

## VI -8. TRANSPORTATION DEMAND MANAGEMENT

*Managing parking and demand for vehicle travel are the most cost-effective ways to shift travel behavior to higher occupant vehicle travel modes.*

Implementing Transportation Demand Management (TDM) initiatives can increase the efficiency of the City's transportation system. TDM strategies to managing parking and demand for vehicle travel are the most cost-effective ways to shift travel behavior.

Implementing TDM strategies can:

- Increase available transportation options
- Cause changes in trip scheduling, route, destination or travel mode to reduce peak hour vehicle congestion
- Reduce the need for physical travel through more efficient land use or transportation substitutes

### What is TDM?

TDM emphasizes the movement of people and goods, rather than motor vehicles, and gives priority to public transit, ridesharing and non-motorized travel, particularly under congested traffic conditions.

There are many different TDM strategies with a variety of transportation impacts. Some improve the transportation options available to consumers. Some cause changes in trip scheduling, route, destination or mode. Others reduce the need for physical travel through more efficient land use, or transportation substitutes. TDM is an increasingly common response to transport problems. Although most individual TDM strategies only affect a small portion of total travel, the cumulative impacts of a comprehensive TDM program can be significant.

### Contents

This section sets forth how Transportation Demand Management (TDM) strategies can contribute to achieving the MTS vision for the City of Santa Cruz. The section presents the MTS vision and goals for transportation in Santa Cruz, followed by TDM's purpose and role as an MTS implementation measure.

A description of Santa Cruz's existing TDM activities is presented followed by proposed TDM measures. For each proposed measure, the overall concept, how it could work in Santa Cruz, and its potential effectiveness is discussed. Effectiveness is measured by the extent to which the strategy can reduce Single Occupant Vehicle (SOV) travel and encourage travel by non-SOV modes.

## MTS VISION

Transportation Demand Management is a key component to the successful implementation of the MTS. TDM can contribute to achieving the following elements of the MTS vision:

Enhance mobility by:

- Making it convenient, comfortable, and cost-effective to travel without an automobile;
- Creating a citywide transportation system that will rival the private automobile for convenience, efficiency, cost-effectiveness and comfort; and
- Supporting a wide range of efficient, accessible transportation choices, including those that do not require physical travel such as telecommuting and delivery services.

Support sustainability through:

- Creating a transportation network that restores and maintains the quality of life and the quality of the environment in the City of Santa Cruz; and
- Focusing on making transportation modes other than the private auto convenient.

Be innovative by:

- Developing a system that exceeds existing transportation norms and addresses issues with innovative and alternative solutions;
- Creating a system whereby single occupant vehicle drivers pay the true costs of their transportation mode;
- Developing ways to manage congestion in 10 years; and
- Establishing a regional reputation as a City with a "signature transportation system."

Meet community needs through:

- Managing and reducing automobile congestion while minimizing impacts on surrounding residential neighborhoods; and
- Guiding transportation policy for Santa Cruz with the principle that travel modes having less impact on the environment will be given priority. More efficient and sustainable modes of travel will be encouraged. Less efficient and unsustainable modes of travel will no longer be subsidized.

## **TDM STRATEGY DEFINITION**

### **Purpose and Role in the MTS**

As discussed in the Implementation Framework, MTS implementation strategies fall into two fundamental approaches: supply side and demand side. Transportation Demand Management is a demand side strategy. Its purpose is to change human travel behavior through incentives and disincentives to:

1. Reduce the number of peak-hour vehicle trips;
2. Shift trips to non-peak times; and,
3. Increase the percentage of people bicycling, walking, riding transit, carpooling, and vanpooling.

TDM works in conjunction with Social Marketing, the other main demand side strategy, as well as supply side strategies.

## **EXISTING TDM MEASURES**

The existing agencies and their programs that support and promote transportation demand management in Santa Cruz are described in this section.

The Regional Rideshare Agency: Commute Solutions

Commute Solutions is housed within the Santa Cruz County Regional Transportation Commission and provides carpool and vanpool ridematching to commuters throughout Santa Cruz County. Additional services provided by Commute Solutions are shown in Table 1.

Commute Solutions' marketing activities tend to target commuters who are traveling long distances, especially to locations in Santa Clara County. Commute Solutions places commuters into long-distance vanpools and the Highway 17 bus that connects Santa Cruz with Silicon Valley.

