1989 Bay Area bridge toll increase to $1	Bicycle facilities; mass transit, including ferries. Funds may be used for planning.	Must help relieve congestion on Caltrans Bay Area toll bridges.	$1.4 million in Bay Area.	05/01	Apply directly; MTC approval required.	Doug Kimsey, MTC
State Sources							
CA Bikeways Act - Bike Lane Account (BLA)	State: State Highway Account. Funded by gasoline taxes.	Specifically for development of bicycle facilities.	Required 10% local match. Plan must be adopted on or after July 1, 1996 (<2 years old) and approved by MTC and Calif. OBF.	FY 98/99: $786,800 FY 99/00: $1,000,000 statewide. Maximum per project: 25% Funds increase to $5 million statewide by year 2004.	01/31/99 two year cycle	Caltrans Office of Local Programs and Bicycle Facilities	Mel Aros, Caltrans, Office of Local Programs and Bicycle Facilities
Transportation Development Act Article 3 (TDA) Local Transportation Funds (LTF)	State: 2% of the ¼ cent of CA sales tax that is "returned to source" for local transportation projects	Construction and maintenance of bicycle and ped. facilities, including parking; safety and education (up to 5% of TDA funds); and bicycle plans. Projects that serve activity centers are viewed favorably.	Cannot be used to fully fund the salary of any one person.	Approximately $1,400,000 total for all jurisdictions in Santa Clara County. The City of Cupertino receives approximately $30,000 per year on average.	01/01	Apply through VTA; MTC approval required.	Marc Roddin, Santa Clara County Liaison, MTC

Table 3

SUMMARY OF FUNDING SOURCES FOR BICYCLE PROJECTS AND PROGRAMS

Funding Program	Source	Eligible Use of Funds	Restrictions, Including Local Matching Funds	Maximum Dollar Allocation (Annual unless stated otherwise)	Application Due Date	Program Management/ Application/ Approval	Contact
Environmental Enhancement and Mitigation (EEM) - Prop. 111/AB471	State	Roadside recreation facilities including trails are eligible.	Must be included in STIP and must mitigate the environmental impact of modified or new public transportation facilities. No funds may be used for planning.	$10 million statewide, of which 40% is allocated to northern counties. Maximum per project: $500,000. Exceptions made for merit.	11/01	Apply directly; CA Resources Agency and CTC approval required.	Bill Borden, State of CA Resources Agency
Habitat Conservation Fund (Wildlife Protection Act of 1990 - Prop. 117)	State	Trails in urban areas are an eligible category. Twenty percent of funds may be used for planning.	Required 50% match.	$1-$2 million statewide of which 40% is allocated to northern counties.		CA Dept. of Parks & Recreation	Project Officer, CA Dept. of Parks & Recreation , Local Assistance Section
Land & Water Conservation Fund (LWCF) - Land & Water Conservation Fund Act of 1965	State	Recreational development. Local agencies can receive 40% of the funds received by the state. Criteria include bicycle projects in high population areas, such as urban trails.	Required 50% local match (cash or in kind).		12/01 Continues until 2015	CA Dept. of Parks & Recreation	Project Officer, CA Dept. of Parks & Recreation , Local Assistance Section
State Coastal Conservancy (SCC) Shoreline Access Grants	State	Shoreline access. Has focused on SF Bay shoreline in recent years. Includes recreational trails.	Required local matching funds.	Variable	Continuous		Joan Cardellino, State Coastal Conservancy
Federal Sources							
TEA-21: Surface Transportation Program (STP) Section 1007 - Local guaranteed funds for maintenance and rehab of existing roadways	U.S. 85 Percent of STP after setasides and regional funds- see below	Construction of bicycle and pedestrian facilities including wide shoulders or bike lanes as part of roadway reconstruction or bicycle safety programs (such as brochures, maps, public service announcements).	Must be mainly for transportation rather than recreation and included in TIP. Requires 11.5% local or state match.	Bay Area share: 1997/98 –99/00:122 million; 2000/01-2003/04:134 million		Apply through VTA. MTC approval required.	Dave Murray, MTC (Doug Kimsey, MTC re: bicycle project eligibility).

Table 3

SUMMARY OF FUNDING SOURCES FOR BICYCLE PROJECTS AND PROGRAMS

Funding Program	Source	Eligible Use of Funds	Restrictions, Including Local Matching Funds	Maximum Dollar Allocation (Annual unless stated otherwise)	Application Due Date	Program Management/ Application/ Approval	Contact
TEA-21: Surface Transportation Program (STP) Section 1007 - Regional funds for corridor projects	U.S. 25 Percent of STP: regionally competitive program	Same as above	Same as above	Bay Area share; 1997/98 –99/00:$41 million; 2000/01-2003/04:$45 million		Apply through VTA. MTC approval required.	Dave Murray, MTC (Doug Kimsey, MTC re: bicycle project eligibility).
TEA-21: Surface Transportation Program (STP) Section 1007 - Transportation Enhancement Activities (TE)	U.S.: Setaside of 10% of the state's STP funds	Three out of the 12 TE's are bicycle related: 1) provision of facilities for peds/bikes; 2) preservation of abandoned railway corridors and 3) [new in TEA-21]: ped/bike safety and education activities.	Individual TEA projects can vary but the federal share of the overall State program must be no more than 80 percent. Must be included in TIP.	Regionally competitive maximum per project under ISTEA $1 million.		Apply through MTC; MTC and CTC approval required.	David Murray, MTC
TEA-21: Surface Transportation Program (STP) Hazard Elimination Safety (HES)	U.S.: Setaside of 10% of the state's STP funds	Funds may be used for activities including 1) a survey of hazardous locations; 2) projects on any publicly owned bicycle path or trail; or 3) any safety-related traffic calming measure. Locations that have a high documented accident history score well.	Hazard elimination projects are 90% federally funded.	Approximately $30 million allocated every two years.	10/01	Apply directly; Caltrans and FHWA approval required.	Al Raymond _____ Agency
TEA-21: Congestion Mitigation and Air Quality Improvement (CMAQ) - Section 1008	U.S.	Construction of bicycle and pedestrian facilities or bicycle safety programs, such as brochures, maps, public service announcements.	Must be mainly for transportation rather than recreation and included in TIP. Requires 20% local or state match.	In the Bay Area for each three year cycle, the following funds are available: Regionally competitive: Approx. $30 million. Returned to source: $90 million		MTC approval required.	Dave Murray, MTC
TEA-21: Transportation and Community and System Preservation Pilot. (new in TEA-21)	U.S.	Discretionary grants to improve efficiency, reduce environmental impacts, reduce need for costly infrastructure, ensure access to jobs, etc.	State, locals amd MPO's are eligible	120 million for FY's 1999-2003; $15 million in the Bay Area for each three year cycle			

Table 3

SUMMARY OF FUNDING SOURCES FOR BICYCLE PROJECTS AND PROGRAMS

Funding Program	Source	Eligible Use of Funds	Restrictions, Including Local Matching Funds	Maximum Dollar Allocation (Annual unless stated otherwise)	Application Due Date	Program Management/ Application/ Approval	Contact
FTA Section 3309 Mass Transit Capital Grants	U.S.	Projects providing transit station access, such as bicycle parking and facilities are eligible.	Must be included in RTIP. Requires 10% local match, public hearings and environmental assessments.	Only transit agencies or transit operators.	09/01	Apply through FTA Regional Office; MTC approval required.	Elisa Areas, Caltrans
FTA Section 5307 Mass Transit Formula Grants - Urbanized Area	U.S.	Same as above plus equipment to carry bikes on board transit vehicles	Same as above.	Only transit agencies or transit operators.	09/01	Same as above.	
Transit Enhancements (new in TEA-21)	1 percent setaside of Urbanized Area Formula program funds	Access improvements, bike parking, equipment to carry bikes on board transit vehicles	While most Transit Enhancements have 80 % federal funding, projects linking bikes to mass transit are eligible for up to 95 % federal funds	Only transit agencies or transit operators.			
TEA-21: Federal Transit Funding (Title III, Section 25)	U.S.	Projects that improve bicycle and pedestrian access to transit, provide shelters and parking facilities for bicycles at transit facilities, or install racks or other equipment for transporting bicycles on transit vehicles.	Only transit agencies or transit operators.				
FTA State Planning and Research Program		Planning studies to improve access to transit stations for bicyclists and pedestrians such as bike facilities and traffic calming					

Table 3

SUMMARY OF FUNDING SOURCES FOR BICYCLE PROJECTS AND PROGRAMS

Funding Program	Source	Eligible Use of Funds	Restrictions, Including Local Matching Funds	Maximum Dollar Allocation (Annual unless stated otherwise)	Application Due Date	Program Management/ Application/ Approval	Contact
National Highway Safety Act (Section 402) - (Title II, Section 2002) Traffic Safe Cities - State and Community Highway Safety Programs	U.S.	Identification and alleviation of traffic safety problems. Includes traffic records systems and accident studies to determine what improvements are needed. Bicycle projects include development and implementation of programs to increase awareness and local safety skills.	Must eliminate current deficiencies or expand existing programs. Cannot replace existing programs or be used for construction, maintenance, research or rehabilitation. Section 402 Highway Safety Funds are 100 percent federally funded.	None.	04/30	Apply directly; CA Office of Traffic Safety (OTS)	William Jacobs, OTS
TEA-21: National Highway System (NHS) Section 1006	U.S.	Bicycle and pedestrian facilities near any non-interstate National Highway System roadway.	Must be mainly for transportation rather than recreation and included in MTC's overall plan. Requires 20% local or state match.				
TEA-21: National Recreational Trails Fund Act (NRTFA) Section 1302	U.S.	Development and maintenance of recreational trails to benefit bicycles, pedestrians and other non-motorized users.	In general , 80 percent federal share. Must be included in Statewide Comprehensive Outdoor Recreation Plan (SCORP). Requires some state match after 3 years from off-highway recreational vehicle fuel tax.	Other restrictions: 30 % of a state's funds must be spent on motorized trail uses, 30 % on non-motorized uses, and 40 % on diverse uses, (i.e. snowmobile and motorcycle or pedestrian and equestrian).	10/01		CA Dept. of Parks & Recreation, Local Services Section

Table 3

SUMMARY OF FUNDING SOURCES FOR BICYCLE PROJECTS AND PROGRAMS

Funding Program	Source	Eligible Use of Funds	Restrictions, Including Local Matching Funds	Maximum Dollar Allocation (Annual unless stated otherwise)	Application Due Date	Program Management/ Application/ Approval	Contact
TEA-21: Scenic Byways Program Section 1047	U.S.	Construction of bicycle and pedestrian access facilities and safety improvements along highways. Designated scenic byways and partnership projects get highest priority.	Requires 20% local or state match.				Caltrans District 4, Regional Planning Branch
TEA-21: Bridge Repair and Replacement Program	U.S.	Bikeways are eligible when they exist or will exist on either side of the bridge and where safety permits. Caltrans prioritizes projects by lowest FHWA deficiency rating and two bridges may be replaced or rehabilitated each year.			10/01		Caltrans Division of Structures, Local Assistance and Programming Branch
Dept. of Commerce Economic Development Adm. Public Works Grants (PW) and Public Works Impact Programs (PWIP)	U.S.	Assistance for communities that provide jobs for the un- or under-employed in redevelopment areas. Jobs could be bike related such as bike parking attendants or other creative use of funds.					
Surplus Real Estate Program	U.S.	May be used for recreation, including bikeways and walkways.					GSA, Office of Real Estate Sales

Notes:

1) Funding Programs are first sorted by Source (Regional, State and U.S.) and then by Funding Program within each Source category.
2) All funding cycles and funding amounts are annual, unless stated otherwise. If a year is listed in the Application Due Date column, that is the next year that an application may be filed.. The actual due dates may change from those listed here.
3) No local matching funds are required unless stated.
4) The State or local funds used to match Federal –aid highway projects may include in-kind contributions such as donations. Funds from other Federal Programs may also be used to match Transportation Enhancements Program funds.
5) Maximum $ for Entire program column represents the amount funded in recent years.
6) If the day of month of an application due date is not know, the first of the month has been entered in the table.

Amounts listed are in current, not constant dollars.

Wilbur Smith Associates, October 1998

APPENDICES

Appendix A
COMPLIANCE WITH BICYCLE LANE ACCOUNT REQUIREMENTS

Appendix A
COMPLIANCE WITH BICYCLE LANE ACCOUNT REQUIREMENTS

This appendix describes how this plan meets the requirements of the California Bicycle Transportation Act. Some of the information is presented in the body of this report and the remainder is presented here.

a. The estimated number of existing bicycle commuters in the plan area and the estimated increase in the number of bicycle commuters resulting from implementation of the plan. *See pages 1-2 and 1-3.*

b. A map and description of existing and proposed land use and settlement patterns which shall include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings and major employment centers. *See Figures 1 and 2.*

c. A map and description of existing and proposed bikeways by class number (I, II, III). *See Figure 3 and text beginning on page 2-6.*

d. A map and description of existing and proposed end of trip bicycle parking facilities. These shall include, but not be limited to, parking at schools, shopping centers, public buildings, and major employment centers. *See Figure 8 and text beginning on page 3-2 and Appendix E.*

e. A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These shall include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park-and-ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels. *All Santa Clara Valley Transportation Authority buses have bike racks which carry two bikes. There are no other transit providers or hubs in Cupertino.*

f. A map and description of existing and proposed facilities for changing and storing clothes and equipment. These shall include, but not be limited to, locker, restroom, and shower facilities near bicycle parking facilities. *A description is provided on page 3-4. A map is not necessary since there are so few.*

g. A description of bicycle safety and education programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code pertaining to bicycle operation, and the resulting effect on accidents involving bicyclists. *See Chapter 4.*

h. A description of the extent of citizen and community involvement in development of the plan, including, but not limited to, letters of support. *The Cupertino Bicycle Pedestrian Advisory Committee was closely involved with every phase of this study. They meet monthly, and advised the city and the consultant on all pieces of the plan. They also conducted field reviews and inventories of bicycle parking and other facilities.*

i. A description of how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, programs that provide incentives for bicycle commuting. *See page 1-3.*

j. A description of the projects proposed in the plan and a listing of their priorities for implementation. *See individual route sheets in Chapter 2, prioritization criteria in Chapter 6, and Table 2*

k. A description of past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.

The City of Cupertino has institutionalized many bike improvements and has not developed a separate book-keeping process for bike improvements. The following is a list of recent grant funding the City has received to supplement their own projects. Appendix C and the route sheets in Chapter 2 describe the future financial needs to implement the entire bike plan.

West Stevens Creek Blvd. bike lanes: TDA grant: $30,174.

S. Stelling Rd. bike lanes:	*TFCA grant:*	*$80,000*
	local match:	*$20,000*
	total:	*$100,000*

De Anza Blvd. bike lanes:	*TFCA grant:*	*$48,000*
	local match:	*$12,000*
	total:	*$60,000*

Comprehensive bicycle and pedestrian safety program: HSP grant: $47,000

Appendix B
CENSUS DATA

Excerpts from:

- **Working Paper #2**
- **Working Paper #7**

MD

Bay Area
Travel and Mobility Characteristics

1990 Census

Working Paper #2

By Place of Residence

Planning Section
Metropolitan Transportation Commission
101 Eighth Street
Oakland, California 94607-4700

August, 1992

Table B.1 (Continued)
Compare Bay Area to Neighboring County, 1990
1990 Census – Summary Tape File 3A

1990 Census Variable	San Francisco County	San Mateo County	Santa Clara County	Alameda County	Contra Costa County	Solano County	Napa County	Sonoma County	Marin County	Bay Area
Total Population	723,959	649,623	1,497,577	1,279,182	803,732	340,421	110,765	388,222	230,096	6,023,577
Household Population	699,330	637,628	1,463,219	1,242,068	793,585	326,662	105,085	380,558	221,548	5,869,683
Total Households	305,584	241,914	520,180	479,518	300,288	113,429	41,312	149,011	95,006	2,246,242
Persons per Household	2.289	2.636	2.813	2.590	2.643	2.880	2.544	2.554	2.332	2.613
Employed Residents	391,292	353,626	812,345	648,461	409,351	162,219	52,683	194,387	127,579	3,151,943
Employed per Household	1.280	1.462	1.562	1.352	1.363	1.430	1.275	1.305	1.343	1.403
Workers at Work	382,309	346,559	796,605	633,191	401,173	158,713	51,573	190,431	125,080	3,085,634
Worked in County of Resid.	307,400	201,506	710,365	446,162	239,908	97,477	38,431	155,802	73,235	2,270,286
% Worked in County of Resid.	80.4%	58.1%	89.2%	70.5%	59.8%	61.4%	74.5%	81.8%	58.6%	73.6%
Worked in Other Counties	74,909	145,053	86,240	187,029	161,265	61,236	13,142	34,629	51,845	815,348
Mean Minutes Traveled to Work	26.9	24.0	23.3	25.8	29.3	28.2	21.4	24.1	28.4	25.6
Commute Time 60+ Minutes	26,499	20,543	38,498	46,725	52,572	22,814	3,867	18,149	13,149	242,816
% Commute Time 60+ Minutes	7.2%	6.1%	5.0%	7.7%	13.6%	14.8%	7.8%	10.0%	11.2%	8.1%
Mean Vehicle Occupancy	1.146	1.090	1.079	1.098	1.101	1.136	1.089	1.089	1.095	1.097
Drive Alone Commuters	147,187	251,218	618,995	422,775	286,754	114,233	38,766	142,074	82,714	2,104,716
% Drive Alone	38.5%	72.5%	77.7%	66.8%	71.5%	72.0%	75.2%	74.6%	66.1%	68.2%
Carpool Commuters	43,925	45,104	98,163	80,773	55,488	29,320	6,605	24,760	15,535	399,673
% Carpool	11.5%	13.0%	12.3%	12.8%	13.8%	18.5%	12.8%	13.0%	12.4%	13.0%
Transit Commuters	128,160	25,788	23,727	63,138	31,344	3,604	570	4,351	12,899	293,581
% Transit	33.5%	7.4%	3.0%	10.0%	7.8%	2.3%	1.1%	2.3%	10.3%	9.5%
Working at Home Commuters	14,479	9,532	19,986	24,886	13,653	4,180	1,892	9,316	8,162	106,086
% Work at Home	3.8%	2.8%	2.5%	3.9%	3.4%	2.6%	3.7%	4.9%	6.5%	3.4%
Walk to Work Commuters	37,611	8,858	16,509	25,136	7,371	3,916	2,619	6,209	3,739	111,968
% Walk to Work	9.8%	2.6%	2.1%	4.0%	1.8%	2.5%	5.1%	3.3%	3.0%	3.6%
Bicycle Commuters	3,634	2,606	11,675	7,919	1,933	1,187	626	1,975	918	32,473
% Bicycle to Work	1.0%	0.8%	1.5%	1.3%	0.5%	0.7%	1.2%	1.0%	0.7%	1.1%
Mean Household Income	$45,644	$59,521	$57,913	$45,995	$55,033	$43,598	$46,522	$44,331	$67,828	$52,082
#HH, No Vehicles in Household	93,806	14,683	27,326	58,711	19,129	6,516	2,741	8,741	4,879	236,532
% HH, No Vehicles	30.7%	6.1%	5.3%	12.2%	6.4%	5.7%	6.6%	5.9%	5.1%	10.5%
Total Household Vehicles	323,304	455,620	1,037,689	804,327	572,878	220,208	78,407	282,450	175,343	3,950,226
Vehicles / Household	1.06	1.88	1.99	1.68	1.91	1.94	1.90	1.90	1.85	1.76

