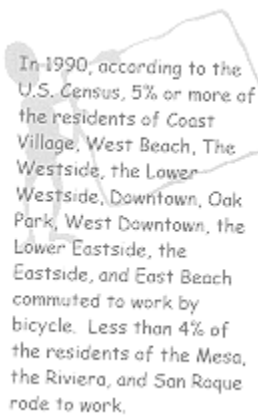


CHAPTER 3

Part II: Field Research

In order to assess the changes that will result from the City's efforts to increase bicycling, it is necessary to understand the complete picture today: not only community perceptions, but also, the state of the infrastructure itself. In addition to gaining an understanding of what people think about the bicycling environment in Santa Barbara, the programs and facilities maintained by the City were reviewed. In combination, these information gathering approaches provided a baseline from which to develop strategies to increase bicycling.

The Santa Barbara Bicyclist ... A Profile



In 1990, according to the U.S. Census, 5% or more of the residents of Coast Village, West Beach, The Westside, the Lower Westside, Downtown, Oak Park, West Downtown, the Lower Eastside, the Eastside, and East Beach commuted to work by bicycle. Less than 4% of the residents of the Mesa, the Riviera, and San Roque rode to work.

Who is riding on our streets today? Understanding the rider and why people ride bicycles is integral to the planning process. Generally, riders can be described as either advanced or basic. The latter include school children. Plans for increased ridership must accommodate the needs of people of all abilities so that bicycling increases not only among people already riding, but also among groups that are currently under-represented.

In 1995, the University of North Carolina Highway Safety Research Center collected data at several intersections in Santa Barbara to understand the type of bicycle riders it was studying. The surveys found that riders in Santa Barbara tend to be older than the national average and ride more miles per week. These researchers found that 75% of bicycle riders were 25 to 64 years of age. Eighty percent were male. They also identified seventy-

seven percent of the riders as white, and 18% as Hispanic. Thirty-five percent of the sample indicated that they rode their bicycles 7 days per week, and the most common weekly range of mileage was 25 to 50 miles per week.

Through a survey distributed to participating employers with more than 20 employees in 1996, the Santa Barbara County Association of Governments was able to determine that the bicycle accounts for approximately 4 percent of the commute to work trips in the South County. This estimate is consistent with the 1990 U.S. Census Bureau Report for people both living and working in Santa Barbara City. The 1990 Census estimates that 3.3% of the approximately 44,000 residents living and working in the City reported using their bicycle as the principal mode of travel for the work trip.

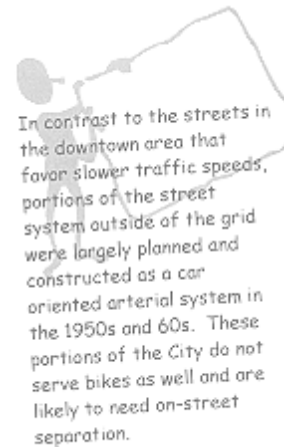
Destinations

People living all over Santa Barbara are using their bicycles to get around. Commonly, bicyclists are traveling to the same places as others using cars. The major trip destinations in Santa Barbara are workplaces, commercial centers, schools and recreational locations like the Waterfront. The major employment centers in Santa Barbara are the County Government Complex, Santa Barbara City College, and areas that are commercially zoned such as the State Street and Milpas Street Corridors, the Waterfront, upper De La Vina, and Coast Village Road. Community neighborhoods, such as the Westside, Eastside, Mesa, and Samarkand are generally where people begin their trips. Many rides originate from other areas on the South Coast such as Goleta and Carpinteria. Map 3-1 shows the location of each neighborhood and commercially zoned area in Santa Barbara. Bicycle lanes currently connect many of these origins and destinations.

[Map 3-1 Neighborhoods, Public Buildings and Commercial Areas in Santa Barbara](#)

Existing Bicycle Network

Downtown Santa Barbara has a grid street network system that was laid out in 1836. Although many of the streets are narrow, the network favors bicycle travel because it is direct and convenient with multiple routes to reach the same destination. The City and County of Santa Barbara have aggressively pursued and obtained funding for bicycle related projects. The city has spent approximately three million dollars in the successful implementation of bike lanes, a bike signage program and other bicycle projects throughout the city. The current bikeway network is illustrated in Map 3-2. Bikeways located near the airport, an island of City property geographically remote to the City, are described in Chapter 6.