### **Santa Cruz County Regional Transportation Commission (SCRTC)**

The regional transportation commission serves many transportation roles in the County, including housing Commute Solutions and providing bicycle planning and bicycle funding to the Santa Cruz region. SCRTC's TDM activities are listed Table 1.

### **Santa Cruz Area Transportation Management Agency (TMA)**

The TMA is a non-profit membership organization of local employers and property owners working together to encourage more efficient use of the transportation system with the goal of improving the quality of life and economic climate of Santa Cruz County. The TMA

provides programs for members and some programs for the general public. Details of the TMA programs are provided in Table 1.

### **Bike to Work**

"Bike to Work" is a ten-year old community-based effort with the goal of increasing the number of people riding bicycles. Bike to Work is staffed by a half-time project manager and a part-time student and is funded by grant money provided through Ecology Action and the Santa Cruz County Regional Transportation Commission.

### **Ecology Action**

Ecology Action obtained grant funding to support "Bike to Work". It also receives funds from the Surface Transportation Program and the Monterey Bay Unified Air Pollution Control District to be the lead agency for the Electric Bike Commuter Incentive Program.

Table 1 summarizes the existing TDM programs in Santa Cruz as of December 2000. The table shows the programs led by public and private community agencies, while Table 2 shows the programs that specific Santa Cruz employers have adopted.

**Table 1: Existing TDM Activities in Santa Cruz**

Existing TDM Activity	Description	Implementing Agencies	Effectiveness/Results
<b>carpool and vanpool ridematching</b>	Database to allow people to find carpool and vanpool partners	Commute Solutions	Placed 356 commuters in carpools or vanpools in CY01, reducing 619 vehicle trips per weekday <sup>1</sup> .
<b>Vanpool formation and maintenance</b>	Organize groups of people into vanpools; find new riders as needed; managed a \$28,000 Vanpool Incentive Program in FY98 and another \$57,000 in FY00.	Commute Solutions	In FY98, the vanpool incentive program increased the # of commuter operated vanpools by about 60%.
<b>information dissemination</b>	Publications, brochures, websites, events, advocacy; Began a \$380,000 promotion in Spring 2002 called "One Day in Five" that includes an extensive advertising campaign.	Commute Solutions Santa Cruz Area TMA SCCRTC Bike to Work	Each agency has up-to-date websites and publications.
<b>employer outreach and assistance</b>	Direct marketing to employers, employer events, information about pre-tax transit payment	Commute Solutions Santa Cruz Area TMA SCCRTC	The TMA has 26 member companies.
<b>inter-regional coordination</b>	Ensure that agencies work together; have consistent messages, effectively represent TDM throughout the area	SCCRTC Bike to Work Santa Cruz Area TMA	
<b>Emergency Ride Home</b>	Provide a free ride home in the event of an emergency to people who are at work without their cars because they have used an alternative mode.	Santa Cruz Area TMA (offered to members only & CalWORKS participants through county HRA) Commute Solutions (being started in 2002)	MA Members: Average 500+ users registered annually 38 rides provided FY 2000-01 CalWORKS clients: Provided 321 rides in 21 months (average of 15 rides/month)
<b>Bike Loan Program</b>	A no-interest loan for up to \$750 to purchase a commuter bike and accessories.	Santa Cruz Area TMA (offered to members only)	Program started 2/96 418 applications received to date 280 loans approved (average 56 loans/year) 52 loans currently active 40 active applications pending
<b>Commuter Club</b>	Discounts, incentives and a cool commuter mug for any employee pledging to use an alternative commute strategy at least one day per week.	Santa Cruz Area TMA (offered to members only)	1,200 residents and/or employees within Santa Cruz have registered for Commuter Club (3.75% of the City's workforce)
<b>Bicycle Parking Subsidy</b>	Provides subsidies to private and public organizations, agencies, and businesses for the purchase and installation of bike racks, lockers and bike cages.	SCCRTA City of Santa Cruz Growing Cycles	The program has placed over 2,000 new bike parking spaces throughout the county.