Table C-1 Transportation-Related Data at Place-of-Residence, 1990 Census STF3A

Cnty	Place	Employed Residents	HH AO=0	HH AO=1	HH AO=2	HH AO=3+	Total HH	Vehicles Owned	Drive Alone	Carpool	Transit	Walk	Other	Work At Home	Bicycle	Shared Ride 2	Shared Ride 3+	Total Pop.	Families	Vehicle Driver
SF	San Francisco	391,292	93,806	127,271	64,379	20,128	305,584	323,304	147,187	43,925	128,160	37,611	10,947	14,479	3,634	32,881	11,044	723,959	143,818	166,764
SM	Atherton	3,525	34	267	1,047	1,055	2,403	6,084	2,559	88	165	297	50	310	33	59	29	7,163	1,882	2,597
SM	Belmont	14,885	544	2,853	4,238	2,470	10,105	19,811	11,592	1,463	671	391	126	411	63	1,265	198	24,127	6,420	12,278
SM	Brisbane	1,705	99	456	456	289	1,300	2,322	1,283	238	74	42	26	24	8	180	58	2,952	712	1,387
SM	Broadmoor	1,885	44	369	468	329	1,210	2,418	1,287	275	149	61	16	42	0	257	18	3,747	998	1,420
SM	Burlingame	15,072	974	5,182	4,234	1,939	12,329	20,175	11,265	1,367	1,124	409	272	381	149	1,194	173	26,801	6,723	11,907
SM	Colma	577	39	127	164	71	401	679	329	104	82	28	4	16	0	88	16	1,091	273	378
SM	Daly City	48,796	2,507	10,665	10,004	5,887	29,063	50,830	26,817	9,532	8,863	893	697	618	48	7,374	2,158	92,315	21,778	31,134
SM	East Palo Alto	10,065	651	2,903	1,940	1,459	6,953	11,942	6,622	1,859	808	191	210	179	147	1,437	422	23,451	4,788	7,476
SM	El Granada	2,502	43	323	732	507	1,605	3,563	1,835	364	51	30	0	131	0	286	78	4,426	1,215	2,002
SM	Emerald Lake Heights	1,893	8	212	492	476	1,188	2,923	1,566	149	40	19	12	84	5	123	26	3,328	944	1,635
SM	Foster City	17,629	190	3,121	5,145	2,754	11,210	22,808	14,211	1,727	670	174	212	435	67	1,558	169	28,176	7,478	15,032
SM	Half Moon Bay	5,142	138	845	1,313	841	3,137	6,422	3,695	837	106	107	91	238	20	631	206	8,886	2,247	4,067
SM	Highlands	1,317	5	115	392	353	865	2,093	1,182	45	35	8	5	38	5	34	11	2,652	690	1,203
SM	Hillsborough	4,905	36	382	1,458	1,750	3,626	9,624	3,735	433	178	68	86	344	14	338	95	10,667	3,197	3,933
SM	Menlo Park	14,481	700	4,707	4,422	1,988	11,817	20,295	10,621	1,164	502	474	825	605	641	996	168	28,001	6,865	11,170
SM	Millbrae	10,137	510	2,439	3,119	1,865	7,933	15,114	7,863	1,010	495	250	63	287	12	865	145	20,412	5,766	8,334
SM	Montara	1,433	6	197	311	354	868	1,999	1,042	184	68	9	11	82	0	171	13	2,525	676	1,131
SM	Moss Beach	1,887	28	219	476	372	1,095	2,367	1,333	359	58	21	15	69	0	275	84	3,029	787	1,499
SM	North Fair Oaks	6,784	281	1,261	1,447	863	3,852	7,247	3,771	1,573	520	357	279	242	180	974	599	13,912	2,713	4,445
SM	Pacifica	21,504	558	3,562	5,569	3,651	13,340	27,485	15,044	3,212	1,763	318	269	365	70	2,529	683	37,670	9,765	16,518
SM	Portola Valley	2,085	62	248	667	653	1,630	3,983	1,677	108	31	92	26	144	11	82	26	4,194	1,195	1,726
SM	Redwood City	36,585	1,761	8,353	10,048	5,331	25,493	46,719	27,165	4,244	1,371	1,207	817	1,003	395	3,551	693	66,072	16,534	29,158
SM	San Bruno	21,256	873	5,005	5,623	3,139	14,640	26,828	15,519	2,812	1,288	365	362	411	121	2,276	536	38,961	9,629	16,819
SM	San Carlos	15,106	502	3,212	4,674	2,656	11,044	21,538	12,145	1,137	601	290	214	472	97	1,012	125	26,167	7,618	12,690
SM	San Mateo	48,187	2,571	13,221	13,436	6,252	35,480	61,342	35,586	5,201	3,139	1,487	704	1,075	297	4,034	1,167	85,486	21,705	37,955
SM	South San Francisco	28,127	1,356	5,747	7,010	4,406	18,519	34,869	19,231	4,561	2,541	550	362	330	89	3,518	1,043	54,312	13,813	21,308
SM	West Menlo Park	2,170	28	556	708	353	1,645	3,144	1,700	155	94	80	23	65	16	147	8	3,998	1,072	1,776
SM	Woodside	2,670	22	205	611	975	1,813	4,967	1,985	211	38	79	17	334	17	204	7	5,035	1,411	2,089
SM	Unincorporated	11,316	113	1,644	3,323	2,270	7,350	16,029	8,558	692	263	561	265	797	101	542	150	20,067	5,283	8,870
SC	Burbank	2,593	194	838	659	341	2,032	3,374	2,051	242	109	37	82	43	50	242	0	4,902	1,163	2,172
SC	Cambrian Park	1,511	23	181	485	363	1,052	2,412	1,180	122	44	39	55	51	25	89	33	2,998	810	1,236
SC	Campbell	21,837	983	5,110	5,966	3,247	15,306	28,284	17,322	2,266	537	353	402	517	199	1,905	361	36,048	8,849	18,385
SC	Cupertino	23,551	426	3,586	7,278	4,068	15,358	32,155	19,501	1,766	387	463	356	667	168	1,540	226	40,263	10,966	20,334
SC	East Foothills	7,009	203	1,127	1,770	1,512	4,612	9,974	5,293	1,096	139	50	47	199	7	919	177	14,898	3,723	5,805
SC	Gilroy	14,748	588	2,575	4,045	2,304	9,512	18,705	10,789	2,607	194	350	292	266	196	1,850	757	31,487	7,588	11,928
SC	Lexington Hills	1,255	0	138	362	341	841	2,050	1,001	114	0	32	23	54	0	74	40	2,087	509	1,049
SC	Los Altos	13,727	143	1,782	4,719	3,193	9,837	22,093	11,603	563	189	145	284	738	204	470	93	26,303	7,872	11,865
SC	Los Altos Hills	3,839	5	161	1,016	1,424	2,606	7,417	3,093	273	45	24	67	245	24	221	52	7,514	2,300	3,218
SC	Los Gatos	16,056	454	3,087	4,655	3,077	11,273	23,078	13,356	1,152	192	284	223	579	117	943	209	27,357	7,269	13,889
SC	Loyola	1,550	4	145	594	382	1,125	2,726	1,233	107	62	11	10	99	10	74	33	3,076	985	1,279
SC	Milpitas	26,257	409	2,764	6,055	4,871	14,099	31,906	19,593	4,072	760	331	463	538	106	3,440	632	50,686	11,713	21,504
SC	Monte Sereno	1,813	16	92	367	688	1,163	3,298	1,461	142	4	24	36	142	22	137	5	3,287	975	1,530
SC	Morgan Hill	12,340	293	1,691	3,277	2,547	7,808	16,996	9,628	1,514	280	124	190	372	52	1,347	167	23,928	6,279	10,352
SC	Mountain View	42,888	1,633	12,673	11,421	4,263	29,990	49,800	32,523	4,410	1,737	1,158	1,385	919	849	3,712	698	67,460	15,645	34,594
SC	Palo Alto	32,284	1,455	8,512	9,451	4,788	24,206	43,881	23,917	1,861	796	1,270	2,127	1,749	1,827	1,579	282	55,900	13,835	24,795
SC	Rancho Rinconada	2,339	18	263	708	444	1,433	3,173	1,891	222	44	18	72	33	49	207	15	4,206	1,028	1,998

Table C-1 Transportation-Related Data at Place-of-Residence, 1990 Census STF3A

Cnty	Place	Employed Residents	HH AO=0	HH AO=1	HH AO=2	HH AO=3+	Total HH	Vehicles Owned	Drive Alone	Carpool	Transit	Walk	Other	Work At Home	Bicycle	Shared Ride 2	Shared Ride 3+	Total Pop.	Families	Vehicle Driver
SC	San Jose	408,850	14,863	66,370	101,381	67,573	250,187	505,391	308,311	58,465	14,084	6,495	5,829	7,748	2,486	47,681	10,784	782,225	186,149	335,360
SC	San Martin	805	33	125	133	195	486	1,072	536	76	51	49	0	65	0	59	17	1,750	408	568
SC	Santa Clara	54,805	2,222	12,384	14,209	7,730	36,545	67,472	42,845	5,612	1,313	1,735	1,233	949	680	4,910	702	93,613	22,418	45,512
SC	Saratoga	14,437	145	1,307	4,365	4,233	10,050	24,617	12,204	1,008	122	131	176	599	56	787	221	28,061	8,365	12,662
SC	Stanford	8,834	465	2,497	1,369	380	4,711	6,505	1,970	265	114	1,491	3,857	452	3,713	214	51	18,097	1,882	2,091
SC	Sunnyvale	70,459	2,088	17,019	19,456	9,733	48,296	89,401	56,825	6,657	1,760	1,110	1,401	1,569	629	5,828	829	117,229	29,828	59,995
SC	Unincorporated	28,558	663	3,362	6,871	6,756	17,652	41,909	20,869	3,551	764	785	615	1,393	206	2,853	698	54,202	13,748	22,483
ALA	Alameda	44,553	2,629	12,332	10,252	3,865	29,078	45,887	23,810	4,648	5,290	1,647	1,258	7,015	661	3,491	1,157	76,459	17,843	25,902
ALA	Albany	8,603	679	3,466	2,440	607	7,192	10,330	4,544	1,161	1,390	379	529	407	396	812	349	16,327	4,306	5,054
ALA	Ashland	7,538	841	2,840	2,186	855	6,722	10,137	5,267	857	755	125	113	116	24	635	222	16,590	4,243	5,647
ALA	Berkeley	56,024	8,247	19,607	11,492	4,107	43,453	56,378	24,742	5,363	8,296	9,152	3,702	3,335	2,651	3,368	1,995	102,724	19,127	27,038
ALA	Castro Valley	25,145	891	5,052	7,997	5,088	19,028	38,569	19,258	2,494	1,198	439	367	718	97	2,029	465	48,619	13,575	20,404
ALA	Cherryland	4,875	504	1,741	1,397	696	4,338	6,916	3,385	621	395	106	149	101	78	476	145	11,088	2,638	3,668
ALA	Dublin	10,993	105	1,395	3,275	2,027	6,802	14,894	8,603	1,223	220	239	146	364	55	1,075	148	23,229	5,116	9,183
ALA	Emeryville	3,483	283	1,917	828	199	3,227	4,255	1,962	559	435	132	111	163	41	346	213	5,740	1,120	2,200
ALA	Fairview	4,971	40	552	1,288	1,229	3,109	7,473	3,714	628	301	40	76	129	20	496	132	9,045	2,437	4,000
ALA	Fremont	96,579	1,923	14,209	27,419	16,647	60,198	125,741	73,681	12,018	4,329	1,125	1,647	1,969	469	9,520	2,498	173,339	45,632	79,154
ALA	Hayward	55,822	3,157	13,868	15,140	7,952	40,117	71,535	38,797	7,631	4,215	1,261	1,139	969	315	6,145	1,486	111,498	28,023	42,316
ALA	Livermore	31,319	794	4,869	9,045	5,935	20,643	43,177	24,675	3,298	461	538	890	824	565	2,570	728	56,741	15,401	26,179
ALA	Newark	20,592	331	2,586	5,253	3,845	12,015	26,712	15,179	3,392	686	214	317	348	118	2,615	777	37,861	9,710	16,711
ALA	Oakland	164,394	33,680	58,532	36,253	16,056	144,521	185,525	91,214	22,546	28,637	7,787	4,134	5,842	1,758	14,725	7,821	372,242	85,011	100,911
ALA	Piedmont	5,247	81	756	1,830	1,088	3,755	8,067	3,347	674	441	197	48	481	18	314	360	10,602	2,959	3,622
ALA	Pleasanton	30,039	398	3,997	8,569	5,520	18,484	39,813	24,344	3,097	473	421	450	795	210	2,596	501	50,553	14,184	25,785
ALA	San Leandro	34,156	2,855	10,439	10,290	5,544	29,128	49,610	24,628	3,942	3,093	814	646	443	177	3,193	749	68,223	18,253	26,449
ALA	San Lorenzo	9,606	362	1,829	3,064	2,086	7,341	15,289	7,465	997	513	70	121	178	49	806	191	19,987	5,677	7,923
ALA	Union City	27,869	600	3,863	6,371	4,867	15,701	33,649	19,474	4,588	1,822	346	450	397	102	3,219	1,369	53,762	13,185	21,480
ALA	Unincorporated	6,653	311	1,200	1,529	1,626	4,666	10,370	4,686	1,036	188	104	190	292	115	897	139	14,553	3,448	5,174
CC	Alamo	6,151	43	465	1,827	1,884	4,219	10,646	5,055	488	240	55	28	258	10	346	142	12,277	3,694	5,270
CC	Antioch	29,735	1,344	5,790	9,111	5,156	21,401	41,286	22,789	4,168	606	416	522	578	113	3,244	924	62,195	16,791	24,670
CC	Bayview-Montalvin	1,759	48	242	487	398	1,175	2,765	1,139	406	112	25	10	10	0	274	132	3,988	1,019	1,315
CC	Bethel Island	1,139	34	317	388	260	999	1,978	810	161	6	39	23	100	8	145	16	2,264	630	888
CC	Blackhawk	3,262	15	192	1,033	781	2,021	4,950	2,632	334	88	32	7	143	0	252	82	6,199	1,968	2,784
CC	Brentwood	3,396	178	666	1,010	621	2,475	4,734	2,400	547	48	184	77	40	34	426	121	7,563	1,975	2,647
CC	Clayton	4,079	15	259	1,173	885	2,332	5,602	3,067	395	280	35	48	133	5	265	130	7,317	2,094	3,233
CC	Concord	61,005	2,547	13,044	17,549	8,800	41,940	78,106	42,123	7,763	5,807	1,194	1,141	1,720	402	5,774	1,989	111,348	29,346	45,528
CC	Crockett	1,681	124	374	600	320	1,418	2,686	1,199	256	64	54	7	68	0	217	39	3,228	871	1,319
CC	Danville	17,274	128	1,672	5,577	3,687	11,064	25,518	13,629	1,609	657	230	235	692	52	1,124	485	31,306	9,304	14,316
CC	Discovery Bay	3,125	22	315	1,033	715	2,085	4,727	2,354	581	7	39	37	107	9	504	77	5,351	1,712	2,628
CC	East Richmond Heights	1,828	21	368	569	361	1,319	2,776	1,352	197	129	13	28	56	8	116	81	3,266	917	1,434
CC	El Cerrito	11,666	685	3,747	3,879	1,613	9,924	16,949	6,795	1,518	2,026	269	337	498	183	1,066	452	22,869	6,372	7,472
CC	El Sobrante	4,789	272	1,099	1,570	963	3,904	7,536	3,462	707	239	18	94	114	19	577	130	9,852	2,714	3,792
CC	Hercules	9,406	33	1,181	2,373	1,721	5,308	11,998	6,033	2,285	574	23	85	135	13	1,329	956	16,829	4,300	6,981
CC	Kensington	2,702	112	768	914	403	2,197	3,915	1,689	314	356	57	36	240	31	213	101	4,974	1,435	1,821
CC	Lafayette	12,540	300	1,811	4,143	2,722	8,976	19,470	8,443	1,140	1,445	237	212	880	50	642	498	23,501	6,797	8,917
CC	Martinez	17,455	524	3,712	5,499	2,804	12,539	24,165	13,215	2,005	1,020	375	245	366	80	1,423	582	32,038	8,370	14,075
CC	Moraga	8,136	43	1,212	2,888	1,419	5,562	11,662	5,458	1,116	807	248	118	242	40	659	457	15,852	4,369	5,929
CC	Oakley	8,552	284	1,169	2,686	1,751	5,890	12,570	6,276	1,501	167	81	83	225	6	1,134	367	18,225	4,886	6,950

Table C-2 Transportation-Related Data at Place-of-Residence, 1990 Census STF3A (Shares and Rates)