[Map 3-2 Existing Bicycle Routes and Popular Destinations](#)

The California Vehicle Code

In the State of California, every person riding a bicycle on a highway has all the rights and is subject to all the provisions applicable to the driver of a vehicle (1997 *California Vehicle Code*, §21200). That is, bicycles are entitled to share the City streets with motor vehicles. However, local authorities may establish bicycle lanes separated from vehicular lanes, primarily for bicycle travel. The State of California (*Streets and Highway Code*, § 885) declared that "traffic congestion, air pollution, noise pollution, public health, energy shortages, consumer costs, and land-use considerations resulting from a primary reliance on the automobile for transportation are each sufficient reasons to provide for multi-modal transportation systems," including non-motorized transportation facilities such as bikeways.

Further, the Legislature (*Streets and Highway Code*, § 890), intended "to establish a bicycle transportation system designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and the bicyclist's property as a major planning component, and to have the capacity to accommodate bicyclists of all ages and skills." When considering the implementation and maintenance of a bikeway network it is important to bear in mind that all streets, except limited access highways, should provide safe, convenient, and accessible travel routes for bicycles.

Types of bikeways

The Streets and Highways Code describes three categories of bikeways that indicate to motorists and bicyclists that a street segment or path is designated primarily for travel by bicycle. A Class I bikeway has a separate right-of-way for non-motorists. A Class II bikeway is a 4 to 7 foot lane striped on the side of a street for exclusive travel by bicycle, and a Class III bikeway is a route signed for shared use by motorists and bicyclists. Bikeway types and typical cross sections are described below.

Off-Street Paths (Class I bikeways)

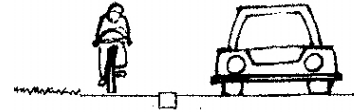


CLASS I PATH
*Path is separate from
automobile traffic.*

Off-street bike paths provide a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized. Off-street paths are multi-purpose paths that often provide many types of non-motorists with connections between areas not well served by the street system.

Bike Lanes (Class II bikeways)

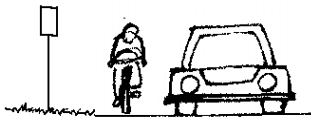
Bike lanes provide a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, and with vehicle parking and crossflows by pedestrians permitted. These lanes are striped, providing a painted separation between motor vehicles and bicycles, and may be signed. Some recommended roadway design treatments and widths to accommodate bicycles are specified by the American Association of Streets and Highways Transportation Officials (AASHTO). These are dependent on Average Annual Daily Traffic, average motor vehicle speeds, street width, anticipated rider ability, and sight distance. Bike lanes may be implemented by: 1) narrowing existing travel lanes; 2) removing a travel lane; 3) removing parking, except where it is essential to serve adjacent land uses; 4) shoulder widening; and 5) including bike lanes in new street construction. City bike lanes establish direct and convenient access to employment centers, commercial districts, transit stations, recreational destinations, and schools.



CLASS II LANE
*On-street painted
bike lane.*

In Santa Barbara, several Class II bikeways are in effect only during the peak hours so that motor vehicle parking can occur in the lanes during off-peak hours. Also, it should be noted that bicycle volumes have increased where Class II lanes have been installed.

Class III Bikeways



CLASS III ROUTE
*On-street bike route
designated by signs.*

Class III bikeways, such as on-street or off-street "bike routes," provide a right-of-way designated by signs or permanent markings and are shared with pedestrians or motorists. Design treatments for local service bikeways include shared roadways, traffic calming and extra width curb lanes. On-street motor vehicle parking will not normally be removed on these streets. This route is signed, intending to alert motorists to the presence of bicyclists and to guide bicyclists to use streets that have been determined to be preferred for bicycle usage. However, this type of bicycle

facility is appropriate only for streets with low automobile traffic volumes. Roads that are heavily traveled by cyclists may be designated as bike routes in this plan.

Unmarked Mixed Flow Streets

Many local surface streets have low traffic volumes and low speeds, providing both motorists and bicyclists with excellent routes for travel. Furthermore, mixed flow lanes provide flexibility for experienced and skilled cyclists. Where it is appropriate for bicyclists to use the existing street system, there is no need to design special facilities. Most of our urban streets are satisfactory for bicyclists without significant improvement, although traffic calming may be recommended, for a variety of reasons, if traffic speeds or volumes show a need.