**Table 1: Existing TDM Activities in Santa Cruz**

Existing TDM Activity	Description	Implementing Agencies	Effectiveness/Results
<b>Bicycle Advocacy</b>	Ensures planning for bicycling; bike events; represents bicycle interests through various channels	SCCRTA Bike to Work The Hub/People Power City of Santa Cruz	Bike Hazard Elimination program generated 56 hazard reports which were sent to appropriate agencies for corrective action.
<b>Park and Ride Lots</b>	Park and Ride Lots provide places where people can drive to meet their carpool, vanpool or transit connection.	Caltrans SCCRTC Commute Solutions	There are eight park 'n ride lots located in Santa Cruz County and two located within the City of Santa Cruz.
<b>Electric Bike Commuter Incentive Program</b>	Provides training to people who are in the market to purchase an electric bike. Participants receive 20%, up to \$300, off the cost of an electric bike. Vendors must offer a one-year warranty on the bike & options for longer-term.	Ecology Action Bike to Work Santa Cruz Area TMA SCCRTC (funding)	The two-year project began in Fall 2000 and has trained about 120 people so far. Of these, about 50 have purchased electric bikes.
<b>Bike Buddy Program</b>	A database matching novice bike commuters with experienced riders.	Bike to Work	
<b>Bike It!</b>	Monthly bicyclist breakfasts in a central location throughout the County	Bike to Work County Parks Department	
<b>Bike to Work/School Week</b>	A week long event with promotions encouraging people to cycle to work or school.	Bike to Work Santa Cruz Area TMA City of Santa Cruz Employers Schools	10 BTW/S Weeks have been held since 1995 (2 per year beginning 1999). In 2001, over 5,000 cyclists participated, cycling to work an average of 3.5 times per week in Spring 2001 and 4 times per week in Fall 2001. This represents nearly 38,000 trips made by bicycle in these two weeks <sup>2</sup> .
<b>Annual Rideshare Week Promotion</b>	A week long event with promotions encouraging people to use alternatives to the SOV.	Commute Solutions Bike to Work Santa Cruz Area TMA City of Santa Cruz	
<b>Bike Plan</b>	A planning document providing for bicycle transportation. The City's bicycle plan aims to double the percentage of bicycle commuters from the 1990 Census level of 5.8% of the commuting population by 2015.	City of Santa Cruz County of Santa Cruz	Completed City and County bicycle plans.

**Table 1: Existing TDM Activities in Santa Cruz**

Existing TDM Activity	Description	Implementing Agencies	Effectiveness/Results
<b>Parking Charges</b>	<p>The most expensive daily parking fee in downtown is \$5 per day.</p> <p>UCSC charges \$270 - \$648/year</p>	<p>UCSC 4 downtown city garages Some downtown employers</p>	<p>63% of downtown employees pay for parking. Surveys reveal that every 100 downtown employees generates about 69.7 vehicle trips compared to 80.6 vehicle trips per 100 employees citywide<sup>3</sup>. This is a 13.5% reduction in vehicle trips. Similarly, UCSC generates 24% fewer vehicle trips than the city-employment average<sup>4</sup>.</p>
<b>Time Limited Parking</b>	<p>Parking is limited to 3-hours free. Parkers who need to park for longer than three hours can either park in one of the four fee lots or purchase daily parking permits for \$2.</p>	<p>13 downtown city lots and garages</p>	

**Table 2. Summary of On-Site Employer TDM Programs in Santa Cruz**

<b>Existing TDM Activity</b>	<b>Employer</b>
Shopping shuttles	UCSC
Bicycle Shuttle to UCSC	UCSC
Bike Racks on Buses	METRO
Vanpools	UCSC County of Santa Cruz City of Santa Cruz
Parking incentives for carpools and vanpools	UCSC
Free transit for employees (or faculty, staff and students)	UCSC City of Santa Cruz Santa Cruz Seaside Co. County of Santa Cruz (limited)
Food service on site	UCSC County of Santa Cruz Plantronics Raytek SCO
Flexible work schedules	UCSC Other employers
Secure covered bike parking	UCSC County of Santa Cruz City of Santa Cruz
Shower and changing facilities	UCSC City of Santa Cruz/Downtown employees County of Santa Cruz Raytek Santa Cruz Medical Clinic
Additional pay for using alternatives	NOAA Santa Cruz Medical Clinic
Parking pricing	UCSC More than 60% of downtown employers <sup>5</sup>

## **NEW TDM MEASURES**

This section presents proposed Transportation Demand Management measures to support the MTS vision. For each proposed measure, the overall concept, how it could work in Santa Cruz, and its potential effectiveness is discussed. Effectiveness is measured by the extent to which the strategy can reduce Single Occupant Vehicle (SOV) travel and encourage travel by non-SOV modes. Figure 17 presents the location of the application of TDM measures.