Cnty	Place	Workers/ HH	Vehicles/ HH	% Zero Auto HH	Workers at Work	% Dr Alone	% Carpool	% Transit	% Walk	% Other	% At Home	% Bicycle	% Shared Ride 2	% Shared Ride 3+	Vehicle Occupancy	Avg. Veh. Ridership
SF	San Francisco	1.280	1.058	30.7%	382,309	38.5%	11.5%	33.5%	9.8%	2.9%	3.8%	1.0%	8.6%	2.9%	1.146	2.293
SM	Atherton	1.467	2.532	1.4%	3,469	73.8%	2.5%	4.8%	8.6%	1.4%	8.9%	1.0%	1.7%	0.8%	1.019	1.336
SM	Belmont	1.473	1.961	5.4%	14,654	79.1%	10.0%	4.6%	2.7%	0.9%	2.8%	0.4%	8.6%	1.4%	1.063	1.194
SM	Brisbane	1.312	1.786	7.6%	1,687	76.1%	14.1%	4.4%	2.5%	1.5%	1.4%	0.5%	10.7%	3.4%	1.097	1.216
SM	Broadmoor	1.558	1.998	3.6%	1,830	70.3%	15.0%	8.1%	3.3%	0.9%	2.3%	0.0%	14.0%	1.0%	1.100	1.289
SM	Burlingame	1.222	1.636	7.9%	14,818	76.0%	9.2%	7.6%	2.8%	1.8%	2.6%	1.0%	8.1%	1.2%	1.061	1.244
SM	Colma	1.439	1.693	9.7%	563	58.4%	18.5%	14.6%	5.0%	0.7%	2.8%	0.0%	15.6%	2.8%	1.146	1.489
SM	Daly City	1.679	1.749	8.6%	47,420	56.6%	20.1%	18.7%	1.9%	1.5%	1.3%	0.1%	15.6%	4.6%	1.168	1.523
SM	East Palo Alto	1.448	1.718	9.4%	9,869	67.1%	18.8%	8.2%	1.9%	2.1%	1.8%	1.5%	14.6%	4.3%	1.134	1.320
SM	El Granada	1.559	2.220	2.7%	2,411	76.1%	15.1%	2.1%	1.2%	0.0%	5.4%	0.0%	11.9%	3.2%	1.098	1.204
SM	Emerald Lake Heights	1.593	2.460	0.7%	1,870	83.7%	8.0%	2.1%	1.0%	0.6%	4.5%	0.3%	6.6%	1.4%	1.049	1.144
SM	Foster City	1.573	2.035	1.7%	17,429	81.5%	9.9%	3.8%	1.0%	1.2%	2.5%	0.4%	8.9%	1.0%	1.060	1.159
SM	Half Moon Bay	1.639	2.047	4.4%	5,074	72.8%	16.5%	2.1%	2.1%	1.8%	4.7%	0.4%	12.4%	4.1%	1.114	1.248
SM	Highlands	1.523	2.420	0.6%	1,313	90.0%	3.4%	2.7%	0.6%	0.4%	2.9%	0.4%	2.6%	0.8%	1.020	1.091
SM	Hillsborough	1.353	2.654	1.0%	4,844	77.1%	8.9%	3.7%	1.4%	1.8%	7.1%	0.3%	7.0%	2.0%	1.060	1.232
SM	Menlo Park	1.225	1.717	5.9%	14,191	74.8%	8.2%	3.5%	3.3%	5.8%	4.3%	4.5%	7.0%	1.2%	1.055	1.270
SM	Millbrae	1.278	1.905	6.4%	9,968	78.9%	10.1%	5.0%	2.5%	0.6%	2.9%	0.1%	8.7%	1.5%	1.065	1.196
SM	Montara	1.651	2.303	0.7%	1,396	74.6%	13.2%	4.9%	0.6%	0.8%	5.9%	0.0%	12.2%	0.9%	1.084	1.234
SM	Moss Beach	1.723	2.162	2.6%	1,855	71.9%	19.4%	3.1%	1.1%	0.8%	3.7%	0.0%	14.8%	4.5%	1.129	1.237
SM	North Fair Oaks	1.761	1.881	7.3%	6,742	55.9%	23.3%	7.7%	5.3%	4.1%	3.6%	2.7%	14.4%	8.9%	1.202	1.517
SM	Pacifica	1.612	2.060	4.2%	20,971	71.7%	15.3%	8.4%	1.5%	1.3%	1.7%	0.3%	12.1%	3.3%	1.105	1.270
SM	Portola Valley	1.279	2.444	3.8%	2,078	80.7%	5.2%	1.5%	4.4%	1.3%	6.9%	0.5%	3.9%	1.3%	1.034	1.204
SM	Redwood City	1.435	1.833	6.9%	35,807	75.9%	11.9%	3.8%	3.4%	2.3%	2.8%	1.1%	9.9%	1.9%	1.077	1.228
SM	San Bruno	1.452	1.833	6.0%	20,757	74.8%	13.5%	6.2%	1.8%	1.7%	2.0%	0.6%	11.0%	2.6%	1.090	1.234
SM	San Carlos	1.368	1.950	4.5%	14,859	81.7%	7.7%	4.0%	2.0%	1.4%	3.2%	0.7%	6.8%	0.8%	1.047	1.171
SM	San Mateo	1.358	1.729	7.2%	47,192	75.4%	11.0%	6.7%	3.2%	1.5%	2.3%	0.6%	8.5%	2.5%	1.075	1.243
SM	South San Francisco	1.519	1.883	7.3%	27,575	69.7%	16.5%	9.2%	2.0%	1.3%	1.2%	0.3%	12.8%	3.8%	1.117	1.294
SM	West Menlo Park	1.319	1.911	1.7%	2,117	80.3%	7.3%	4.4%	3.8%	1.1%	3.1%	0.8%	6.9%	0.4%	1.044	1.192
SM	Woodside	1.473	2.740	1.2%	2,664	74.5%	7.9%	1.4%	3.0%	0.6%	12.5%	0.6%	7.7%	0.3%	1.051	1.275
SM	Unincorporated	1.540	2.181	1.5%	11,136	76.8%	6.2%	2.4%	5.0%	2.4%	7.2%	0.9%	4.9%	1.3%	1.043	1.255
SC	Burbank	1.276	1.660	9.5%	2,564	80.0%	9.4%	4.3%	1.4%	3.2%	1.7%	2.0%	9.4%	0.0%	1.056	1.180
SC	Cambrian Park	1.436	2.293	2.2%	1,491	79.1%	8.2%	3.0%	2.6%	3.7%	3.4%	1.7%	6.0%	2.2%	1.053	1.206
SC	Campbell	1.427	1.848	6.4%	21,397	81.0%	10.6%	2.5%	1.6%	1.9%	2.4%	0.9%	8.9%	1.7%	1.065	1.164
SC	Cupertino	1.533	2.094	2.8%	23,140	84.3%	7.6%	1.7%	2.0%	1.5%	2.9%	0.7%	6.7%	1.0%	1.046	1.138
SC	East Foothills	1.520	2.163	4.4%	6,824	77.6%	16.1%	2.0%	0.7%	0.7%	2.9%	0.1%	13.5%	2.6%	1.101	1.176
SC	Gilroy	1.550	1.966	6.2%	14,498	74.4%	18.0%	1.3%	2.4%	2.0%	1.8%	1.4%	12.8%	5.2%	1.123	1.215
SC	Lexington Hills	1.492	2.438	0.0%	1,224	81.8%	9.3%	0.0%	2.6%	1.9%	4.4%	0.0%	6.0%	3.3%	1.063	1.167
SC	Los Altos	1.395	2.246	1.5%	13,522	85.8%	4.2%	1.4%	1.1%	2.1%	5.5%	1.5%	3.5%	0.7%	1.025	1.140
SC	Los Altos Hills	1.473	2.846	0.2%	3,747	82.5%	7.3%	1.2%	0.6%	1.8%	6.5%	0.6%	5.9%	1.4%	1.046	1.164
SC	Los Gatos	1.424	2.047	4.0%	15,786	84.6%	7.3%	1.2%	1.8%	1.4%	3.7%	0.7%	6.0%	1.3%	1.045	1.137
SC	Loyola	1.378	2.423	0.4%	1,522	81.0%	7.0%	4.1%	0.7%	0.7%	6.5%	0.7%	4.9%	2.2%	1.048	1.190
SC	Milpitas	1.862	2.263	2.9%	25,757	76.1%	15.8%	3.0%	1.3%	1.8%	2.1%	0.4%	13.4%	2.5%	1.100	1.198
SC	Monte Sereno	1.559	2.836	1.4%	1,809	80.8%	7.8%	0.2%	1.3%	2.0%	7.8%	1.2%	7.6%	0.3%	1.048	1.182
SC	Morgan Hill	1.580	2.177	3.8%	12,108	79.5%	12.5%	2.3%	1.0%	1.6%	3.1%	0.4%	11.1%	1.4%	1.076	1.170
SC	Mountain View	1.430	1.661	5.4%	42,132	77.2%	10.5%	4.1%	2.7%	3.3%	2.2%	2.0%	8.8%	1.7%	1.068	1.218
SC	Palo Alto	1.334	1.813	6.0%	31,720	75.4%	5.9%	2.5%	4.0%	6.7%	5.5%	5.8%	5.0%	0.9%	1.040	1.279
SC	Rancho Rinconada	1.632	2.214	1.3%	2,280	82.9%	9.7%	1.9%	0.8%	3.2%	1.4%	2.1%	9.1%	0.7%	1.058	1.141

Table C-2 Transportation-Related Data at Place-of-Residence, 1990 Census STF3A (Shares and Rates)

Cnty	Place	Workers/ HH	Vehicles/ HH	% Zero Auto HH	Workers at Work	% Dr Alone	% Carpool	% Transit	% Walk	% Other	% At Home	% Bicycle	% Shared Ride 2	% Shared Ride 3+	Vehicle Occupancy	Avg. Veh. Ridership
SC	San Jose	1.634	2.020	5.9%	400,932	76.9%	14.6%	3.5%	1.6%	1.5%	1.9%	0.6%	11.9%	2.7%	1.094	1.196
SC	San Martin	1.656	2.206	6.8%	777	69.0%	9.8%	6.6%	6.3%	0.0%	8.4%	0.0%	7.6%	2.2%	1.077	1.368
SC	Santa Clara	1.500	1.846	6.1%	53,687	79.8%	10.5%	2.4%	3.2%	2.3%	1.8%	1.3%	9.1%	1.3%	1.065	1.180
SC	Saratoga	1.437	2.449	1.4%	14,240	85.7%	7.1%	0.9%	0.9%	1.2%	4.2%	0.4%	5.5%	1.6%	1.043	1.125
SC	Stanford	1.875	1.381	9.9%	8,149	24.2%	3.3%	1.4%	18.3%	47.3%	5.5%	45.6%	2.6%	0.6%	1.069	3.897
SC	Sunnyvale	1.459	1.851	4.3%	69,322	82.0%	9.6%	2.5%	1.6%	2.0%	2.3%	0.9%	8.4%	1.2%	1.058	1.155
SC	Unincorporated	1.618	2.374	3.8%	27,977	74.6%	12.7%	2.7%	2.8%	2.2%	5.0%	0.7%	10.2%	2.5%	1.086	1.244
ALA	Alameda	1.532	1.578	9.0%	43,668	54.5%	10.6%	12.1%	3.8%	2.9%	16.1%	1.5%	8.0%	2.6%	1.099	1.686
ALA	Albany	1.196	1.436	9.4%	8,410	54.0%	13.8%	16.5%	4.5%	6.3%	4.8%	4.7%	9.7%	4.1%	1.129	1.664
ALA	Ashland	1.121	1.508	12.5%	7,233	72.8%	11.8%	10.4%	1.7%	1.6%	1.6%	0.3%	8.8%	3.1%	1.084	1.281
ALA	Berkeley	1.289	1.297	19.0%	54,590	45.3%	9.8%	15.2%	16.8%	6.8%	6.1%	4.9%	6.2%	3.7%	1.113	2.019
ALA	Castro Valley	1.321	2.027	4.7%	24,474	78.7%	10.2%	4.9%	1.8%	1.5%	2.9%	0.4%	8.3%	1.9%	1.066	1.199
ALA	Cherryland	1.124	1.594	11.6%	4,757	71.2%	13.1%	8.3%	2.2%	3.1%	2.1%	1.6%	10.0%	3.0%	1.092	1.297
ALA	Dublin	1.616	2.190	1.5%	10,795	79.7%	11.3%	2.0%	2.2%	1.4%	3.4%	0.5%	10.0%	1.4%	1.070	1.176
ALA	Emeryville	1.079	1.319	8.8%	3,362	58.4%	16.6%	12.9%	3.9%	3.3%	4.8%	1.2%	10.3%	6.3%	1.146	1.528
ALA	Fairview	1.599	2.404	1.3%	4,888	76.0%	12.8%	6.2%	0.8%	1.6%	2.6%	0.4%	10.1%	2.7%	1.086	1.222
ALA	Fremont	1.604	2.089	3.2%	94,769	77.7%	12.7%	4.6%	1.2%	1.7%	2.1%	0.5%	10.0%	2.6%	1.083	1.197
ALA	Hayward	1.391	1.783	7.9%	54,012	71.8%	14.1%	7.8%	2.3%	2.1%	1.8%	0.6%	11.4%	2.8%	1.097	1.276
ALA	Livermore	1.517	2.092	3.8%	30,686	80.4%	10.7%	1.5%	1.8%	2.9%	2.7%	1.8%	8.4%	2.4%	1.069	1.172
ALA	Newark	1.714	2.223	2.8%	20,136	75.4%	16.8%	3.4%	1.1%	1.6%	1.7%	0.6%	13.0%	3.9%	1.111	1.205
ALA	Oakland	1.138	1.284	23.3%	160,160	57.0%	14.1%	17.9%	4.9%	2.6%	3.6%	1.1%	9.2%	4.9%	1.127	1.587
ALA	Piedmont	1.397	2.148	2.2%	5,188	64.5%	13.0%	8.5%	3.8%	0.9%	9.3%	0.3%	6.1%	6.9%	1.110	1.432
ALA	Pleasanton	1.625	2.154	2.2%	29,580	82.3%	10.5%	1.6%	1.4%	1.5%	2.7%	0.7%	8.8%	1.7%	1.064	1.147
ALA	San Leandro	1.173	1.703	9.8%	33,566	73.4%	11.7%	9.2%	2.4%	1.9%	1.3%	0.5%	9.5%	2.2%	1.080	1.269
ALA	San Lorenzo	1.309	2.083	4.9%	9,344	79.9%	10.7%	5.5%	0.7%	1.3%	1.9%	0.5%	8.6%	2.0%	1.068	1.179
ALA	Union City	1.775	2.143	3.8%	27,077	71.9%	16.9%	6.7%	1.3%	1.7%	1.5%	0.4%	11.9%	5.1%	1.120	1.261
ALA	Unincorporated	1.426	2.222	6.7%	6,496	72.1%	15.9%	2.9%	1.6%	2.9%	4.5%	1.8%	13.8%	2.1%	1.106	1.256
CC	Alamo	1.458	2.523	1.0%	6,124	82.5%	8.0%	3.9%	0.9%	0.5%	4.2%	0.2%	5.6%	2.3%	1.052	1.162
CC	Antioch	1.389	1.929	6.3%	29,079	78.4%	14.3%	2.1%	1.4%	1.8%	2.0%	0.4%	11.2%	3.2%	1.093	1.179
CC	Bayview-Montalvin	1.497	2.353	4.1%	1,702	66.9%	23.9%	6.6%	1.5%	0.6%	0.6%	0.0%	16.1%	7.8%	1.175	1.294
CC	Bethel Island	1.140	1.980	3.4%	1,139	71.1%	14.1%	0.5%	3.4%	2.0%	8.8%	0.7%	12.7%	1.4%	1.093	1.283
CC	Blackhawk	1.614	2.449	0.7%	3,236	81.3%	10.3%	2.7%	1.0%	0.2%	4.4%	0.0%	7.8%	2.5%	1.065	1.162
CC	Brentwood	1.372	1.913	7.2%	3,296	72.8%	16.6%	1.5%	5.6%	2.3%	1.2%	1.0%	12.9%	3.7%	1.113	1.245
CC	Clayton	1.749	2.402	0.6%	3,958	77.5%	10.0%	7.1%	0.9%	1.2%	3.4%	0.1%	6.7%	3.3%	1.071	1.224
CC	Concord	1.455	1.862	6.1%	59,748	70.5%	13.0%	9.7%	2.0%	1.9%	2.9%	0.7%	9.7%	3.3%	1.096	1.312
CC	Crockett	1.185	1.894	8.7%	1,648	72.8%	15.5%	3.9%	3.3%	0.4%	4.1%	0.0%	13.2%	2.4%	1.103	1.249
CC	Danville	1.561	2.306	1.2%	17,052	79.9%	9.4%	3.9%	1.3%	1.4%	4.1%	0.3%	6.6%	2.8%	1.064	1.191
CC	Discovery Bay	1.499	2.267	1.1%	3,125	75.3%	18.6%	0.2%	1.2%	1.2%	3.4%	0.3%	16.1%	2.5%	1.117	1.189
CC	East Richmond Heights	1.386	2.105	1.6%	1,775	76.2%	11.1%	7.3%	0.7%	1.6%	3.2%	0.5%	6.5%	4.6%	1.080	1.238
CC	El Cerrito	1.176	1.708	6.9%	11,443	59.4%	13.3%	17.7%	2.4%	2.9%	4.4%	1.6%	9.3%	4.0%	1.113	1.531
CC	El Sobrante	1.227	1.930	7.0%	4,634	74.7%	15.3%	5.2%	0.4%	2.0%	2.5%	0.4%	12.5%	2.8%	1.099	1.222
CC	Hercules	1.772	2.260	0.6%	9,135	66.0%	25.0%	6.3%	0.3%	0.9%	1.5%	0.1%	14.5%	10.5%	1.192	1.309
CC	Kensington	1.230	1.782	5.1%	2,692	62.7%	11.7%	13.2%	2.1%	1.3%	8.9%	1.2%	7.9%	3.8%	1.100	1.478
CC	Lafayette	1.397	2.169	3.3%	12,357	68.3%	9.2%	11.7%	1.9%	1.7%	7.1%	0.4%	5.2%	4.0%	1.075	1.386
CC	Martinez	1.392	1.927	4.2%	17,226	76.7%	11.6%	5.9%	2.2%	1.4%	2.1%	0.5%	8.3%	3.4%	1.081	1.224
CC	Moraga	1.463	2.097	0.8%	7,989	68.3%	14.0%	10.1%	3.1%	1.5%	3.0%	0.5%	8.2%	5.7%	1.109	1.347
CC	Oakley	1.452	2.134	4.8%	8,333	75.3%	18.0%	2.0%	1.0%	1.0%	2.7%	0.1%	13.6%	4.4%	1.119	1.199

Table C-3 More Transportation-Related Data at Place-of-Residence, 1990 Census STF3A