Mileage

The *Proposed Bikeway Master Plan* of 1974 recommended the implementation of 33.5 miles of on- and off-street bikeways. To date, the completed network includes 28 miles of roadways recommended for bicycle travel. Twenty-four miles of the total bicycle network are striped Class II bikeways.

Many striped bicycle lanes have been added to the network on an "as available" basis. That is, when roads are re-striped during routine maintenance, bike lanes are included where there is sufficient available road width. This strategy is an effective means of increasing bicycle lane miles at a minimal cost. Bike lane mileage is 12% of the total street mileage within the city. The neighborhood with the greatest mileage is the Downtown area, which has approximately 5 miles of street striped for either part time or full time use by bicycles.

Because of engineering and cost challenges, many of the routes proposed in 1974 may never be constructed. These include the bikeways along Sycamore, Mission and San Roque Creeks. Some other projects recommended in the 1974 plan will be reconsidered for future implementation. These include: the Arroyo Burro Creek Bikeway; bike lanes on Milpas from Quinientos to East Beach; a lower crosstown route; and street closures for auto free travel.

Signal Detection



Some of the traffic signals in Santa Barbara are actuated. Actuation means that, in some directions, a signal will stay red until a sensor in the pavement detects that a vehicle has arrived and is waiting for the signal to turn green. A sensor in the pavement detects the metal in the vehicle and changes the light. In some cases, the metal content of a bicycle is insufficient to be picked up by these sensors. Bicycle detection is a significant challenge because bicycles are small in comparison to the street surface area that must be covered by a detector. Also, because detectors are located near the centerline of most roads, bicyclists traveling near the right side of the lane might not be detected. At these locations the signal will not change until a

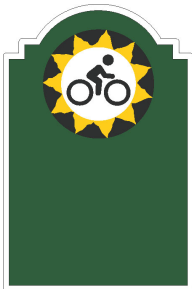
motor vehicle arrives at the approach. The City does not maintain an inventory of the bicycle detection ability of the actuated signals in the city but attempts to adjust signals when it is determined that they don't detect bicycles.

Special loop detectors have been developed that are more effective at detecting bicycles. These types of sensors are currently installed at the intersections of Bath/Carrillo, Bath/Micheltorena, Bath/Mission, Cabrillo/Milpas, Carrillo/Castillo, Castillo/Micheltorena and Milpas/Indio Muerto. (See Map 3-2) The small number of bicycle actuated signals in the City is a significant deficiency in the network, as there are several locations that are signed or striped to encourage bicycle use, with signals that do not recognize bicycle arrivals.

Road Maintenance

Most bicycle travel in Santa Barbara is done on roads shared with automobiles. As such, the bicycle lane maintenance program is integrated with the road maintenance program. Bicycle lanes striped on roads located in heavy commercial areas are swept 5 to 7 days per week. Other streets with bicycle lanes are swept monthly. Any addition of more bike lanes will necessitate an added cost of maintenance, as the street-sweeping schedule is currently full.

The cleanup of debris, weeds and vegetation overgrowth on and above signs and automobile lanes are part of the regular maintenance program administered by the City. The drawback to this strategy is that roadway maintenance needs are different for bicycles than for cars. The bicyclist is impacted by uneven road surfaces and small hazards much more keenly than the motorist is. Bicyclists note that roadway wear and tear presents obstacles, especially when roadway irregularities parallel the direction of travel or are difficult to see. Roadway surface problems are not uncommon throughout the City. Specific reporting mechanisms for road conditions influencing cyclists have not been established.



Signage

In 1996 an inventory of existing bicycle routes was conducted for the South Coast Bike Signage Program. An on-street tour and assessment confirmed the need for improved signage throughout the South Coast. In particular, routes are currently posted with signs that are deficient with regard to way-finding, warnings to bicyclists and motorists of potential conflicts, and directions to area destinations. Enhanced signage can encourage novice and visiting cyclists.

A signage program is currently underway and set for completion in 1998. Once completed, the signs will link a majority of the South Coast bikeways in a functional and attractive way, enabling experienced and beginning cyclists to find and discover destinations more easily. The signage program will also enlighten visiting and local motorists about the existence of bicycle facilities and invite them to leave their cars. Any further route designations will be coordinated with this program.