Estimating the impacts of TDM strategies is not an exact science. As stated by the Washington State Department of Transportation,

*"Even where there is reliable data on the effectiveness of individual TDM measures, there is still limited information on the combined effect resulting from a package of TDM strategies. Some strategies have no impact without the presence of other basic TDM services and techniques. The impacts of a package of TDM strategies is not likely to be linear, and cannot be estimated by simply adding the potential effectiveness scores for each of the included measures."<sup>6</sup>*

For the purposes of this Study, however, the following strategies have been ranked according to the expected effectiveness in the Santa Cruz market from the least to most effective.

## 1. "Park and Ride" Lots

Park and Ride lots allow people to drive to a convenient location to catch a bus or meet a carpool/vanpool. Several existing and proposed parking facilities were analyzed for their potential to serve as park 'n ride locations in order to enhance transit ridership. These included:

- Wrigley Parking Lot for Beach Shuttle
- Depot Parking Lot for University Commuter
- Route 1 and Route 9 Parking Lot for University Commuter
- Santa Cruz Bible Church Parking Lot for Weekday Commuter
- Church property on Rooney Street

### *Effectiveness Estimate for Santa Cruz*

The transit element includes the recommendation that a Park and Ride be established at Route 1 and 9. The other park and rides have been dropped from consideration. The Route 1/9 Park and Ride will support ridership on Metro buses. The impact of this Park and Ride is included in the analysis of future transit ridership, based on the full Transit Element.

## 2. Outlying Parking Lots

Two parking lot locations were considered as areas for satellite parking lots: SCMTD Transit Park and Ride Lot and Scotts Valley Transit Center Parking Lot or Borland Facility. These could serve as shared parking facilities and/or have the potential to be increased in size to serve a variety of uses in the City.

The parking lot at SCMTD is currently at capacity and Metro has plans to expand this lot to accommodate additional riders on the Highway 17 Express buses, which travel to

Santa Clara County. The lot serves an important function in regional vehicle trip reduction by allowing more commuters to take the bus "over the hill."

#### *Effectiveness Estimate for Santa Cruz*

Satellite parking to meet the needs of commuters heading to Santa Clara County and other locations north are critical to regional trip reduction efforts, but they will not reduce local vehicle trips. The impact of this outlying lot on trips headed out of the City is included in the transit plan.

### **3. A City TDM Program**

The City can be a "model TDM employer," and set the standard for other employers to reduce commute vehicle trips. The City can develop an aggressive mode split goal for City employment sites, provide a City TDM manager and implement aggressive TDM strategies for its employment base, including parking charges and a transportation allowance (or parking cash-out) to balance the economics between driving and using alternatives.

#### *Researched Effectiveness*

Employer based trip reduction programs have been able to reduce site vehicle trips up to 40%, depending on the types of strategies used by the employer. Higher end reductions are seen when employers charge for parking and offer cash incentives to employees who walk, bike, and take transit<sup>7</sup>. The University of California, Santa Cruz, for example, has an Average Vehicle Ridership (AVR) of approximately 1.62, (includes construction vehicles; does not include on-campus resident trips<sup>8</sup>). This means that for every 100 people coming to UCSC, just 61.5 cars come to UCSC. According to the 1995 Employee Commute Survey conducted among City of Santa Cruz employers<sup>9</sup>, the AVR was 1.24 (80.6 cars arriving for every 100 people<sup>10</sup>). According to these surveys, UCSC's TDM program reduces vehicle trips about 24% beyond other Santa Cruz employment sites.

#### *Effectiveness Estimate for Santa Cruz*

The City employs approximately 500 people. Assuming that the City employees exhibit similar travel patterns as other employees in the City, about 86% drive alone during the peak<sup>11</sup>. If the City established a program to produce results as good as UCSC, the overall trip reduction would be  $24\% * 1.67\%^{12} = .4\%$

### **4. Safe Routes to School Programs**

Safe routes to school programs and school pool programs can address vehicle trips transporting children to school.