Cnty	Place	HHs Income LT 30K	HHs Income 30-60K	HHs Income GT 60K	Mean HHld. Income	Total HHs	Travellers to Work by Commute Time						Percent 60 + min.	Total Workers	Total Travlrs	Aggregate Travel Time	Avg. Travel Time	Intra-County Cmmtrs.	Percent Intra-County
							0 - 9 min.	10 - 19 min.	20 - 29 min.	30 - 44 min.	45 - 59 min.	60 + min.							
SF	San Francisco	136,259	100,297	69,428	$45,664	305,984	25,931	93,808	85,705	100,355	35,532	26,499	7.2%	382,309	367,830	9,885,801	26.9	307,400	80.4%
SM	Atherton	189	208	1,932	$192,188	2,329	675	1,160	510	482	178	154	4.9%	3,469	3,159	62,456	19.8	1,966	56.7%
SM	Belmont	2,514	3,443	4,181	$60,841	10,138	1,837	4,369	3,120	2,964	1,141	812	5.7%	14,654	14,243	338,636	23.8	9,851	67.2%
SM	Brisbane	539	411	363	$44,155	1,313	194	493	330	444	132	70	4.2%	1,687	1,663	39,892	24.0	810	48.0%
SM	Broadmoor	304	699	313	$45,210	1,316	123	693	378	409	106	79	4.4%	1,830	1,788	40,258	22.5	781	42.7%
SM	Burlingame	3,757	4,765	3,853	$53,812	12,375	1,937	5,468	2,096	2,660	1,325	951	6.6%	14,818	14,437	335,368	23.2	9,677	65.3%
SM	Colma	135	159	71	$40,484	365	66	165	88	111	74	43	7.9%	563	547	14,462	26.4	274	48.7%
SM	Daly City	9,370	11,780	7,998	$46,483	29,148	2,700	11,719	11,057	12,561	4,845	3,920	8.4%	47,420	46,802	1,296,457	27.7	16,862	35.6%
SM	East Palo Alto	3,517	2,420	876	$33,688	6,813	1,209	3,953	1,935	1,661	359	573	5.9%	9,869	9,690	206,779	21.3	4,488	45.5%
SM	El Granada	349	513	764	$59,748	1,626	247	402	176	796	459	200	8.8%	2,411	2,280	70,538	30.9	1,482	61.5%
SM	Emerald Lake Heights	199	308	696	$78,032	1,203	129	433	476	404	190	154	8.6%	1,870	1,786	50,436	28.2	1,025	54.8%
SM	Foster City	1,546	4,012	5,698	$70,974	11,256	1,453	5,055	3,841	3,554	1,656	1,435	8.4%	17,429	16,994	447,113	26.3	11,103	63.7%
SM	Half Moon Bay	794	908	1,477	$62,310	3,179	1,017	1,015	581	1,287	606	330	6.8%	5,074	4,836	123,381	25.5	3,667	72.3%
SM	Highlands	45	239	519	$81,650	803	107	524	308	213	96	27	2.1%	1,313	1,275	27,512	21.6	911	69.4%
SM	Hillsborough	269	539	2,826	$185,381	3,634	560	1,422	662	1,091	496	269	6.0%	4,844	4,500	114,609	25.5	2,806	57.9%
SM	Menlo Park	3,172	3,709	5,000	$69,944	11,881	2,159	5,403	2,774	1,983	716	551	4.1%	14,191	13,586	275,314	20.3	6,242	44.0%
SM	Millbrae	2,258	2,899	2,810	$55,377	7,967	1,432	3,413	2,040	1,836	546	414	4.3%	9,968	9,681	207,697	21.5	6,560	65.8%
SM	Montara	155	243	525	$74,176	923	48	271	219	342	260	174	13.2%	1,396	1,314	44,190	33.6	933	66.8%
SM	Moss Beach	147	377	523	$67,881	1,047	205	417	217	500	237	210	11.8%	1,855	1,786	53,036	29.7	1,244	67.1%
SM	North Fair Oaks	1,711	1,285	790	$40,444	3,786	644	2,581	1,510	1,313	251	201	3.1%	6,742	6,500	136,194	21.0	4,665	69.2%
SM	Pacifica	3,259	5,554	4,505	$52,152	13,318	1,484	4,203	5,599	5,702	2,267	1,351	6.6%	20,971	20,606	569,668	27.7	10,468	49.9%
SM	Portola Valley	193	239	1,193	$142,779	1,625	203	548	584	373	97	129	6.7%	2,078	1,934	46,169	23.9	923	44.4%
SM	Redwood City	8,527	8,994	8,051	$51,446	25,572	4,305	12,788	7,826	6,375	1,946	1,564	4.5%	35,807	34,804	760,789	21.9	23,807	66.5%
SM	San Bruno	4,502	6,196	3,962	$48,227	14,660	2,587	7,151	4,369	3,816	1,592	831	4.1%	20,757	20,346	452,115	22.2	12,942	62.4%
SM	San Carlos	2,563	3,702	4,894	$66,094	11,159	1,783	4,238	3,248	2,922	1,370	826	5.7%	14,859	14,387	347,205	24.1	9,817	66.1%
SM	San Mateo	10,739	13,922	10,835	$54,113	35,496	5,811	17,630	8,433	8,726	2,863	2,654	5.8%	47,192	46,117	1,030,191	22.3	33,729	71.5%
SM	South San Francisco	5,999	7,547	5,042	$45,706	18,588	3,177	8,991	5,883	5,509	2,114	1,571	5.8%	27,575	27,245	640,638	23.5	15,548	56.4%
SM	West Menlo Park	340	510	818	$68,016	1,668	255	819	381	341	142	114	5.6%	2,117	2,052	45,700	22.3	965	45.6%
SM	Woodside	156	325	1,319	$191,309	1,800	189	693	644	487	176	141	6.1%	2,664	2,330	56,446	24.2	1,515	56.9%
SM	Unincorporated	1,461	1,931	3,968	$77,568	7,360	1,407	2,734	1,764	2,552	1,087	795	7.7%	11,136	10,339	269,498	26.1	6,445	57.9%
SC	Burbank	957	739	352	$35,520	2,048	270	846	736	469	116	84	3.3%	2,564	2,521	54,463	21.6	2,311	90.1%
SC	Cambrian Park	275	373	395	$54,443	1,043	144	369	391	320	148	68	4.7%	1,491	1,440	36,098	25.1	1,349	90.5%
SC	Campbell	4,986	5,646	4,680	$48,853	15,312	2,020	5,938	5,652	5,350	1,165	755	3.6%	21,397	20,880	488,491	23.4	19,769	92.4%
SC	Cupertino	2,178	4,657	8,526	$76,099	15,361	2,135	6,743	7,845	4,470	665	615	2.7%	23,140	22,473	487,235	21.7	20,293	87.7%
SC	East Foothills	1,286	1,598	1,719	$55,966	4,603	515	1,779	1,636	1,746	594	355	5.4%	6,824	6,625	170,771	25.8	6,274	91.9%
SC	Gilroy	3,420	3,495	2,549	$46,730	9,464	3,733	4,257	1,344	1,838	1,553	1,507	10.6%	14,498	14,232	337,862	23.7	13,215	91.2%
SC	Lexington Hills	191	225	380	$64,020	796	23	234	247	440	173	53	4.5%	1,224	1,170	34,300	29.3	1,161	94.9%
SC	Los Altos	1,331	2,221	6,317	$100,257	9,869	1,653	4,848	3,802	1,609	375	497	3.9%	13,522	12,784	258,850	20.3	10,865	80.4%
SC	Los Altos Hills	123	386	2,103	$178,928	2,612	388	1,325	872	660	93	164	4.7%	3,747	3,502	75,620	21.6	2,992	79.9%
SC	Los Gatos	2,591	3,220	5,512	$80,568	11,323	1,919	3,622	3,979	4,236	917	534	3.5%	15,786	15,207	362,109	23.8	14,591	92.4%
SC	Loyola	87	264	784	$110,855	1,135	129	477	496	188	42	91	6.4%	1,522	1,423	30,924	21.7	1,200	78.8%
SC	Milpitas	2,573	5,342	6,322	$60,467	14,237	2,838	7,194	6,686	6,228	1,402	871	3.5%	25,757	25,219	576,130	22.9	21,669	84.1%
SC	Monte Sereno	98	160	909	$135,655	1,167	148	446	426	454	112	81	4.9%	1,809	1,667	42,086	25.3	1,657	91.6%

Table C-3 More Transportation-Related Data at Place-of-Residence, 1990 Census STF3A

Cnty	Place	HHs Income LT 30K	HHs Income 30-60K	HHs Income GT 60K	Mean HHld. Income	Total HHs	Travellers to Work by Commute Time 0 - 9 min.	10 - 19 min.	20 - 29 min.	30 - 44 min.	45 - 59 min.	60 + min.	Percent 60 + min.	Total Workers	Total Travlrs	Aggregate Travel Time	Avg. Travel Time	Intra-County Cmmtrs.	Percent Intra-County
SC	Morgan Hill	1,936	2,590	3,332	$59,114	7,858	1,828	2,635	1,667	2,082	1,938	1,586	13.5%	12,108	11,736	350,633	29.9	11,430	94.4%
SC	Mountain View	9,070	11,929	8,998	$49,904	29,997	5,767	18,531	9,930	4,854	981	1,150	2.8%	42,132	41,213	758,659	18.4	33,685	80.0%
SC	Palo Alto	5,955	7,384	11,361	$72,751	24,700	4,791	12,829	6,706	3,715	823	1,107	3.7%	31,720	29,971	569,306	19.0	24,372	76.8%
SC	Rancho Rinconada	347	593	485	$52,293	1,425	196	641	792	498	81	39	1.7%	2,280	2,247	48,010	21.4	1,998	87.6%
SC	San Jose	71,987	93,809	85,254	$52,091	251,050	30,958	105,941	100,450	100,678	32,379	22,778	5.8%	400,932	393,184	10,030,679	25.5	365,884	91.3%
SC	San Martin	211	224	99	$37,190	534	139	194	51	124	63	141	19.8%	777	712	20,879	29.3	737	94.9%
SC	Santa Clara	10,739	14,171	11,638	$49,905	36,548	6,642	23,083	12,501	7,488	1,650	1,374	2.6%	53,687	52,738	1,009,054	19.1	48,590	90.5%
SC	Saratoga	1,071	1,928	7,149	$112,357	10,148	1,258	3,222	3,988	4,067	691	415	3.0%	14,240	13,641	329,336	24.1	13,000	91.3%
SC	Stanford	2,449	1,126	1,082	$46,371	4,657	4,023	2,779	509	205	98	83	1.1%	8,149	7,697	78,125	10.2	7,591	93.2%
SC	Sunnyvale	13,122	18,673	16,797	$53,581	48,592	8,570	29,902	16,676	8,878	1,830	1,897	2.8%	69,322	67,753	1,286,493	19.0	60,012	86.6%
SC	Unincorporated	4,401	5,992	7,168	$68,756	17,561	3,581	7,513	5,223	5,581	2,433	2,253	8.5%	27,977	26,584	679,301	25.6	25,720	91.9%
ALA	Alameda	10,655	11,037	7,543	$47,887	29,235	5,170	12,073	6,705	6,884	3,320	2,501	6.8%	43,668	36,653	877,496	23.9	33,448	76.6%
ALA	Albany	2,958	2,720	1,525	$41,125	7,203	894	2,276	1,578	2,079	540	636	7.9%	8,410	8,003	204,228	25.5	5,613	66.7%
ALA	Ashland	3,650	2,419	610	$32,647	6,679	709	2,231	1,609	1,484	588	496	7.0%	7,233	7,117	175,488	24.7	5,910	81.7%
ALA	Berkeley	21,911	11,960	9,678	$42,902	43,549	6,849	17,604	8,834	9,632	4,832	3,504	6.8%	54,590	51,255	1,235,394	24.1	39,288	72.0%
ALA	Castro Valley	5,877	6,797	6,368	$51,382	19,042	2,497	6,506	6,171	4,851	2,070	1,661	7.0%	24,474	23,756	600,440	25.3	19,580	80.0%
ALA	Cherryland	2,306	1,659	369	$32,770	4,334	443	1,589	1,127	863	391	243	5.2%	4,757	4,656	109,819	23.6	3,981	83.7%
ALA	Dublin	1,289	2,551	2,719	$56,694	6,559	1,528	3,113	1,350	2,237	1,176	1,027	9.8%	10,795	10,431	273,090	26.2	7,043	65.2%
ALA	Emeryville	1,356	1,252	596	$41,519	3,204	399	1,015	703	678	195	209	6.5%	3,362	3,199	74,522	23.3	1,975	58.7%
ALA	Fairview	595	1,218	1,278	$60,704	3,091	220	1,225	1,196	1,221	538	359	7.5%	4,888	4,759	131,553	27.6	3,813	78.0%
ALA	Fremont	12,895	23,769	23,474	$57,648	60,138	9,400	24,545	15,068	24,964	11,658	7,165	7.7%	94,769	92,800	2,549,415	27.5	53,288	56.2%
ALA	Hayward	15,870	16,419	7,957	$41,019	40,246	4,437	15,029	10,058	13,661	5,953	3,905	7.4%	54,012	53,043	1,422,606	26.8	39,879	73.8%
ALA	Livermore	4,875	8,552	7,232	$52,899	20,659	4,339	10,177	4,502	4,683	3,276	2,885	9.7%	30,686	29,862	756,695	25.3	23,991	78.2%
ALA	Newark	2,535	5,253	4,216	$52,703	12,004	2,190	5,273	3,324	5,381	2,058	1,562	7.9%	20,136	19,788	529,253	26.8	11,800	58.6%
ALA	Oakland	78,283	41,856	24,627	$37,100	144,766	13,142	46,803	31,942	37,054	13,747	11,630	7.5%	160,160	154,318	3,982,502	25.8	116,361	72.7%
ALA	Piedmont	461	757	2,511	$122,484	3,729	557	1,599	913	1,176	299	163	3.5%	5,188	4,707	104,774	22.3	3,473	66.9%
ALA	Pleasanton	3,180	6,252	9,243	$66,867	18,675	4,755	7,745	4,181	5,265	3,632	3,207	11.1%	29,580	28,785	773,343	26.9	19,826	67.0%
ALA	San Leandro	11,875	11,506	5,718	$41,089	29,099	4,456	10,570	6,717	6,576	2,725	2,079	6.3%	33,566	33,123	781,012	23.6	26,670	79.5%
ALA	San Lorenzo	2,428	3,338	1,575	$43,242	7,341	847	2,967	2,082	1,904	688	678	7.4%	9,344	9,166	226,404	24.7	7,605	81.4%
ALA	Union City	3,925	6,751	5,149	$50,464	15,825	1,832	7,407	4,986	6,715	3,426	2,314	8.7%	27,077	26,680	751,511	28.2	17,494	64.6%
ALA	Unincorporated	1,674	1,576	1,451	$54,099	4,701	730	2,021	1,001	1,361	590	501	8.1%	6,496	6,204	158,408	25.5	5,124	78.9%
CC	Alamo	378	691	3,185	$125,841	4,254	517	1,719	1,069	1,344	548	669	11.4%	6,124	5,866	164,168	28.0	3,475	56.7%
CC	Antioch	7,394	8,722	5,274	$43,868	21,390	4,545	7,856	3,130	5,238	3,243	4,489	15.8%	29,079	28,501	837,583	29.4	23,085	79.4%
CC	Bayview-Montalvin	420	529	228	$40,432	1,177	126	402	383	423	199	159	9.4%	1,702	1,692	48,348	28.6	896	52.6%
CC	Bethel Island	442	411	172	$46,192	1,025	116	182	42	177	260	262	25.2%	1,139	1,039	39,482	38.0	855	75.1%
CC	Blackhawk	76	143	1,829	$162,569	2,048	201	893	429	544	496	530	17.1%	3,236	3,093	100,264	32.4	1,690	52.2%
CC	Brentwood	950	897	630	$43,209	2,477	463	712	397	620	413	651	20.0%	3,296	3,256	106,570	32.7	2,189	66.4%
CC	Clayton	215	540	1,582	$77,068	2,337	275	720	920	714	433	763	19.9%	3,958	3,825	128,089	33.5	2,793	70.6%
CC	Concord	13,953	16,732	11,410	$46,147	42,095	5,900	18,915	8,719	9,703	6,447	8,344	14.4%	59,748	58,028	1,669,179	28.8	42,331	70.8%
CC	Crockett	546	571	305	$42,518	1,422	227	289	358	365	140	201	12.7%	1,648	1,580	46,630	29.5	1,160	70.4%
CC	Danville	1,152	2,845	7,170	$87,399	11,167	2,075	4,241	2,594	3,558	1,628	2,264	13.8%	17,052	16,360	470,321	28.8	9,100	53.4%
CC	Discovery Bay	280	610	1,233	$74,177	2,123	363	204	161	898	524	868	28.8%	3,125	3,018	125,699	41.7	1,425	45.6%
CC	East Richmond Heights	446	558	333	$44,910	1,337	124	475	360	492	131	137	8.0%	1,775	1,719	45,337	26.4	759	42.8%

Detailed Commute Characteristics in the San Francisco Bay Area

1990 Census
Census Transportation Planning Package
(Urban Element)

Working Paper #7

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March 1994

Table 3.2
Mean Commute Distance (in miles) by Superdistrict & County of Work, 1980-1990