Bicycle Volumes

In 1973, bicycle counts were made at a number of locations to determine bicycle volumes and the peak hours of bicycle flow. At these intersections, all bicycle turning movements from all intersection directions were counted and tallied in fifteen-minute intervals. The peak hour between 4 and 5 p.m. was found to account for approximately 15% of the total 12-hour flow between 7 a.m. and 7 p.m. For three months, counts were made at many intersections in the City. The result of this effort was a detailed flow map of bicycle traffic in the City.

For the current Plan, bicyclists were counted at major intersections within the city over mid-week days in 1996 and 1997. Based on current calculations, using a methodology similar to that utilized in 1973, it was estimated that the single hour with the highest traffic volume during the afternoon commute period accounts for 10% of the 24-hour volumes on the streets. The peak hours of travel, from 4 to 6 p.m. were compared for 1973 and 1997. Adjusted for population growth in the city, there has been a 19% increase in bicycle volume on the network since 1973, the year before

the original *Proposed Bikeway Master Plan*. Streets with bike lanes have 47% more cyclists while cycling on the other streets declined 1%. Map 3-3 shows the bicycle volumes on selected City streets during the evening rush hours of 4-6 p.m. Where data exist on 1973 volumes these are also presented.

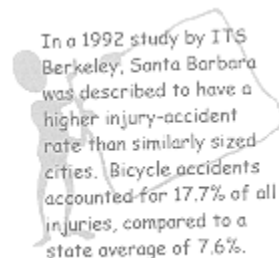
Map 3-3 Bicycle Volumes on Selected City Streets

Bicycle Safety

Safety and Training Programs

As previously discussed, safety is a fundamental concern of potential and active cyclists. In response to increases in reported bicycle collisions, the police department initiated a short-term bicycle safety and enforcement program with the schools in 1974. The objective of the program was to obtain voluntary compliance with the law, promote uniformity in the application of enforcement, involve parents in the process of educating their children in safe riding habits, and to provide means of locating and prosecuting repetitive violators.

A 1992 Institute of Transportation Studies report found that the city had a disproportionate number of bicycle involved injury/fatality accidents compared to other cities of similar size in California. During the period of 1994-1996 an Office of Traffic Safety grant provided the City with the opportunity to increase traffic enforcement efforts. Safety improvements made during this period were attributed to both increased diligence in enforcement and engineering changes at specific locations throughout the City.



In a 1992 study by ITS Berkeley, Santa Barbara was described to have a higher injury-accident rate than similarly sized cities. Bicycle accidents accounted for 17.7% of all injuries, compared to a state average of 7.6%.

Over time, the main contributor to bicycle collisions and vehicle code violations has shifted from the under-18 year old rider to the 20 to 29 year old rider. This may, in large part, be due not to safer riding by younger children, but to the fact that fewer children are riding today than in the past.

Currently, no safety programs are implemented within the City and because of personnel constraints, the enforcement of bicycle violations is inconsistent. Helmet use varies widely depending on the neighborhood: in some parts of town, 30% of the riders are wearing helmets, in others, the number drops as low as 7%. The City also has a bicycle-licensing ordinance that is not currently enforced.

Collisions

In addition to community concerns about particular locations that were described during the bicycle workshop, trouble spots were identified using reported collision and public accident records from the Santa Barbara Police Department. Data on bicycle collisions are helpful for planning because they serve to uncover behavioral issues and education, engineering, and enforcement needs at specific locations. Map 3-4 illustrates the location of reported collisions within the city boundaries.

Map 3-4 Distribution of Reported Collisions (1995-1997)

In the period from 1995 through 1997, reported bicycle collisions have been increasing. In 1995 there were 106, in 1996, 129, and in 1997, 162. During this same period, reported motor vehicle collisions declined by approximately eight percent. In 1995, bicycle involved collisions accounted for 5% of all reported collisions in the City. In 1997, they accounted for 9%.

Of the collisions involving bicycles in this three-year period, 73 of them occurred on State Street, 30 on De La Vina, 24 on Milpas, 23 each on Haley and Carrillo, and 20 on Chapala. Each of these streets carries high volumes of automobile traffic, and until recently, only the portion of State Street south of Mission Street had bicycle lanes. Future surveys will show if bike lane additions correlate with a reduction in collisions.