Safe routes to school projects include the four "E's":

- Education to teach walking and biking skills, including how transportation choices, such as driving, effect the environment
- Engineering to build safer streets with non-motorized facilities, including traffic calming, sidewalks, and bike routes
- Enforcement to create safer neighborhoods, and
- Encouragement to create special events that encourage kids to give walking and biking try, including bicycle rodeos to give kids on-bike lessons in traffic safety.

The program requires the cooperation and integration of ideas from pupils, parents, schools, city officials, law enforcement officers, local transit operators, neighborhood groups and local community leaders.

The costs of implementing Safe Routes to School strategies depend upon the number of pupils, the school's location and the current transportation situation. A broad estimate is that \$300,000 per school is needed to implement minimal safe route to school policies.

School Pool programs, which are one component of Safe Routes to School programs, help parents find neighboring parents to form car or walk-pools for transporting children to school.

#### *Researched Effectiveness*

Recent research has shown that a 7 - 10% reduction in car travel to school is possible by improving the pedestrian and bicycle infrastructure around schools and by marketing these choices to students and their parents<sup>13</sup>.

After just one year of Safe Routes to Schools programs implementation at six Elementary and Middle Schools in Marin County, the drive alone rates at these schools fell from an average of 62% to an average of 46%, a 16% drop<sup>14</sup>.

#### *Effectiveness Estimate for Santa Cruz*

The City of Santa Cruz could implement a Safe Routes to School program that would increase the number of schools involved in the program over time. For purposes of this discussion on effectiveness, we estimate that the City could target involvement of 10% of schools in the short-term, 25% of schools in the mid-term and 50% in the long term. It is assumed that 6% of the peak hour vehicle trips on the road are related to people driving children to elementary, junior high and high school<sup>15</sup>. It is further assumed that the programs' effectiveness will improve over time from 7% to 15%<sup>16</sup>.

## 5. Santa Cruz Car Share

Car-sharing is like a car rental cooperative. Rates are less expensive when renting cars for short, local trips. The idea is to allow people to live a car-free lifestyle, but have access to a car when needed. People often participate in car sharing programs instead of purchasing a second car. The cost of driving is significantly reduced, because participants only pay for a car when they are using one.

### *Researched Effectiveness*

Once people own a car, they tend to make more trips than they otherwise would. By eliminating the need to have a car, or a second car, car-share programs act as a "preventative measure" to trip generation. Research efforts are underway to quantify the impact of San Francisco's Car Share program. Some programs show an initial increase in VMT as people without cars have access to vehicles through the program. Other studies have revealed that 30% to 69% of participants give up their cars after joining car-share programs<sup>17</sup>. In Santa Cruz, a car-share program may encourage UCSC students to give up maintaining a car on campus.

### *Effectiveness Estimate for Santa Cruz*

Given the limited research on the vehicle trip reduction impact of car-share programs, we have assumed that the City could implement a car-share program designed to serve the City and University communities. If the program attracted 1,000 members, and half of those already had cars, trip reductions from 500 people could be assumed. We have assumed that the car-share program would cause these members to reduce their vehicle trips 75%. This is a 75% reduction among 1.4% of the driving population, for a total trip reduction of 1%<sup>18</sup>. For the purposes of the MTS, it is estimated that this impact would be realized in the mid-term if the program were implemented in the short-term.

## 6. Parking Management

Parking management strategies are designed to more efficiently manage the supply of parking, so that parking is utilized more consistently throughout the day. Parking management strategies include:

1. Allow parking requirement reductions for developments that implement parking cash-out.
2. Allow parking requirement reductions for developments that set aside landscape reserves for potential future parking if needed.
3. Reduce parking minimums, so that fewer parking spaces can be built (e.g. reduce commercial requirements from 3.3 spaces/1,000 square feet to 2.75 spaces/1,000 square feet); apply parking minimums applicable to mixed-use environments; reduce requirements in areas better served by transit.

4. Reserve a number of on-street parking spaces for carpools and vanpools, thus providing free, convenient parking. This is especially effective when parking supply is tight and when employees are charged for parking.
5. Set parking maximums to cap the construction of new parking spaces. One example is car-free housing, where no parking is provided with the residential project and future residents commit to the car-free lifestyle. This helps reduce housing costs.
6. Require new development to separate the cost of parking from the cost of building lease space, thereby making the cost of parking "real" to the purchaser.
7. Update the Deficiency Fee Program in the Downtown to encourage more efficient use of parking, by requiring Downtown developers to either:
  - A) build sufficient parking for the project;
  - B) implement parking cash-out; or
  - C) pay the deficiency fee.
8. Shared parking allows different adjacent land-uses to share one supply of parking, thereby limiting the amount of parking provided. Shared parking is based on two factors:
  - A) Peak parking demand for individual uses often has different hours of the day, days of the week and times of the year; and,
  - B) Mixed-use development offers a synergistic, "captive market" relationship among the different land uses, encouraging multi-purpose walking trips.