	1980 Drive Alone	1990 Drive Alone	Percent Change, 1980-1990	1980 Shared Ride 2	1990 Shared Ride 2	Percent Change, 1980-1990	1980 Shared Ride 3+	1990 Shared Ride 3+
1 Downtown San Francisco	15.3	14.9	-2%	14.3	14.6	2%	21.0	19.5
2 Richmond District	10.2	12.3	21%	11.7	13.0	12%	16.8	17.4
3 Mission District	11.2	12.7	13%	11.4	12.8	13%	17.1	17.6
4 Sunset District	8.8	11.3	29%	9.0	11.7	30%	12.7	17.6
5 Daly City/San Bruno	11.8	13.2	11%	12.9	15.1	17%	21.0	22.9
6 San Mateo/Burlingame	9.8	11.2	14%	12.2	13.1	7%	17.3	13.7
7 Redwood City/Menlo Park	9.7	12.1	25%	12.4	13.9	13%	16.0	16.6
8 Palo Alto/Los Altos	10.1	10.5	4%	12.5	13.8	10%	17.3	16.5
9 Sunnyvale/Mtn. View	10.2	11.3	11%	11.6	13.3	14%	14.8	14.4
10 Cupertino/Saratoga	7.5	8.5	13%	9.9	9.6	-2%	12.6	12.5
11 Central San Jose	8.1	8.9	10%	9.1	9.0	0%	10.9	9.7
12 Milpitas/East San Jose	9.3	10.1	9%	10.5	9.1	-13%	12.9	10.3
13 South San Jose	8.4	8.8	5%	9.9	10.0	1%	11.5	11.1
14 Gilroy/Morgan Hill	10.7	13.8	29%	12.9	15.4	19%	13.5	14.1
15 Livermore/Pleasanton	9.5	12.3	29%	11.4	15.6	37%	20.9	23.3
16 Fremont/Union City	9.6	11.2	17%	11.0	11.7	6%	17.2	14.2
17 Hayward/San Leandro	9.4	11.0	16%	10.6	11.2	6%	14.1	13.1
18 Oakland/Alameda	11.9	11.7	-1%	13.4	12.5	-6%	17.6	15.7
19 Berkeley/Albany	10.7	10.7	-1%	13.4	11.5	-14%	16.7	13.5
20 Richmond/El Cerrito	11.4	11.8	3%	13.2	13.3	1%	19.3	18.1
21 Concord/Martinez	9.5	11.5	21%	11.8	13.7	16%	16.4	16.5
22 Walnut Creek	9.9	10.6	7%	12.9	14.0	9%	18.6	14.7
23 Danville/San Ramon	11.8	13.5	14%	15.8	17.9	13%	17.6	27.3
24 Antioch/Pittsburg	8.3	9.5	14%	9.6	11.5	20%	17.3	12.4
25 Vallejo/Benicia	10.3	11.8	14%	13.0	11.9	-8%	16.3	16.1
26 Fairfield/Vacaville	6.7	7.0	5%	8.6	7.0	-19%	10.5	8.5
27 Napa	5.8	8.1	40%	8.8	10.4	19%	10.6	11.8
28 St. Helena	10.0	10.4	5%	11.7	11.5	-2%	12.1	13.1
29 Petaluma/Rohnert Park	8.2	9.2	12%	10.1	10.9	9%	10.6	12.0
30 Santa Rosa/Sebastopol	6.5	7.9	23%	7.1	8.4	18%	7.9	9.0
31 Healdsburg/Cloverdale	11.4	8.6	-24%	13.9	9.4	-33%	14.1	10.0
32 Novato	9.9	12.9	31%	14.2	17.3	22%	13.5	17.5
33 San Rafael	10.4	13.1	25%	14.3	17.3	21%	21.6	21.2
34 Mill Valley/Sausalito	10.4	12.0	16%	14.2	15.6	10%	18.4	17.3
Region	10.1	11.1	10%	11.9	12.7	6%	17.1	16.6
San Francisco	12.8	13.6	6%	13.1	13.8	5%	19.6	18.8
San Mateo	10.6	12.3	16%	12.6	14.2	13%	18.9	19.2
Santa Clara	9.3	10.3	11%	11.0	11.7	6%	14.2	13.1
Alameda	10.6	11.4	7%	12.3	12.3	0%	17.2	15.7
Contra Costa	10.1	11.4	12%	12.5	14.0	12%	18.0	18.5
Solano	8.4	9.2	9%	11.0	9.5	-13%	14.6	13.3
Napa	6.8	8.9	30%	9.7	10.8	11%	11.3	12.3
Sonoma	7.5	8.4	12%	8.8	9.3	6%	10.1	10.1
Marin	10.3	12.7	23%	14.3	16.8	18%	19.6	19.4

Table 3.3
Regional Trip Length Frequency Distributions (in miles), 1990

Commute Means	Mean Distance	Median Distance	75th Percentile Distance	90th Percentile Distance	Percent less than 5 miles	Percent less than 10 miles
Walk	1.5	0.6	0.9	1.9	95.7%	96.8%
Bicycle	3.7	1.9	3.8	8.4	82.6%	92.1%
Other	9.7	4.9	13.8	26.0	50.7%	67.4%
Transit	11.1	6.4	15.9	27.4	41.6%	61.3%
Drive Alone	11.1	7.4	15.4	25.8	37.5%	60.1%
Vehicle Driver	11.3	7.6	15.7	26.3	37.0%	59.5%
Shared Ride 2	12.7	8.6	17.8	29.8	33.6%	55.1%
Shared Ride 3+	16.6	12.6	24.6	37.1	25.0%	41.6%
Total Non-Home	**11.0**	**7.0**	**15.4**	**26.4**	**39.9%**	**60.9%**

Table 3.4
Detailed Regional Trip Length Frequency Distribution, 1990

Number of Commuters by Means of Commuting by Home-to-Work Trip Length (in miles)

	Walk	Bicycle	Other	Transit	Drive Alone	Shared Ride 2	Shared Ride 3+	Total, Non-Home	% Walk or Bike	% Shared Ride 2+
≤ 1 mile	87,377	10,589	5,812	15,194	180,476	22,915	5,463	327,826	29.88%	8.66%
1 - 2 miles	10,673	5,882	3,988	27,078	155,193	20,119	4,818	227,751	7.27%	10.95%
2 - 3 miles	3,388	4,725	3,786	29,405	165,703	20,833	4,852	232,692	3.49%	11.04%
3 - 4 miles	1,286	3,166	2,798	26,610	143,796	18,787	4,201	200,644	2.22%	11.46%
4 - 5 miles	568	1,875	1,937	21,996	127,469	17,148	3,781	174,774	1.40%	11.97%
5 - 6 miles	438	1,069	1,641	19,208	115,607	15,887	3,863	157,713	0.96%	12.52%
6 - 7 miles	259	607	1,173	14,834	104,068	14,697	3,545	139,183	0.62%	13.11%
7 - 8 miles	185	513	1,160	9,661	87,727	11,736	2,521	113,503	0.61%	12.56%
8 - 9 miles	187	442	990	6,777	82,195	11,047	2,789	104,427	0.60%	13.25%
9 - 10 miles	142	380	1,063	6,523	77,250	10,511	2,610	98,479	0.53%	13.32%
10 - 11 miles	140	316	948	7,032	68,194	8,850	3,017	88,497	0.52%	13.41%
11 - 12 miles	214	193	788	7,222	63,292	9,128	3,115	83,952	0.48%	14.58%
12 - 13 miles	128	248	552	7,777	57,367	8,039	2,824	76,935	0.49%	14.12%
13 - 14 miles	190	156	584	7,024	52,764	7,958	2,790	71,466	0.48%	15.04%
14 - 15 miles	178	131	681	6,287	49,174	7,175	2,780	66,406	0.47%	14.99%
15 - 16 miles	144	104	445	4,708	43,333	6,509	1,898	57,141	0.43%	14.71%
16 - 17 miles	135	139	671	5,539	42,095	6,771	1,932	57,282	0.48%	15.19%
17 - 18 miles	112	168	552	4,252	37,389	5,623	1,767	49,863	0.56%	14.82%
18 - 19 miles	105	124	438	3,725	34,505	5,523	1,653	46,073	0.50%	15.58%
19 - 20 miles	156	120	580	3,728	31,814	5,633	1,663	43,694	0.63%	16.70%
> 20 miles	1,899	827	5,522	54,865	343,624	62,369	30,545	499,651	0.55%	18.60%
TOTAL	107,904	31,774	36,109	289,445	2,063,035	297,258	92,427	2,917,952	4.79%	13.35%

Cumulative Percent Distribution of Commuters by Means of Commuting by Home-to-Work Trip Length

	Walk	Bicycle	Other	Transit	Drive Alone	Shared Ride 2	Shared Ride 3+	Total, Non-Home
≤ 1 mile	81.0%	33.3%	16.1%	5.2%	8.7%	7.7%	5.9%	11.2%
1 - 2 miles	90.9%	51.8%	27.1%	14.6%	16.3%	14.5%	11.1%	19.0%
2 - 3 miles	94.0%	66.7%	37.6%	24.8%	24.3%	21.5%	16.4%	27.0%
3 - 4 miles	95.2%	76.7%	45.4%	34.0%	31.3%	27.8%	20.9%	33.9%
4 - 5 miles	95.7%	82.6%	50.7%	41.6%	37.5%	33.6%	25.0%	39.9%
5 - 6 miles	96.1%	85.9%	55.3%	48.2%	43.1%	38.9%	29.2%	45.3%
6 - 7 miles	96.4%	87.8%	58.5%	53.3%	48.1%	43.9%	33.0%	50.1%
7 - 8 miles	96.5%	89.5%	61.7%	56.7%	52.4%	47.8%	35.8%	53.9%
8 - 9 miles	96.7%	90.9%	64.5%	59.0%	56.3%	51.5%	38.8%	57.5%
9 - 10 miles	96.8%	92.1%	67.4%	61.3%	60.1%	55.1%	41.6%	60.9%
10 - 11 miles	97.0%	93.0%	70.1%	63.7%	63.4%	58.0%	44.9%	63.9%
11 - 12 miles	97.2%	93.7%	72.2%	66.2%	66.5%	61.1%	48.2%	66.8%
12 - 13 miles	97.3%	94.4%	73.8%	68.9%	69.2%	63.8%	51.3%	69.4%
13 - 14 miles	97.5%	94.9%	75.4%	71.3%	71.8%	66.5%	54.3%	71.9%
14 - 15 miles	97.6%	95.3%	77.3%	73.5%	74.2%	68.9%	57.3%	74.2%
15 - 16 miles	97.8%	95.7%	78.5%	75.1%	76.3%	71.1%	59.4%	76.1%
16 - 17 miles	97.9%	96.1%	80.4%	77.0%	78.3%	73.4%	61.5%	78.1%
17 - 18 miles	98.0%	96.6%	81.9%	78.5%	80.1%	75.3%	63.4%	79.8%
18 - 19 miles	98.1%	97.0%	83.1%	79.8%	81.8%	77.1%	65.2%	81.4%
19 - 20 miles	98.2%	97.4%	84.7%	81.0%	83.3%	79.0%	67.0%	82.9%
> 20 miles	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

MD

APPENDIX A

1990 Census Superdistrict-to-Superdistrict Commuter Flow Matrices by mode

Table A.2 (continued)
Share of 1990 Workers by Means of Transportation, Superdistrict-to-Superdistrict

SD Res	SD Work	% Drive Alone	% Shared Ride 2	% Shared Ride 3+	% Transit	% Walk	% Bicycle	% Other	% At Home	Vehicle Occupancy
34 Total		64.0%	9.1%	1.6%	12.7%	2.8%	0.6%	0.8%	8.4%	1.079
Total	1	30.9%	8.9%	5.7%	44.9%	6.3%	0.6%	2.0%	0.8%	1.224
Total	2	44.5%	9.6%	4.4%	23.3%	9.5%	0.9%	2.0%	6.0%	1.150
Total	3	49.1%	11.4%	4.8%	22.5%	5.8%	0.8%	1.8%	3.9%	1.156
Total	4	50.2%	9.1%	3.2%	20.8%	6.9%	0.9%	1.6%	7.2%	1.117
Total	5	74.1%	11.3%	3.8%	5.4%	2.1%	0.4%	1.1%	1.8%	1.100
Total	6	76.3%	9.1%	2.5%	3.5%	3.2%	0.6%	0.9%	4.0%	1.073
Total	7	75.0%	10.0%	2.5%	3.4%	3.1%	1.1%	0.9%	4.0%	1.080
Total	8	73.6%	8.5%	1.9%	2.9%	3.1%	5.5%	1.0%	3.5%	1.068
Total	9	80.6%	11.3%	2.2%	2.4%	1.0%	0.7%	1.0%	0.8%	1.080
Total	10	78.9%	8.8%	2.2%	2.1%	2.1%	0.8%	0.9%	4.2%	1.068
Total	11	76.2%	10.9%	2.0%	3.9%	2.9%	0.9%	1.0%	2.3%	1.080
Total	12	77.7%	11.1%	2.3%	2.9%	1.7%	0.7%	0.9%	2.7%	1.081
Total	13	78.6%	8.9%	1.7%	2.4%	1.9%	0.8%	0.9%	4.8%	1.065
Total	14	74.7%	11.4%	3.2%	2.3%	2.7%	1.0%	0.8%	3.9%	1.095
Total	15	79.4%	8.7%	3.2%	1.8%	1.8%	1.2%	1.0%	3.0%	1.076
Total	16	78.5%	9.7%	2.7%	3.0%	1.6%	0.7%	1.0%	2.8%	1.077
Total	17	78.6%	9.3%	2.2%	3.7%	2.3%	0.7%	0.9%	2.2%	1.071
Total	18	63.3%	10.2%	2.9%	11.4%	4.2%	0.7%	1.3%	6.1%	1.099
Total	19	57.0%	9.1%	2.7%	10.2%	10.6%	4.0%	1.9%	4.5%	1.100
Total	20	72.3%	11.2%	4.0%	3.7%	3.0%	0.6%	1.1%	4.1%	1.104
Total	21	77.2%	9.6%	2.7%	2.7%	2.0%	0.6%	1.0%	4.1%	1.078
Total	22	78.8%	8.3%	2.3%	3.1%	1.7%	0.5%	0.8%	4.5%	1.066
Total	23	78.3%	8.8%	4.6%	1.4%	1.1%	0.5%	0.7%	4.6%	1.091
Total	24	78.1%	8.6%	1.9%	1.7%	3.3%	0.5%	1.1%	4.9%	1.065
Total	25	73.3%	11.7%	4.2%	1.7%	3.6%	0.9%	1.3%	3.2%	1.108
Total	26	78.1%	9.7%	2.2%	0.6%	3.0%	1.0%	1.2%	4.1%	1.074
Total	27	79.2%	9.2%	2.7%	1.0%	2.7%	1.5%	0.9%	2.8%	1.075
Total	28	68.1%	8.9%	3.2%	0.2%	11.1%	0.9%	1.2%	6.4%	1.088
Total	29	77.2%	8.6%	1.9%	1.0%	3.6%	1.2%	0.8%	5.8%	1.067
Total	30	77.3%	8.7%	2.4%	1.2%	3.6%	1.3%	1.1%	4.5%	1.071
Total	31	67.5%	9.2%	1.7%	0.7%	5.2%	0.2%	0.6%	14.9%	1.078
Total	32	75.3%	9.2%	2.4%	2.4%	2.7%	1.0%	0.9%	6.0%	1.075
Total	33	70.8%	11.1%	3.0%	3.0%	3.5%	0.8%	0.9%	6.8%	1.096
Total	34	69.2%	9.5%	2.5%	3.3%	3.2%	0.8%	0.9%	10.6%	1.083
Total Total		68.2%	9.8%	3.1%	9.5%	3.6%	1.0%	1.2%	3.5%	1.092

Table A.1 (continued)
1990 Workers by Means of Transportation, Superdistrict-to-Superdistrict

SD Res	SD Work	Total Workers	Drive Alone	Shared Ride 2	Shared Ride 3+	Transit	Walk	Bicycle	Other Means	Work At Home	Vehicle Driver
9	17	500	462	18	12	8	0	0	0	0	475
9	18	334	251	22	0	61	0	0	0	0	263
9	19	70	63	0	0	0	7	0	0	0	63
9	20	41	41	0	0	0	0	0	0	0	41
9	21	109	101	8	0	0	0	0	0	0	105
9	22	61	61	0	0	0	0	0	0	0	61
9	23	47	47	0	0	0	0	0	0	0	47
9	24	36	14	22	0	0	0	0	0	0	26
9	25	26	26	0	0	0	0	0	0	0	26
9	26	4	0	0	4	0	0	0	0	0	1
9	27	10	10	0	0	0	0	0	0	0	10
9	32	25	25	0	0	0	0	0	0	0	25
9	33	20	20	0	0	0	0	0	0	0	20
9	34	43	43	0	0	0	0	0	0	0	43
9	Total	116,366	94,003	10,400	1,665	3,010	2,365	1,291	1,278	2,354	99,951
10	1	825	498	68	0	233	19	0	7	0	534
10	2	175	130	9	18	18	0	0	0	0	139
10	3	341	253	25	6	45	4	0	8	0	267
10	4	35	22	13	0	0	0	0	0	0	29
10	5	1,273	957	160	40	106	0	0	10	0	1,050
10	6	863	729	97	18	19	0	0	0	0	785
10	7	3,638	3,137	330	64	107	0	0	0	0	3,334
10	8	12,070	10,408	1,115	156	269	34	44	44	0	11,041
10	9	52,982	46,539	4,410	549	771	70	318	325	0	49,022
10	10	47,455	34,909	3,269	673	581	2,210	586	397	4,830	36,824
10	11	19,317	16,883	1,420	267	431	51	113	152	0	17,710
10	12	9,171	7,962	748	114	144	9	88	106	0	8,395
10	13	5,911	5,148	347	132	154	24	65	41	0	5,367
10	14	2,090	1,720	235	29	45	36	19	6	0	1,855
10	15	296	243	22	31	0	0	0	0	0	260
10	16	2,182	2,074	94	14	0	0	0	0	0	2,128
10	17	805	673	86	18	19	0	0	9	0	724
10	18	238	214	18	6	0	0	0	0	0	226
10	19	97	65	7	0	25	0	0	0	0	69
10	20	20	20	0	0	0	0	0	0	0	20
10	21	56	56	0	0	0	0	0	0	0	56
10	22	34	34	0	0	0	0	0	0	0	34
10	23	99	70	0	29	0	0	0	0	0	77
10	24	13	5	0	0	0	0	0	8	0	5
10	25	9	9	0	0	0	0	0	0	0	9
10	26	10	10	0	0	0	0	0	0	0	10
10	28	6	0	0	0	0	6	0	0	0	0
10	29	24	15	0	0	0	9	0	0	0	15
10	30	12	6	0	6	0	0	0	0	0	8
10	32	23	12	11	0	0	0	0	0	0	18
10	33	7	7	0	0	0	0	0	0	0	7
10	34	27	27	0	0	0	0	0	0	0	27
10	Total	160,104	132,835	12,484	2,170	2,967	2,472	1,233	1,113	4,830	140,045