The most frequently cited associated collision factor is inattention. Bicyclists were the cause of 60% of the reported collisions in which fault was assigned. Nearly fifty percent of the bicyclists involved in collisions were between the ages of 18 and 35. Nineteen percent of the reported collisions involved cyclists under 18 years of age. Some of the most common vehicle code violations for bicyclists at fault in the collisions analyzed were: riding under the influence of alcohol, riding on the wrong side of the street, and failure to stop at a signal or stop sign. Some of the most common vehicle code violations for motorists at fault in the collisions were opening a car door into a cyclist, unsafe turning, and failure to yield the right-of-way.

Because the Beachway, a Class I Bikeway parallel to Cabrillo Boulevard on the Waterfront, is not a public street, incidents occurring there are considered public accidents, not collisions. Often, unless the accident is serious, these are not reported to the police department. Solutions for resolving conflicts among pedestrians, in-line skaters, and bicyclists will be undertaken and included in the Cabrillo Boulevard Master Plan.

Parking and End-of-Trip Facilities

Personal and institutional barriers at the destination affect the decision to travel by bicycle. The provisions of parking, storage, and changing facilities can improve conditions for the bicyclist. Employer and peer-support can lead to increased acceptance of the bicycle as a commute mode.



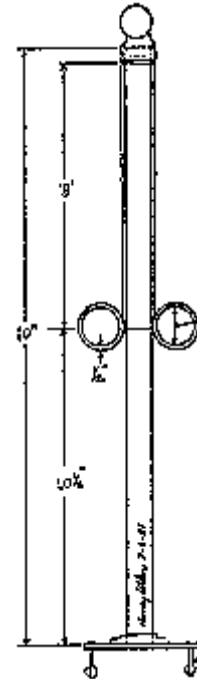
In order to have a useful and well-used bicycle network, where bicycling is considered a viable commuting and traveling option instead of a novelty, both physical and institutional support structures must be in place. Physical structures include short-term parking, long-term parking, and end-of-trip facilities such as showers, changing and storage areas. Institutional support takes the form of increased bicycle consideration in the planning process as well as private/public cooperation in implementing bicycling programs. Through efforts to improve end-of-trip facilities, a positive atmosphere for bicycle travelers can be created in public areas and at workplaces throughout Santa Barbara.

Parking at Public Places

At the end of the trip, the rider needs a secure and convenient place to leave the bicycle. While better than many communities, the supply and distribution of bicycle parking in Santa Barbara can still be improved. Bicycle racks are substandard or difficult to find at many highly visited locations including public parks, the Central Library, the U.S. Post Offices and Paseo Nuevo. Bicyclists often have to lock their bicycles to trees and sign posts to keep them safe while unattended. This system is inconvenient for both cyclists and pedestrians.

The hitching post program has been initiated in the city to address this issue of short-term bicycle parking. Hitching posts can be found throughout town at many popular locations including commercial areas on State Street. This program responds to requests for bicycle parking facilities by supplying and installing a hitching post bicycle rack at cost at the desired location. The device must be installed according to the location criteria established by the Santa Barbara City Bicycle Parking Standards. Once installed, the racks become public property and may be removed or relocated at the City's discretion. The areas highlighted in Map 3-5 illustrate concentrations of hitching posts in the City. Posts can also be found scattered throughout Santa Barbara.

Other types of parking devices are installed at schools, parks, shopping centers, public buildings, and commercial areas. Santa Barbara County's bicycle cage for employees at the Anapamu Street building provides one of the best examples of workplace bicycle storage areas. The ideal facility would also be covered to provide shelter from the weather.



Private Development Parking

The City of Santa Barbara has a parking ordinance that specifies the provision of one bicycle space for every seven new automobile spaces constructed in new non-residential developments. Ideally, a balance of short-term parking for visitors in the front and protected long-term parking will be provided for each project.

[Map 3-5 Existing Parking Facilities](#)

Other End-of-Trip Facilities

Workshop and survey participants, who were mostly recreational riders, indicated that secure parking and changing facilities were less important than other traffic and network needs. However, as recreational riders are converted to commuters, they will probably encounter other obstacles such as carrying work clothes and finding protected bicycle storage for each workday. Map 3-6 describes existing facilities for changing, showering and storing clothes. Currently, all shower and locker facilities identified require either membership or employment at that location.

[Map 3-6 Existing End-of-Trip Facilities](#)

Land Use

Land use patterns in Downtown are different from those on Outer State Street. These differing land use patterns exist because of the times during which these areas were developed; the latter growing after the automobile was well integrated into daily life and planning decisions. Development patterns on Outer State Street have favored strip development with commercial areas set behind large parking lots. Inviting pedestrian and bicycle links in these areas have been difficult to achieve; however, encouraging interconnections between developments is one method for improving bicycle access.