Given these factors, a single parking space can serve several uses without conflict or encroachment. Parking costs can be lower, with fewer total spaces provided to meet the actual peak parking demand rather than the sum of the demand of individual land uses. This supports environmental sustainability, by reducing land allocated to parking, and supporting more compact, walkable environments.

As described by the MTS, numerous parking facilities in the City are vacant or nearly vacant at different times of the week. For example numerous churches exist in the City that have parking facilities that may be available for weekday employee park and ride lots. Ideas for shared parking areas include the Wrigley Plant property, beach parking lots, and County building parking lots.

#### *Effectiveness Estimate for Santa Cruz*

Parking management strategies influence vehicle trip generation in the following ways:

- More efficient parking reduces the supply of land committed to parking, so that land may be converted to more intensive development, such as affordable housing near transit;

- Less land dedicated to parking means more compact development patterns which allows people to leave their cars in one place and walk between trip destinations;
- More compact development patterns also improves the pedestrian and transit-orientation of the community by creating a more interesting, intimate streetscape; and
- Reduction in the supply of available parking is integrally related to the ability to control and price parking.

On the other hand, parking management strategies can improve parking availability in some cases. As a result, the effectiveness will depend on where the strategy is applied and the details of the land use condition as it is applied.

The City can implement parking management strategies in the near-term, and their effectiveness will increase over time as the strategies mature and as new development generates a greater percentage of total trips. The parking management strategies will make parking pricing feasible and will enhance the effectiveness of the Employment Village concept, parking cash out, and a TDM ordinance. (Each of these strategies is discussed elsewhere in this chapter.)

The City can focus parking management strategies on new development. If five percent of AM peak trips are generated by new development in the short term, and if parking management strategies are applicable to all new development, and if the strategies impact 3% of vehicle trips, the potential effectiveness of these strategies can be:  $5\%^{19} \times 3\%^{20} = 0.15\%$ .

It is anticipated that both effectiveness and the amount of trips generated by new development will increase over time, thus increasing the effectiveness potential of these strategies. The following represents the mid and long-term effectiveness estimates.

## 7. Guaranteed Ride Home Program

The City can provide a Guaranteed Ride Home program to all employees in the city<sup>21</sup>. As of Spring 2002, Commute Solutions is implementing such a program. A Guaranteed Ride Home (GRH) program offers a free ride home in the event of an emergency to employees who have traveled to work using a mode other than driving alone. A taxi service, fleet vehicles, or rental cars can provide free rides. The city-provided program can be for anyone working in Santa Cruz. GRH programs eliminate a barrier to using alternatives to driving alone, and thereby support the effectiveness of other vehicle trip reduction strategies.

### *Researched Effectiveness*

A 2002 survey of participants in Alameda County's Guaranteed Ride Home program found that 19% said that they would have to give up using their alternative mode if the GRH

program did not exist<sup>22</sup>. Among the drive alone population, GRH programs have been found to influence up to 2% of the population to use transportation alternatives<sup>23</sup>, or to increase the effectiveness of other TDM strategies (e.g. shuttles or transit subsidies) 1 to 3%<sup>24</sup>. The impact of a GRH program is directly related to how widely it is promoted and its eligibility requirements. For example, the Alameda County program is available only to employees working at employment sites with 50 or more employees.

#### *Effectiveness Calculation for Santa Cruz*

Of peak hour vehicle trips (carpool and SOV), 94% are made by full and part-time employees<sup>25</sup>. Of these, 69% are for work purposes<sup>26</sup>. If all employees working in Santa Cruz were eligible for the GRH program, the program could have the potential to reduce 2% of vehicle trips among the driving commuter population.

## **8. Parking Cash Out**

In a parking cash out program, an employer offers its employees the choice between a) paying the cost of the employee's parking (thereby making it "free" to the employee); b) providing the employee with a tax-free transit/vanpool subsidy equal to the cost of the parking; or c) providing the employee with a taxable carpool/walk/bike subsidy equal to the value of the parking.