Appendix C
RECOMMENDED BIKEWAY NETWORK

CITY OF CUPERTINO

RECOMMENDED BIKEWAY NETWORK

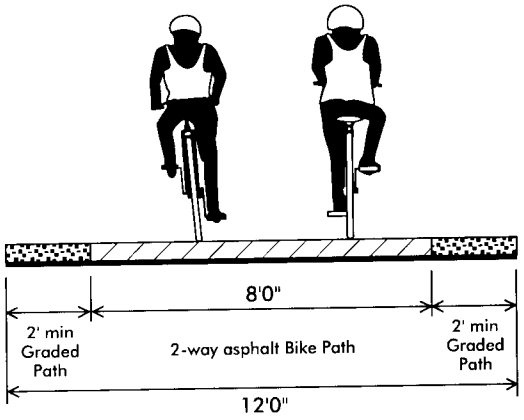
ROUTE	STREET	Length ft	Length mi.	DESCRIPTION					PROPOSED IMPROVEMENTS	ESTIMATED COST*
				No. of Travel Lanes	Curb to Curb to Width	Street Parking	Avg. Daily Traffic	Critical Speed		
1	Foothill Blvd : I-280 to Stevens Creek Blvd	4214	0.8	4			20816	40	Lanes	$500,000
1	Foothill Blvd : Stevens Creek Blvd to Stevens Creek Park	4586	0.9	2			6197	30	Lanes/Route	$1,000,000
2	Palm/Vista/Janice	2700	0.5	2			n/a	25	Boulevard	$33,239
3	Orange Ave/Fort Baker/Santa Teresa Drive	7725	1.5	2			1699	25	Boulevard	$232,599
4	Mary Avenue: I-280 to Stevens Creek Blvd	3528	0.7	5			6408	35	Overcrossing	$3,800,114
4	Bubb Road: Stevens Creek Blvd to Rainbow Dr	8415	1.6	4,2			16928	30,35	Lames	$16,535
5	Stelling Road: Homestead to Rainbow	12671	2.4	2			25311	30,35	Lanes	$155,988
6	Bandley Drive: Valley Green Drive to Stevens Creek Blvd and Lazaneo to Bla	3200	1.2	2			6479	25,30	Boulevard	$153,600
6	Vista Drive/Torre Avenue:Stevens Creek Blvd to Rodrigues Ave	4335	0.8	2			2705	25	Boulevard	$53,366
7	De Anza Boulevard: Homestead to Mariani	2695	0.5	6			50786	40		-
7	De Anza Boulevard: Mariani to Prospect	13135	2.5	6			55867	40		-
8	Blaney Avenue: Homestead Rd to Bollinger Rd	10338	2.0	2			7834	30	Lane	$122,372
9	Portal Avenue: Merritt to Price	3271	0.6	2			2585	25	Boulevard	$77,438
9	Portal Avenue: Price to Wintergreen,	351	0.1	2			n/a	25	Boulevard	$690
9	Path thru park		0.2	-			-	-	Path	$50,000
10	Wolfe Road-Miller Ave:Homestead to Bollinger	10000	1.9	4			31176	35	Lanes/Route	$85,227
11	Tantau Ave: Homestead Rd to Stevens Creek Blvd	5057	0.96	5			10853	35		-
11	Tantau Ave:Stevens Creek Blvd to Bollinger Rd	5340	1.0	2			3974	25	Boulevard	$63,210
12	De Anza National Historic Trail		3.0	-			-		Trail	$3,400,000
13	Stevens Creek Recreational Trail		3.0	-			-		Trail	$3,000,000
21	Homestead Rd: Grant Ave to Swallow Wy	18171	3.4	5			25686	35	Lanes	$50,000
22	Greenleaf Drive/ Mariani Ave Merritt Dr	8100	1.5	2			n/a	25	Boulevard	$254,261
23	Lazaneo Dr/Forest Dr/Pathway/Amherst/Vallco Pkwy	7000	1.3	2			n/a	25	Boulevard	$500,000
24	Stevens Creek Blvd:Trailhead to Foothill Blvd.		0.5				n/a		Lanes	$22,500
24	Stevens Creek Blvd: Foothill to Phar Lap	2550	0.5	2			11269	35	Lanes	$21,733
24	Stevens Creek Blvd:Phar Lap to Stern	15986	3.0	4			36611	35		-
25	PepperTree Lane/Rodrigues Ave/Creekside Park: Peppertree to Blaney	5800	1.1	2			n/a	25	Boulevard	$71,402
25	PepperTree Lane/Rodrigues Ave/Creekside Park: Blaney to Creekside Park	3200	0.6	2			n/a	25	Boulevard	$39,394
25	Extension of Rodrigues Ave toWintergreen Dr/WilsonPark	500	0.1				-		Path	$156,250
26	McClellan Road: Foothill to Byrne	4429	0.8	2			8813	25	Route	$1,207,207
26	McClellan Road: Byrne to Stelling- existing	4743	0.9	2			15304	25,30		-
26	McClellan Road: Stelling to DeAnza	2700	0.5	2			21641	30	Lanes	$23,011
27	Bollinger Road: Miller to east city limits	5692	1.1	4			19689	35		-
27	Bollinger Road: Miller to De Anza	5700	1.1	4			16690	35	Lanes	$48,580
28	Rainbow Drive: Stelling to De Anza	2589	0.5	5			4709	35		-
28	Rainbow Drive : Stelling to Bubb	2665	0.5	2			4466	25	Lanes/Route	$22,713
29	Prospect: Stelling to De Anza (east city limits)	2155	0.4	5			6702	30		-
	TOTAL COST*									$15,161,429

* includes 25 percent contingency; n/a=not available.

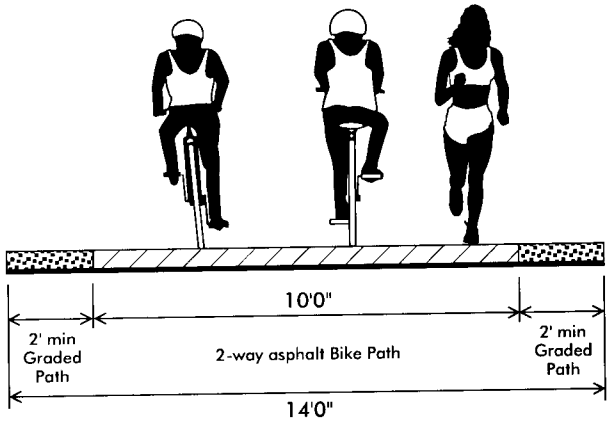
Appendix D
SUGGESTED DESIGN GUIDELINES

GUIDELINES FOR BIKE PATHS

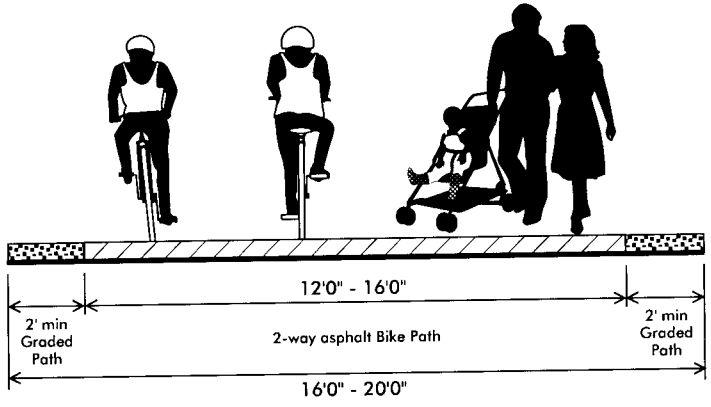
BICYCLE PAVEMENT MARKING STENCIL



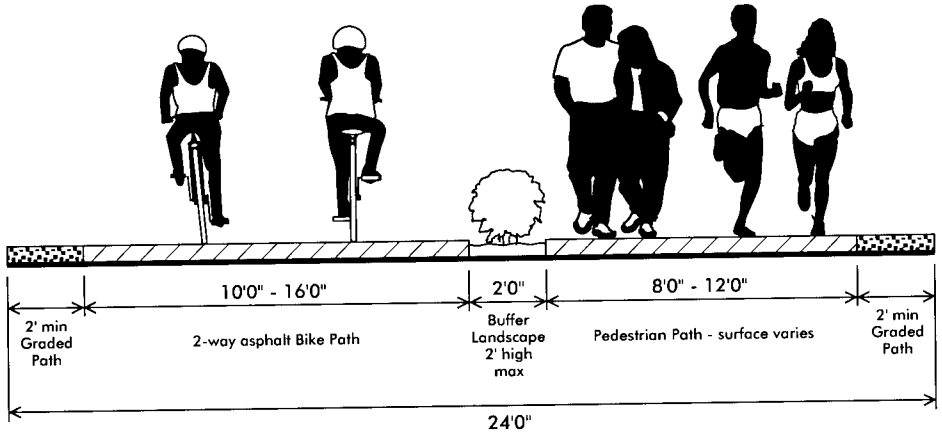
1a. BIKE PATH SEGMENTS LESS THAN 500' OR PEDESTRIAN TRAFFIC OF LESS THAN 50 PER PEAK HOUR



1b. BIKE PATH WITH PEDESTRIAN TRAFFIC OF MORE THAN 50 PER PEAK HOUR



1c. MULTI-USE TRAIL - MODERATE PEDESTRIAN VOLUMES



1d. SEPARATE PATHS FOR BIKES AND PEDESTRIANS HEAVY PEDESTRIAN VOLUMES

Figure 1

DESIGN GUIDELINES - BIKE PATHS

CITY AND COUNTY OF DENVER

WELLINGTON E. WEBB
Mayor

DEPARTMENT OF PUBLIC WORKS

TRANSPORTATION DIVISION
200 W. 14th Avenue
Denver, Colorado 80204-2700

TO: Whom It May Concern

FROM: James Mackay, P.E.
Bicycle and Pedestrian Planner

DATE: August 8, 1995

SUBJECT: Bicycle Pavement Marking Arrow

The Bicycle Pavement Marking Arrow was developed as part of the Denver Bicycle Master Plan (which was adopted unanimously by City Council in June of '93.)

During the development of the plan our consultant, Design Ventures ,hosted a number of public meetings to solicit input. We also talked to maintenance people and analyzed every bicycle accident reported by the Police Department during the preceding three years. As a result of the planning process, a number of topics regarding bike lanes became clearly evident:

1) While recognizing that basic and child bicyclists like the perceived safety of a preferential bike lane, we also realized that advanced bicyclists are able to travel well with traffic in a shared lane situation with minimal assistance. Advanced bicyclists oftentimes do not support bicycle lanes as they feel relegated to one portion of the road, impeding their ability to make left turns, swerve around debris, conflicting with right-turning motorists, etc.

Given that the minimum width of bike lanes is defined as 4' (5' when adjacent to on-street parking) in the Guide for the Development of Bicycle Facilities published by the American Association of State Highway Transportation Officials (AASHTO) the provision of bike lanes can result in excessive narrowing of existing traveled lanes. Impacts to on-street parking and potentially low volumes of bicycles can make the provision of bike lanes difficult to justify to other transportation system users. (Further drawbacks of designated bike lanes are defined by John Forester, author of Effective Cycling);

2) Maintenance budgets, full-time employees, and equipment allotments are typically not increased when bike lanes are provided. Thus, while capital funding may be available on a one-time basis, existing maintenance funds must be used to maintain and re-stripe these lanes in perpetuity. By precluding motorized traffic from this portion of the road at **all** times, the "sweeping" effect from the air displaced by motorized traffic is lost.

This means that sand, glass, debris, etc. are likelier to accumulate on this portion of the road, necessitating additional maintenance efforts. These accumulations typically begin at the edge of pavement and continue inward, forcing bicyclists closer to traffic. (A study by the Bicycle Federation of America showed that motorists will allow more clearance when overtaking a bicyclist in a "shared-use" lane than they will for a bicyclist in a striped bike lane. Thus, the effects of accumulations of debris can be more insidious when a designated bike lane has been provided.)

3) "Wrong Way" bicycling was one of the top three factors in the reported bicycle accidents. Motorists typically are not looking for bicyclists traveling unlawfully against traffic, particularly at

intersections. On one-way streets where bike lanes had been provided, some bicyclists chose to use the bike lanes provided to travel *against* traffic.

By developing the Bicycle Pavement Marking Arrow for "shared-use" lanes, we are addressing these issues:

1) While the pavement arrow indicates the travel corridor that bicyclists will likely be using, it does not relegate them to one portion of the roadway. This allows them to operate as other transportation system users on streets with left turn, through, and right turn lanes - a major improvement to the awkwardness of making a left turn from a bike lane, or being in conflict with motorists making a right turn across the bike lane;

2) The pavement marking arrow requires significantly less pavement marking materials, thus having less impact on future maintenance budgets. By allowing motorized traffic to use the entire lane when bicyclists are not present, traffic flows are not impeded and debris can be effectively "swept" to the edge of the road;

3) The pavement marking arrow does not provide an area for the exclusive use of bicyclists. Each arrow reinforces the correct direction of travel. Thus, the use of these arrows serves to reinforce the concept of cycling lawfully with traffic.

At the recent Institute of Transportation Engineers (ITE) conference in Denver there was a bicycle facilities and planning presentation which resulted in a solid interest in the arrow. Specifications and installation details were passed out to traffic engineers from across the country. Their participation in the usage of the arrow was solicited, and their operational feedback was requested.

I serve on the National Committee on Uniform Traffic Control Devices (NCUTCD). The NCUTCD is the committee which makes recommendations to the Federal Highway Administration (FHWA) on the Manual on Uniform Traffic Control Devices (MUTCD.) The arrow has been presented to the Pavement Markings technical committee of the NCUTCD. The Pavement Markings committee displayed a strong interest in this initiative.

The MUTCD does not *preclude* the use of signs and pavement markings that it does not provide guidance on. Having been employed as the Bicycle Facilities Engineer for the North Carolina Department of Transportation, I can assure you that state DOT's routinely develop state standard signs which are not contained in the MUTCD. In North Carolina, for example, I personally specified "Share the Road" signs and plaques which were installed with federal funding, despite the fact that these items were not contained in the MUTCD.

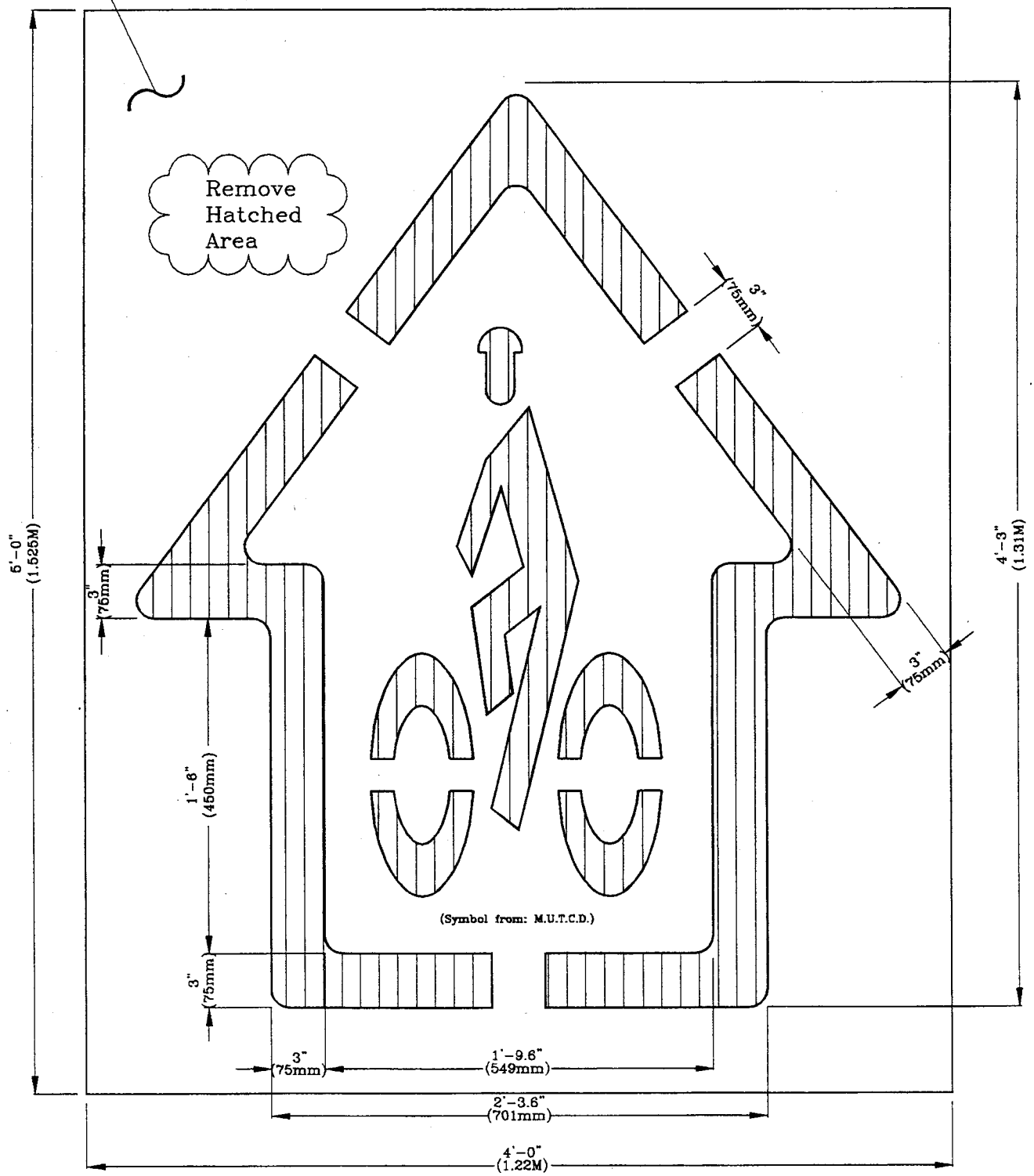
You are welcome to use this arrow for "shared lane" bicycle routes in your community. If you have any further questions on the use of this arrow, you may reach me at (303) 640-1098.