Past transportation and land use decisions, in combination with the growth in population, have increased the number of automobiles and trucks on our streets, and affected the feasibility of bicycle travel. Furthermore, funding and bicycle advocacy have been inconsistent. Bicycle standards are not integrated into street engineering standards, nor does the plan check process extend beyond checking that bicycle parking is provided in new projects providing automobile parking spaces. Bicycle planning can be better integrated into the development plan and permit review process. In past City and private projects there has been no clear policy for including additional end-of-trip facilities such as showers or changing areas. Decisions about development projects do not include assessments of bicycle collisions, roadway segments with bicycle lanes, or bicycle-related complaints around the location of the project, which can be useful for the review process. These institutional constraints are related to funding limitations and planning practices that are the result of years of decision-making that focused on increasing the capacity and ease of use for the automobile.

Multi-modal Facilities

Bicycle racks are currently placed on buses serving express routes 12 and 24, which serve Goleta and UCSB, and route 20, which serves Carpinteria. Other lines may include this service when the buses are rotated throughout the service day. Most loading takes place at the North Hall loop at UCSB, Isla Vista and Carpinteria. The Metropolitan Transit District (MTD) estimates that, on average, more than 60 bicyclists per day utilize the bike-on-bus option, depending on the season. The primary complaint they receive about this system is that the racks only carry two bicycles. Riders have been known to ride back to prior bus stops to ensure a place on the bike rack. MTD has determined that the current technology does not permit for larger racks on the front of buses. The District will not consider back-of-bus racks because of safety and security concerns.

AMTRAK's new "California Cars" make trains friendly to bicycles and are a great opportunity for bike-on-train travel both for commuters and other travelers. Each car provides three on-board racks for walk-on bicycles. On AMTRAK trains without California cars, boxed bicycles may be placed in the storage car.

Map 3-7 shows intermodal facilities in the City. Bicycle locker facilities are located near the Transit Center on Chapala St., inside four downtown parking structures, and on Arrellaga St. near State Highway 101. Some lockers are available for rent on a monthly basis. The remainder are available for a twenty-five cent deposit per use. Informal usage surveys of the Downtown lockers indicate that approximately 40-50% of these lockers are usually occupied. This figure varies by season.

The lockers at the transit center are used most frequently. Rather than biking to the locker to take the bus, most of the lockers are used to store bikes for use when the transit user arrives

Downtown. The bike lockers in parking garages may not be used as much because of the auto-oriented environment the parking garage exhibits. Lockers may be more effective if placed outside garages in a pedestrian environment.

Map 3-7 Existing Intermodal Facilities

Promotional Programs

Prior research has demonstrated a consistent link between a traveler's perception of the convenience of travel mode choices and the actual mode choice. Personal characteristics of individual travelers will determine the extent to which a bicycle is considered convenient. However, educational and promotional efforts to reduce barriers to consideration of the bicycle can influence these characteristics, as they have done in many other industrialized countries. Promotional programs can also lead to better understanding among the different users of the road: the pedestrian, the bicyclist, and the motorist.



Motorists and bicyclists have both complained about adherence to the rules of the road:

One motorist wrote to the News-Press in 1992 "these scofflaws should be pursued and ticketed by police on the spot..." In response, one bicyclist wrote, "In my 13 years of bicycling in Santa Barbara, I have been verbally assaulted, harassed, and have had rocks thrown at me while I have been riding."

Educational and promotional efforts that have been successful in introducing potential riders to bicycle transportation are the annual Bike-to-Work Day, and the South Coast Bicycle Map, which is available at local bike shops and at Traffic Solutions.

Conclusions

Three general themes emerged during the evaluation of community input and field research. First, the general perception that the community has about bicycling directly influences ridership and bicycle acceptance. Second, an expanded and well-maintained bicycle network with Class I and II bikeways is an important component in increasing the City's bicycling. And third, improved parking and end-of-trip facilities for bicyclists can make bicycling a more convenient and practical option. Chapter 4, Goals, Policies, and Coordination, was developed based on these findings.

The goals of the Bicycle Master Plan will logically focus on these three themes that address the decision to ride, travel along the bikeway network, and the transition from the trip end to the destination.