Where parking is "free", either because the cost is bundled in other lease costs or because the employer did not separate out the cost of parking construction from other building costs, parking cash-out can be established by assigning a value to the parking. The value can be based on market rates in the surrounding area, or, if there are no nearby parking charges, the value can simply be assigned.

In either case, parking cash-out requires certain conditions for it to work effectively. These include:

- The ability to control access to the parking supply and/or easily monitor the supply, and
- Lack of free, uncontrolled nearby parking to prevent spillover into neighborhoods or other lots.

The site-level trip reduction effectiveness (i.e. the effectiveness as measured at the trip-generating destination) of parking cash-out will generally be less than if the site charged for parking. First, employees must sign up to participate in the parking cash-out program and often must record their travel behavior on a daily basis. This administrative burden makes it more likely that people will accept the parking benefit and forego the cash-out. In addition, the cash that is received is taxable, while the free parking is not. Finally, parking cash-out allows employees to receive free parking if desired.

### *Researched Effectiveness*

Vehicle trip reduction realized from parking cash out increases as the price of parking (and the amount cashed-out) increases and the number of transportation alternatives (e.g. robust bus service) increases.

- A 1997 study of eight Southern California sites that implemented parking cash-out programs, found that vehicle trip reduction ranged from 24% to 5%. Average VTR was 11%<sup>27</sup>.
- The City of Pleasanton, CA measured the effectiveness of its parking cash out program (parking remained free, but those who chose not to park were paid \$1.50/day) between 1993 and 1997, and found that vehicle trip reduction ranged from 5.7% to 8.1% over the year<sup>28</sup>.
- Alameda County's program (parking remained free, but those who chose not to park were paid \$1.50/day; offered only to the Planning & Public Works departments) resulted in 5.1% fewer vehicle trips<sup>29</sup>.
- The City of Albany, CA found that its program (parking remained free, but those who chose not to park were paid \$1.25/trip reduced up to \$2.50/day) reduced vehicle trips 5.9%<sup>30</sup>.
- The City of Oakland's program (parking remained free, but those who chose not to park were paid anywhere from \$20/month to \$40/month; implemented at a site near the Oakland Airport) reduced vehicle trips 6.5%<sup>31</sup>.

### *City of Santa Cruz Implementation Actions*

The cost and administrative burden of the program makes few employers embrace it voluntarily, meaning that simple program encouragement will have minimal effect on vehicle trips. Existing law requires employers with over 50 employees that lease parking (where the leased parking is charged separately) to offer parking cash-out. The City of Santa Cruz could take several approaches to implementing parking cash-out:

- The City could require land lords to separate the lease costs of parking from other building lease costs, so that more employers would be subject to the parking cash-out law;
- The City could assist the Air Resources Board (the agency responsible for enforcement of the Parking Cash Out law) with enforcement strategies, since the ARB has limited funding to enforce the law;
- The City could implement its own parking cash-out ordinance that would apply to a greater portion of employment sites;
- The City could include Parking Cash Out as a recommended strategy in a city-based trip reduction ordinance.

### *Effectiveness Estimate for Santa Cruz*

Of peak hour vehicle trips (carpool and SOV), 94% are made by full and part-time employees<sup>32</sup>; and of these vehicle trips, 69% are for work purposes<sup>33</sup>.

The City could implement a parking cash-out requirement that would apply to employers meeting a set of criteria (e.g. minimal impact on neighborhoods; ability to enforce & control; size of employer; location of employer). If the City implements other parking management and pricing strategies (such as the unbundling of leases) over time, the number of sites where parking cash-out is applicable will increase. As such, we assume that parking cash-out could apply to up to 40%<sup>34</sup> of the peak hour employment destinations. Using the researched effectiveness as a guide, we estimate that parking cash-out can cause a 6%<sup>35</sup> decrease in commuter vehicle trips.

## **9. EcoPass Programs**

An Eco-Pass program is a type of transit subsidy in which an employer purchases an annual transit pass for all of its employees (regardless of the number of employees who actually ride transit). The transit agency sells these annual passes at deeply discounted rates. Eco-Pass programs can also be set up on a neighborhood basis, so that all members of a certain neighborhood can obtain deeply discounted annual transit passes. Neighborhoods can participate in community-based EcoPass programs by voting to increase their local taxes, or through communal fund-raising efforts and organization. Incentives could be developed for small businesses to participate in this program.