JM/

file: 21: bikearrw.mmo

DENVER SHARED – USE LANE PAVEMENT MARKING SYMBOL

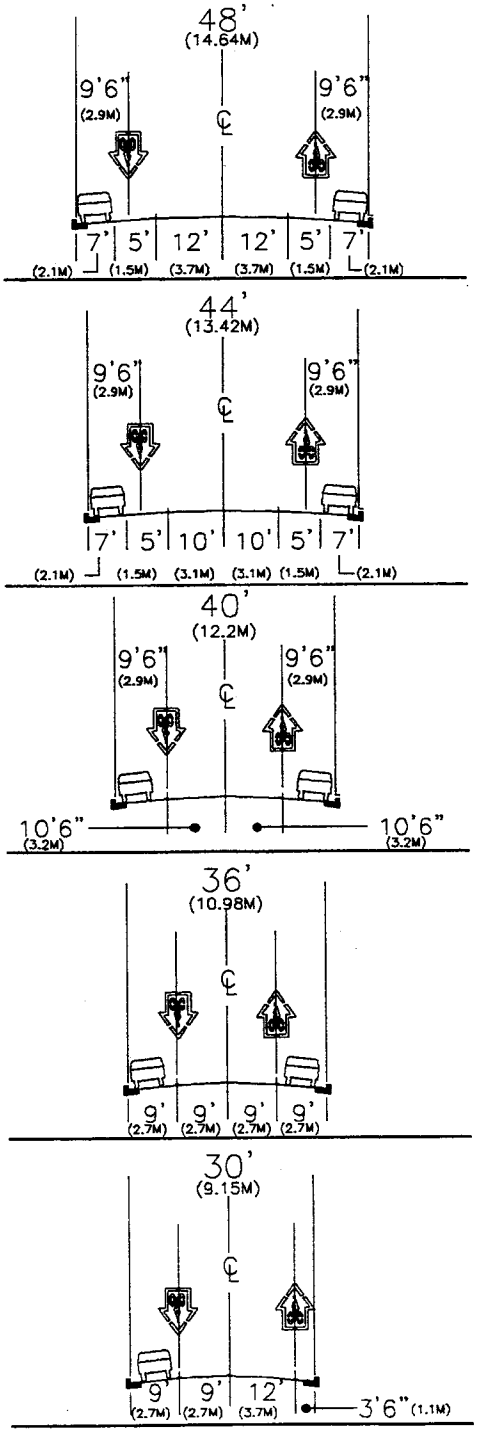
Material: 3mm Thick, Low Density Poly Ethylene



REVISIONS				
REV	DRN	DATE	CKD	APVD
A	Procedures established for pavement messages, for typical street widths.			
	daj	7-20-94	BLM	BLM
B	Procedures established for message placement, for typical block lengths.			
	daj	7-20-94	BLM	BLM
C	Consolidated drawings "LONGBIKE" & "BKSTENCL" into single drawing: BIKESTEN			
	daj	8-12-94	BLM	-

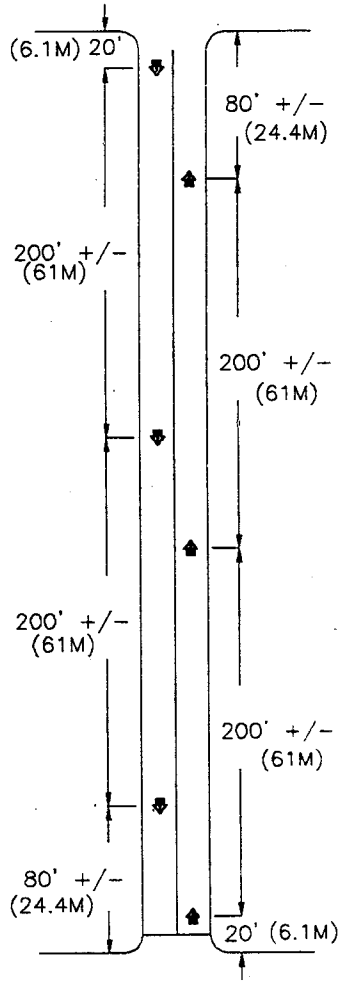
APPROXIMATE LOCATIONS FOR PLACING BICYCLE SYMBOL IN ROADWAY

TYPICAL STREET CROSS SECTIONS

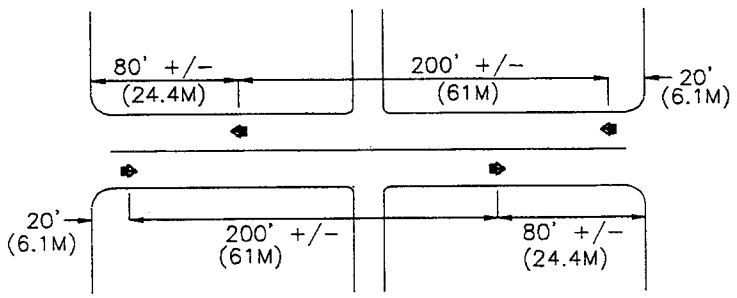


TYPICAL STREET CROSS SECTIONS

PLAN VIEW
TYPICAL NORTH–SOUTH STREET



PLAN VIEW
TYPICAL EAST–WEST STREET



TRANSPORTATION DIVISION			
DEPARTMENT OF PUBLIC WORKS			
CITY and COUNTY of DENVER, COLORADO			
SCALE:	~	4/14/98	DWG NO BIKESTEN

Appendix E
BICYCLE PARKING INVENTORY

City of Cupertino
Bicycle Parking Facilities Inventory

The following inventory of bicycle parking at schools, shopping centers, public buildings, parks and major employment centers was gathered for the Cupertino area *South* of Stevens Creek Blvd. and *West* of DeAnza Blvd.:

Location Name	Address or Contact Number	Land Use	Bike Parking Class	Type	Bike Parking Capacity
Southwest					
DeAnza College	Lisa - 864-8296	Public Community College	C I - 1 C II C III Book Lockers	Lockers Frame Rack Wheel Racks Lockable Door Showers & Lockers	30 usable 14 at Security 150 96 near Bookstore Yes
Monta Vista	Campus Liaison 366-7637	Public High School	C I - 3 C III	Wheel Racks in locked enclosure. Wheel Racks	 100 50
Kennedy	Receptionist - 253-1525	Public Middle School	C I - 3	Wheel Racks in locked enclosure.	100
Lincoln	Receptionist - 252-4798	Public Elementary School	C III	Wheel Racks on campus not in an enclosed cage.	50
Regnard	Receptionist - 253-5250	Public Elementary School	C I - 3	Wheel Racks in locked enclosure.	75
Faria	Receptionist - 252-0706	Public Elementary School	C III C III	Ribbon Rack Wheel Rack	3 Loops 36
Bubb Road Office-Prototype Mfg.	From Stevens Creek to McClellan Rd.	22 companies with only three racks	C III	Wheel Rack	26 at UCSB 8 at Scintag 15 at Celerity Systems
Measurex	Karen Cole 255-1500	Major Employer	C III	Wheel Rack Showers & Lockers	40 Yes

Location Name	Address or Contact Number	Land Use	Bike Parking Class	Type	Bike Parking Capacity
Southwest continued					
Monta Vista District	From Pasadena to Imperial	Office Buildings and Commercial	No bike parking facilities		
South-side Stevens Creek.	Stelling to DeAnza Blvd.	Public - Church Commercial - Whole Foods Mervyn's Crossroads	C III C III C III C III	Wheel Rack Ribbon Rack Wheel Rack Ribbon Racks 2ea	8 6 Loop 8 8 Loops total
West-side DeAnza Blvd.	Steven Creek to McClellan Rd.	Commercial	No bike parking facilities, except for Lucky's - C III	Wheel Rack	6
West-side DeAnza Blvd.	McClellan Rd. to Bollinger Rd.	Commercial and Office	No bike parking facilities		
West-side DeAnza Blvd.	Bollinger Rd. to Prospect Rd.	Commercial and Office	No bike parking facilities, except: Kragen's C III Nob Hill C III Jack in Box C III Cup Office Ctr C I - 1	 Wheel Rack Wheel Rack Wheel Rack Bike Lockers	 4 3 4 10
Jollyman Park	Stelling Rd.	Public Park and Playground	No bike parking facilities		
Linda Vista Park	Linda Vista Dr.	Public Park and Playground	No bike parking facilities		

Location Name	Address or Contact Number	Land Use	Bike Parking Class	Type	Bike Parking Capacity
Northwest					
Sunnyview Retirement	22445 Cupertino Rd. Cupertino, CA 95014	Rest Home Retirement Community	None		0
Church - A Montessori School	Foothill	School-Church	None		
School	Foothill	School	Class 1	Class 1-3	20
Apts.	Foothill	Residence	none		
Blue Pheasant	Stevens Creek	Restaurant/Bar	none		
Kaiser		Hospital	none		
Arcadia Vet.	Foothill Blvd. Stevens Creek		none		
Northeast					
City Hall	Torre Ave.	Public	1	Locker	4
" "	" "	" "	3	Clamp	4
Library	" "	" "	3	"	6
Dairy Bell Freeze	Stevens Creek/Blaney	Commercial	3	Rack	4-8
Portal School	N. Blaney Ave.	Quasi-Public	3	Racks	136
PG & E	N. Blaney Ave.	Industrial	1	Locker	2
"	" " "	Office	3	Rack	6
Hewlett-Packard	Bound by Homestead Tantau, Pruneridge, Wolfe	Office/ Campus	1	Locker	40
" "	" "	" "	3	Clamp	138
	19925 Stevens Creek	Ofice	1	Locker	12
Tandem	Tantau & Vallco Campuses	Office	1	Lockers	82
Collins School	Merrit Drive	Quasi-Public	3	Racks	250 +
IKOS Systems	19050 Pruneridge	Office	3	Rack	15

Location Name	Address or Contact Number	Land Use	Bike Parking Class	Type	Bike Parking Capacity
Northeast continued					
Apple Computer	1-6 Infinite Loop	Office/ Campus	1	Lockers	42
Hands Net/ Interim	20195 Stevens Creek	Office	1	Lockers	6
St. Joseph Church	De Anza & Stevens Creek	Quasi-Public	3	Rack	10
Apple De Anza 3	10500 De Anza	Office	3	Rack	28
" " "	" " "	"	1	Locker	16
Dade Behring	20400 Mariani	"	3	Rach	10
Southeast					
Microsoft	1000 Torre	Major Employer	hanging triange		8 triangle's
Symantec	10201	Major Employee	ribbon		4 squiggles
Pizzeria Uno	Stevens Creek	Restaurant	wheel bender		8 shots
Creekside Park			Ribbon		4 racks (8 bikes)
Cupertino H.S	Finch	Highschool	Wheel Bender	incage	Slots
" "				"	9 -12 ft racks
Hyde Jr. H.S	Bollinger Rd.	Jr. High School		in cage	8-12 ft racks
Sedgwick School	Tantau	grade school		nob	9-12 ft racks
Creekside Park	Miller	Park	Inverted U		8 U's
Wilson Park	Wintergreen Dr.	"			
City Center Apts.	Torre	Multi Family Residentry	Inverted U	in covered gated pkg. garage	15 U's
City Center pkg. lot	Stevens Creek		Clamp	covered pkg. garage	6 + 6
Morman Church	20125 Bollinger	Church	wheel Bender		10 slots
Marketplace	19620 Stevens Creek	shopping center			16 ft rack
Cupertino Town Center	10300 De Anza	office complex	wheel benders		6 + 8
Torre Professional Center	10353 Torre	"	"		10 + 11

Location Name	Address or Contact Number	Land Use	Bike Parking Class	Type	Bike Parking Capacity
Southeast continued					
?	10430 De Anza	"	"		15
Cupertino Nat. Bank etc	20230 Stus Creek	Bank, etc	"		4
				Survey performed by members of the Cupertino Bicycle Pedestrian Advisory Committee.	

Bike Parking:	**Bike Locker**	**C I - 1**	**40**
	Enclosed Cage	**C I - 3**	**275**
	Frame Rack	**C II**	**14**
	Wheel Rack	**C III**	**393**
	Ribbon Rack	**C III**	**34**
		Total	**756**

Appendix F
HISTORY OF PALO ALTO'S BICYCLE BOULEVARD

Appendix F
HISTORY OF PALO ALTO'S BICYCLE BOULEVARD

The Bicycle Boulevard, as implemented in Palo Alto, was created in 1982 along a two-mile section of Bryant Street, a local residential street that is about 36 feet wide. The original concept of the bicycle boulevard was a roadway where bicycle traffic has right-of-way priority over intersecting streets, and motor vehicle traffic was discouraged. Bryant Street already was discontinuous at one point due to a natural feature—a creek that was crossed only by a narrow footbridge usable by bicycles.

To give bicycles priority, most of the stop signs facing Bryant Street were removed, and two-way stops were placed on cross streets instead. Bryant Street's intersections with collectors were made four-way stops. A bicycle boulevard can be thought of as the exchange of one traffic control device that is unfriendly to bicycles—stop signs—for traffic calming that can be friendly to bicycles—traffic barriers. The original bicycle boulevard intersected one arterial, Oregon Expressway, at an intersection that was already signalized. To prevent Bryant Street from becoming attractive to automobiles, two road closures were added at other points along Bryant Street to discourage through traffic. In all other respects the boulevard functions as a normal city street, with full access to all residences and on-street parking.

In 1986, the original footbridge was replaced with a wider bridge for bicycles and a separate pedestrian bridge. The boulevard was extended in 1992 and it now extends the entire length of Bryant Street, about three and half miles long. Bryant Street terminates on the north at Francisquito Creek, which forms the border between the cities of Menlo Park and Palo Alto. There are two bike/pedestrian bridges over this creek within one to four blocks of Bryant Street. As part of the extension, a traffic signal was installed at another arterial, Embarcadero Road, with signing and channelization to force cars to turn right while bicyclists may proceed straight. A traffic circle was also installed at Addison Avenue.

Appendix G
SOURCES FOR BICYCLE EDUCATION AND BICYCLE PROMOTION INFORMATION

Appendix G
SOURCES FOR BICYCLE EDUCATION AND BICYCLE PROMOTION INFORMATION

International Bicycle Fund – web site at www.ibike.org

Bicycle Federation of America
1506 21st Street, NW, Suite 200
Washington DC, 20036-1008
bfa@igc.org or bikefed@aol.com or www.bikefed.org

Association for Commuter Transportation
1518 K Street, NW, Suite 503
Washington DC, 20005

"Developing Successful Bicycle/Pedestrian Commuter Programs"
Florida Institute for Marketing Alternative Transportation, February 1998
Florida State University, Tallahassee, Florida 323-06-3037
(904) 644-2509 fax (904) 644-6231 e-mail "pmaurer@postoffice.cob.fsu.edu

League of American Bicyclists (LAB)
1612 K Street, NW, Suite 401
Washington DC, 20006
bikeleague@aol.com or www.bikeleague.org

"Safe Moves" contracts with cities and schools to provide bicycle education and rodeos
Executive Director: Pat Hines
15500 Erwin Street, Unit 1121
Van Nuys, CA 91411
818 908-5341 or fax 818 908-5337
Bay Area Phone 408 374-8991

Web Sites
www.nwlink.com/~mcw/nowbike/31ways.html
www.self-propelled-city.com
www.cycling.com provides a links to most of the good bicycle-related sites
www.bikelane.com
www.cascade.org
www.rides.org to get info on bike stuff in the Bay Area

Appendix H
BICYCLE PROMOTION PROGRAMS

Appendix H
BICYCLE PROMOTION PROGRAMS

Company: Adobe Systems
Address: Mountain View, CA
Contact: Roxanne Rasmussen, commute coord 415-962-3979

1. What incentives are being offered?
a) Inside bicycle parking, with a formal posted policy approved by Facilities and Security departments and by the city's fire department. Bikes may be parked in employee-entrance stairwells and in offices and cubicles if there is sufficient space.

b) Bike parking stands in bike-parking stairwell areas. These are simple floor stands as used for bike display in bike shops; they keep the inside parking areas organized.

c) Free lunch coupon for first-time bike commuters

d) Showers in all buildings, in shower/locker rooms connected to bathrooms. These were installed when the building was built; Adobe did not add them.

e) Day-use clothes lockers (unfortunately, no permanent use is allowed, though several buildings have a surplus of such lockers).

f) Flex time- Adobe is a software company; the corporate culture includes an unwritten policy of fairly flexible hours as long as you get the job done.

2. How successful they have been?
I'd say maybe 1% to 2% bike commute during daylight savings time, but that's only a guess. Contact Roxanne Rasmussen, our commute coordinator, at 415-962-3979 for details (she probably has the survey results but has not published them).
3. How many employees?
About 900 at the 5-building Mountain View site. About 1400 worldwide
1995

Company: Alza Corporation
Address: Palo Alto, CA
Contact: Joanne Rogers, Benefits Dept 415/494-5177

1. What incentives are being offered?
Locked Bicycle parking room; showers; $1 per day for alternative commute modes including bicycle commuting to make the transit subsidy more equitable

2. How successful they have been?
Very few bicycle commuters

3. How many employees?
800
1995

Company: Apple Computer
Contact: Scott Haywood (408) 862 7059

1. What incentives are being offered?
$1 day for using alternative commute mode including bicycling; Bicycle lockers at most locations (total about 100); 2-4 fleet bikes at most bldgs for use during the day; Showers and commute information centers in most bldgs; bicycle club of employees

2. How successful they have been?
40 lockers are checked out

3. How many employees?
Not available
1995

Company: B.C. Systems Corporation
Contact: Suzie Ross, Environment Coordinator (604) 389-3053 Fax (604) 360 7007
e-mail: SCROSS@BCSC02.GOV.BC.CA

1. What incentives are being offered?
Lockers

2. How successful they have been?
Not available

3. How many employees?
Not available
1995

Company: City of Menlo Park
Contact: Debby Helming, TSM Coordinator 415/858-3363

1. What incentives are being offered?
$1 per day for bicycle commuting (and car pooling) to make the transit subsidy more equitable; 6 bicycle lockers available on as needed basis; shower facilities adjacent to City Hall; Employees are able to bring bicycles into offices if room; bike racks outdoors.

2. How successful they have been?
4 employees participate in $1/day program

3. How many employees?
200
1998

Company: City of Palo Alto
Contact: Kathy Lee, Commute Coordinator (kathy_lee@city.palo-alto.ca.us), 415/329-2582.

1. What incentives are being offered?
Employer-owned bikes to loan for trial bike commuting (4 bikes); $20 vouchers for 3 local bike shops for commuters (commute 60% of working days-12 days month); rack in visible location in parking garage; locked bike cage at City Hall for employees; buddy bike rider program; bicycle route information for commuting; $.07/mile for use of private bike to conduct authorized city business; guaranteed ride home.

2. How successful they have been?
11-27 bike commute each month; average 19 each month; 20% increase over 1996.
1998

3. How many employees?
930 citywide
1995

Company: EPRI
Address: Palo Alto, California
Contact: John Lewis
Error! Bookmark not defined.

1. What incentives are being offered?
Bike racks near entrance and showers

2. How successful have they been?
6 bicyclists in summer

3. How many employees?
About 600
1998

Company: Fleetwood Enterprises (RV manufacturers)
Address: Riverside, CA
Contact: Roberta Holden, 714/351-3987

1. What incentives are being offered?
Fitness Center with showers; 50 bicycle lockers; fleet of 24 company bikes you can use for up to 60 days and purchase at a discout if you agree to commute min of 3 times/week; safety package of helmet, reflective vest and headlamp for regular commuters; on-site repair facilities; company-suppled bike map showing best routes to work; shuttle service for stranded riders; company policy for forgiving lateness caused by cycling.

2. How successful they have been?
10-12% bike-commute regularly

3. How many employees?

650 at Riverside headquarters
Source: *Bicycling*, December 1994.
1995
Company: Genentech
Address: South San Francisco
Contact: Rich Booth, ETC Program Manager
(415) 225-2409

1. What incentives are being offered?
12 bicycle lockers; showers. Future consideration-Commuter credits for alternative modes; access to company along abandoned railroad r-o-w.

2. How successful they have been?
Lockers always being used; 1% bike commute
3. How many employees?
3000
1995

Company: Hewlett-Packard
Contact: Linda Haddock, 415/857-2266

1. What incentives are being offered?
Bike repair stations with repair equipment at work sites; Bicycle Lockers (more than 140); Showers & Clothing lockers; Bimonthly newsletter

2. How successful they have been?
Waiting list for bicycle lockers

3. How many employees?
15,000 employees
1995

Company: Honeywell Satellite System Operations (hardware and software for space flight)
Address: Glendale, AZ

1. What incentives are being offered?
Showers and clothes lockers; Covered bike parking; Free cab ride home in emergencies; $0.25/day for bike-commute; Eligible for monthly gift certificates uo to $100 from local stores; Proposed Adopt-a-Bike-Lane program for road leading to worksite; Bike-to-Work Day including gifts and cash for participants.

2. How successful they have been?
5% regular bike-commuters

3. How many employees?
800
Source: *Bicycling*, December 1994.
1995

Company: Intel
Contact: Linda Griffin (408) 765-8080

1. What incentives are being offered?
Enclosed covered bike racks
Showers
E-mail network for bicyclists
Printed bicycle info literature
Bicycle events/get togethers (brown bag lunch speakers)

2. How successful they have been?
Not available

3. How many employees?
Not available
1995

Company: Lawrence Livermore National Laboratory
Address: Livermore, CA

1. What incentives are being offered?
Fleet of 750 company-owned bikes

2. How successful they have been?
Not available

3. How many employees?
Not available
Source: *Bicycling*, December 1994.
1995

Company: National Center for Atmospheric Research (federally funded scientific research organization)
Address: Boulder, CO

1. What incentives are being offered?
Shuttle vans with bike racks every half-hour between 2 sites, Downtown and University of Colorado; Showers & clothes lockers at both sites; Coin-operated (quarter is returned) bike lockers; Newsletter; Info on bes routes via E-mail; Bike-to-Work Day; Transportation Coordinator supplies bike info to new employees; Participant in GO Boulder (city-run transportation program); President of governing body is bike commuter.

2. How successful they have been?
150 bike-commuters at last Bike-to-Work Day despite rain

3. How many employees?
1,200
Source: *Bicycling*, December 1994.
1995

Company: NIKE (athletic shoe and sportswear company)
Address: Beaverton, OR

1. What incentives are being offered?
Covered, locked bike storage; showers & clothes lockers; $1 credit at company store and cafeteria for each day you pedal, run, skate or carpool to work; regular lunch rides

2. How successful they have been?
Not available

3. How many employees?
2,000 in Beaverton HQ
Source: *Bicycling*, December 1994.
1995

Company: Palo Alto Medical Foundation
Contact: Dena Mossar, 415/853-4794

1. What incentives are being offered?
Discount at 2 bikes shops

2. How successful they have been?
Not available

3. How many employees?
Not Available
1995

Company: REI (outdoor equipment-retail and mail order)
Company: Seattle, WA plus 41 stores nationwide

1. What incentives are being offered?
Employee bike racks and showers at many stores; Bi-monthly bike-commute day with free breakfast and e-mail recognition; annual Bike-to-Work promotion in October.

2. How successful they have been?
10% bike-commute regularly

3. How many employees?
4,200 at all stores
Source: *Bicycling*, December 1994.
1995

Company: Scientific Application International Corporation
Address: SAIC, Campus Point Facility
10260 Campus Pt Drive
San Diego, CA 92121
Contact: Kristen Gerhard
Kristen.j.gerhard@cpmx.saic.com

What incentives are being offered?
Bike lockers; free showers in gym

How successful they have been?
N/A

How many employees?
N/A

Company: Silicon Graphics (computer company)
Address: Mountain View
Contact: Jamie Jarvis (650-933-5999)
Jamiej@corp.sgi.com

1. What incentives are being offered?
Showers in almost all 18 bldgs; 120-plus bike lockers and fenced-in bike corrals in covered parking lots; 75 company-owned bikes for inter-bldg trips; bike map; guaranteed company-paid taxi ride home for emergencies; Annual Bike-to-Work Day includes breakfast, water bottles and prize drawing.

2. How successful they have been?
1% bike-commute regularly

3. How many employees?
2,800 in Mountain View HQ
1998

Company: SRI International
Contact: Sandra Hinzmann
Error! Bookmark not defined.

1. What incentives are being offered?
Bike lockers; bike racks; showers and fitness center; bike maps; special event on bike-to-work day.

2. How successful have they been?
Very; but mostly because the company is located in a very bicycle-friendly area. About 7.3% bike commute

3. How many employees?
About 1500
1998

Company: Stanford University, Palo Alto
Contact: John Ciccarelli, 650-723-BIKE
John.ciccarelli@bonair.stanford.edu

1. What incentives are being offered?
$90/year "Clean Air Credit" is available to anyone who does without a long term parking permit. CAC can be used, pre-tax, for clothes locker rental ($15/yr), bike locker or bike garage space rental ($24/yr), transit passes, towel service ($5/mo at hospital only), carpool permits, daily "scratcher" parking permits or cash.

Bikes allowed in buildings only upon approval of individual building managers; Bike enclosures at 2 graduate residences; 50 bike lockers at the Medical Center; Full-time Bicycle Program Manager who offers free bike commute route planning and occasional bike commuter brown-bag talks; Fold-out street map from San Carlos to Sunnyvale with recommended bike travel routes in Stanford Directory phone book (updated annually); Free guaranteed ride home in case of emergency or breakdown of alternative commute mode; Over 2,500 bicycle parking spaces of new functional and attractive bike racks on campus; Park-and-Bike racks in peripheral parking lots so people can bike in from their car.

2. How successful they have been?
21% employees bike-commute; 58% of students & staff walk & bike; 35% drive.

Non-commuter bikes belonging to resident students used to get to class and around town. Estimated at least 12,000. Many faculty and staff keep bikes on campus.

3. How many employees?
15,000-students (12,000 resident); 1,600-faculty; 9,000-staff; 5,400-various; 31,000-total
1998

Company: Sun Microsystems (computer and software)
Address: Palo Alto, CA
Contact: Alan Aranha

1. What incentives are being offered?
Showers & lockers; Parking for 40 bikes in "bike corral"-fenced-in building with card-key access; Plans for new "bike corral" for 80 bikes.

2. How successful they have been?
1-2% bike-commute regularly

3. How many employees?
6,500 in 5 Bay Area locations
Source: *Bicycling*, December 1994.

1995
Company: Taligent, Inc
Address: Cupertino, CA
Contact: Lee Collins
(lee_collins@taligent.com)

1. What incentives are being offered?
All employees have flex time. There are also lockers, showers, towel service, and a safe bicycle room inside both of our buildings. We also have a fleet of company bikes for commuting between our two buildings and for local shopping etc. The facilities people regularly post bike and other alternative transport information to the company-wide electronic bulletin board.

2. How successful they have been?
I don't have exact numbers, but at I would guess up to about 10% of the employees regularly commute by bike. The bike storage rooms tend to be filled to capacity when the weather is good.

3. How many employees?
About 300 Employees
1995

Company: Tandem Computers (computer company)
Address: Cupertino, CA
Contact: Nick Yatsko (408) 285-0012

1. What incentives are being offered?
Showers & clothing lockers;
Bike lockers at every bldg (total of 50);
Company-paid membership in REI's Commuter Club-entitles rider to discount and free tune-ups and regular workplace visits by REI mechanic; brochures and books on riding techniques and safety; lunchtime and evening repair and riding classes; Bike-to-Work Day includes breakfast, prizes, cycling seminars and maintenance evaluations.

2. How successful they have been?
8% on Bike-to-Work Day; 2% regularly

3. How many employees?
3,200 in Cupertino
Source: *Bicycling*, December 1994.
1995

Company: University of California at Davis
Address: Davis, CA

1. What incentives are being offered?
Bike program since 1980; Bike lockers and showers for out-of-town commuters; Commuting map; Bike cop and student bike patrol; Bike-traffic school to reduce fines; On-campus bike shop (accomodates do-it-yourselfers with tools and repair stands); Discount bus coupons for non-pedal days; Lock cutting service; Education program.

2. How successful they have been?
25% of employees bike-commute; 55% of students; 15,000-18,000 bikes on capmus each day.

3. How many employees?
9,462 employees; 22,000 students
Source: *Bicycling*, December 1994.
1995

Company: Walker, Richer & Quin Inc. (computer software company)
Address: Seattle, WA

1. What incentives are being offered?
Asked bike-commuters input when building new facility; 2-bike storage rooms with racks and card-key access; showers & clothes lockers; company partner is regular bike-commter; bike route maps posted; cycling info on e-mail; strong pro bike-commute company.

2. How successful they have been?
10%

3. How many employees?
350
Source: *Bicycling*, December 1994.
1995

Company: Wright Patterson AFB near Dayton, Ohio
Contact: Chuck Smith
chksmith@juno.com

1. What incentives are being offered?
will be installing 8 bike lockers for commuters. Publishes bike commuting miles for individual commuters in Dayton Cycling Club newsletter. Lists riders and their miles in the column. Free pancakes and fruit on bike-to-work day.

2. How successful they have been?
Number of commuters sending their miles has grown to about 30. Logging close to 30,000 miles in 94.

3. How many employees?
roughly 20,000 civilian and military employees on base.
1998

Company: City of Salem, Oregon
Address:
Contact: Chuck Fisher (503) 588-8621

What incentives are being offered?
Those who bike commute 60% of the time receive Smart commuter coupon books for discounts to local merchants; 3 free parking passes per month; guaranteed ride home; reimbursement of 20% of expenditures to facilitate their commute up to $100 year.

How successful they have been?
30 people participate in the program

How many employees?
1,100
1998

Company: University of California at Santa Barbara
Contact:

What incentives are being offered?
Bicycle commuter program available to anyone eligible for annual or quarterly parking permit; receive 6 courtesy days of vehicle parking; guaranteed ride home

How successful they have been?
N/A

How many employees?
N/A
1998

Appendix I
UNIT COSTS/CONSTRUCTION COST ESTIMATES

SUMMARY OF COST ESTIMATES

Improvement (both sides of road)	Unit	Cupertino	Low range
Bike lanes (striping, pavement markings and signs, no other improvements needed)	**mile**	$10,013	
Bike routes - route and directional signs only	**mile**	$1,600	
Bike routes -signs and pavement markings	**mile**	$2,400	
Bicycle Boulevard	**mile**	$52,400	$10,000
Remove and restripe one lane line- 4" thermoplastic (not both sides of road)	**mile**	$8,300	
Convert 4-lane road to three lanes (twltl)	**mile**	$26,100	
Standard pavement resurfacing	**mile**		
Shoulder stripe- 4" therm.	**mile**	$5,322	
Shoulder Widening - 4 ft	**mile**	$158,400	
Shoulder Widening - 2 ft	**mile**		
Intersection: improve signing/restriping	**int.**	$1,064	

Assumptions:

Bike lane: 5000 feet of solid line detail- plus signs and bike lane pavement markings four times per mile times two directio

Bike Boulevard: Assumes miscellaneous improvements such as signs/pavement markings, traffic circles.

Cost of traffic signals added separately to indivdual route as needed.

More involved physical changes could exceed this figure.

Bike Boulevard low range assumes signing, pavement markings, spot improvements and modifcations to STOP signs, etc.

UNIT COST ASSUMPTIONS BEHIND PROJECT COST ESTIMATES

Signing		
install sign	each	50
install pole	each	100
install sign and pole	each	150
remove sign only	each	
Striping -Thermoplastic		
100 mm, 3mm,yellow	M	
100 mm, 3mm, white	M	
200 mm, 3mm, white	m	
600 mm, 3mm white		
4 " dashed	LF	0.50
4 " solid		0.50
Paint 4" solid white or yellow	LF	0.42
Paint 4" dashed white or yellow		0.42
6" white - solid	LF	0.50
6" white - dashed (at intersections)		1.49
two-way left turn lane - yellow	LF	
raised reflective markers	each	
Removal of Striping		
4 inch thermoplastic-solid	LF	$1.07
4 inch thermoplastic-dashed		
4 inch paint-solid	LF	$0.89
4 inch paint-dashed		
Raised reflector removal	each	
Install Pavement Marking Symbol		
symbol	SF	
Bike stencil for routes	each	$50
Bike lane markings	each	$300
Concrete Work		
curb and gutter- 18"	LF	
curb and gutter- 24"	LF	
curb and gutter- 30"	LF	
curb cut-ramp	each	$1,500

SUMMARY OF COST ESTIMATES

Improvement	Unit	Cupertino
Asphalt Work		
Asphalt concrete	ton	$50
Asphalt concrete 8 inch depth	SF	$2.50
Asphalt concrete 4 inch depth	SF	$1.25
Asphalt concrete 3 inch depth	SF	$0.94
AC- overlay 1.5-2 inches	SF	$0.63
Aggregate base	ton	$25
Aggregate base -4 inch depth	SF	$0.58
roadway excavation	CY	
Grind existing asphalt/fabric	SY	
Saw cut before widening	LF	
Signal Electrical Work	intersectio	
Traffic Signal	n	$100,000
Signal Modifications	pole	
Install Type D (Bicycle Sensitive) Detector	each	
Flashing Yellow Beacon	pole	
Street Lighting	pole	
Replace drainage grate	each	
Repair catch basin frame		
Repair failed pavement near "	SF	
Traffic Circle	each	
Fence-54 inches	LF	
Jersey Barrier	LF	
Retaining wall (4 ft high)	LF	
Guard rail	m	

Unit costs include labor, material and overhead.
Should add 10 to 20 percent contingency to total estimate.
Small projects could be double or even triple these unit costs

Source:
Vicki Guapo, Carmen Lynaugh, City of Cupertino, 1998

Assumptions:

asphalt: lbs per cu.ft.	150
aggregate base: lbs per cu.ft.	140

Appendix J
CUPERTINO BICYCLE TRANSPORTATION PLAN - STAFF REPORT AND CITY COUNCIL RESOLUTION

City of
Cupertino

City Hall
10300 Torre Avenue
Cupertino, CA 95014-3255
(408) 777-3354
FAX (408) 777-3333

PUBLIC WORKS DEPARTMENT

AGENDA ITEM _____ **AGENDA DATE** December 7, 1998

SUBJECT AND ISSUE

Adoption of Cupertino Bicycle Transportation Plan.

BACKGROUND

At the urging of Councilmember Burnett and request of the Cupertino Bicycle and Pedestrian Advisory Committee (BPAC), the City completed its bike plan into a Cupertino Bicycle Transportation Plan document. This would act as the City's master plan for all bicycle projects.

Summary of Bicycle Transportation Plan:

The Cupertino Bicycle and Pedestrian Advisory Committee has worked closely with Wilbur Smith Associates of San Francisco in preparing the Bicycle Transportation Plan for your approval. The following is a summary of the different sections of the plan:

- Defines the purpose of a Bicycle Transportation Plan to foster and support the use of bicycling in the community.
- Describes all of the City's bicycle lanes and bicycle routes. There are 22 interconnected routes on Cupertino streets. To have a list will keep us current and striving to complete the system.
- Provides an educational section for children, adults, motorists, and law enforcement officials to promote observance of the rules of the road and the safety of the bicyclists.
- Provides an inventory for bicycle parking available at businesses, schools, and shopping locations to assure suitable parking facilities as a method of encouraging bicycle use.
- Discusses programs to promote bicycling to show the advantages to the users as a form of exercise and reduction of congestion on the roadways.
- It fulfills a requirement for all grant applications in the future. Transportation funding legislation requires that a plan be adopted prior to any funding be granted to public agencies.

Grant Application

The City is formulating a grant application for bicycle lanes on Miller Avenue between Stevens Boulevard and Bollinger Road. The Bicycle Transportation Plan must be approved before an application can be submitted.

STAFF RECOMMENDATION

Staff and the Cupertino Bicycle and Pedestrian Advisory Committee recommend that the City Council adopt the Bicycle Transportation Plan.

Submitted by:

Bert J. Viskovich
Director of Public Works

Approved for submission:

Donald D. Brown
City Manager

RESOLUTION NO. 98-299

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CUPERTINO APPROVING THE CUPERTINO BICYCLE TRANSPORTATION PLAN

WHEREAS, the Bicycle Lane Account provides State funding for projects that improve safety and convenience for bicycle commuters; and

WHEREAS, a local agency must have a current Bicycle Transportation Plan to be eligible for Bicycle Lane Account funds; and

WHEREAS, the Cupertino Bicycle Transportation Plan has been prepared by Wilbur Smith Associates, in conjunction with the Cupertino Bicycle and Pedestrian Advisory Committee; and

WHEREAS, the Cupertino Bicycle Transportation Plan complies with California Streets and Highways Code Section 891.2 and the San Francisco Bay Area Regional Transportation Plan; and

WHEREAS, the Cupertino Bicycle and Pedestrian Advisory Committee recommends City Council approval of the Cupertino Bicycle Transportation Plan.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Cupertino hereby approves the Cupertino Bicycle Transportation Plan.

PASSED AND ADOPTED at a regular meeting of the City Council of the City of Cupertino this 7th day of December, 1998, by the following vote:

Vote	Members of the City Council
AYES:	Burnett, Chang, James, Statton, Dean
NOES:	None
ABSENT:	None
ABSTAIN:	None

ATTEST:

/s/ Kimberly Smith
City Clerk

APPROVED:

/s/ Wally Dean
Mayor, City of Cupertino