### *Researched Effectiveness*

The City of Boulder, Colorado developed an EcoPass program for all city neighborhood groups and employers. Employees in the downtown business EcoPass program used transit more than twice as much in 2000 as they did in 1995 due partly to transit improvements and partly to the EcoPass program. When CU Boulder began providing the EcoPass program to its faculty and staff, bus ridership increased 84% among CUB faculty and staff.

### *Effectiveness Estimate for Santa Cruz*

The City and Metro could implement the EcoPass program and support an aggressive marketing campaign to encourage employer participation. The City could also provide start-up grants to employers to generate interest in the program. The TDM Ordinance could influence the success of this program as employers look for ways to meet the requirements. Parking pricing would also impact the effectiveness of this program as employers look for ways to replace free parking benefits with other benefits to improve access. Finally, the Guaranteed Ride Home program would support this program as well by removing barriers to transit ridership.

If one-quarter of Santa Cruz employers buy into the program, and if the program creates a 10% to 15% mode shift from SOV/carpool to transit among employees of these employers, an Eco Pass program can cause a 2% decrease in commuter trips.

## 10. City TDM Ordinance Applicable to New Development

The City can implement a citywide TDM ordinance that would require new development to reduce its peak hour trips by a certain percentage (e.g. 25%) below the existing vehicle trip generation typical in Santa Cruz. It can also permit new development to build more intensively (a density bonus) if the project implements additional TDM strategies to further reduce trips. The ordinance would not apply to existing businesses<sup>36</sup>.

The ordinance could be written to provide developers with guidelines or suggested strategies to achieve the targeted level of trip reduction. Other incentives, such as reduced parking requirements, can be tied to commitments to TDM, to balance out the total developer cost. Compliance with the requirement could be measured by site-level cordon counts or site-level employee/residential surveys. The ordinance can be applied in the following ways:

- 25% trip reduction requirement on commercial office development;
- 30 to 40% trip reduction requirement to allow for density bonuses;
- No trip reduction requirement on retail development, unless seeking a density bonus. Then a 25% trip reduction requirement would apply; and
- No trip reduction goals set on new residential development. New residential developers, however, could be required to buy into the EcoPass program for three years, meet bicycle parking requirements, and/or provide shuttle services.

Because many trip reduction measures are most effectively implemented by private businesses or land-owners, a trip reduction ordinance is a way for the City to ensure that these strategies are adopted. Such strategies include:

- transportation allowances,
- parking pricing,
- parking cash-out,
- pre-tax payment for transit fares,
- alternative work hours (whereby trips are shifted out of the peak or people work a full-time schedule in less than five work days), and
- telecommuting (whereby people are allowed to work at home).

In addition, trip patterns are most easily influenced when people move to a new home or work location. The new development ordinance will impact people when they are in a state of change and more open to assessing their travel options.

### *Examples*

The City of South San Francisco has adopted an ordinance to require any new non-residential development located East of Highway 101 that is expected to generate 100 or more average daily trips (based on ITE trip generation rates) to achieve 28% alternative mode usage. Office development that commits to achieving a 45% alternative mode use can develop at an FAR of 2.0 - 2.3, versus a base FAR of 1.0 for office development. For developments that receive FAR bonuses, non-attainment of mode share goals is punishable by fines if unremedied. The South San Francisco ordinance also allows the Planning Commission to grant reduced parking requirements on a development-by-development basis. Prior to passage of the ordinance, two developers were required to develop TDM plans to meet the mode split requirements via development agreements.

The City of Alameda passed an ordinance in June 2001 to require all new development (residential, retail, office) on the west end of the island to implement trip reduction programs if it generates more than six vehicle trip ends inbound in the AM or six out-bound in the PM (or five vehicle trip ends inbound via the tubes in the PM or eight out-bound in the AM). Further details of the requirements have not yet been developed.

### *Effectiveness Estimate for Santa Cruz*

The trip reduction impact will depend on the goals set by the ordinance. If developers charge the real cost of parking and provide robust transit subsidies, site-level trip reduction impacts of 30% to 35% could be readily achievable.

While the City should implement this action in the short-term, its impact will be felt more profoundly over time as the ordinance matures, and as new development represents more of the total volume of trips. If the ordinance required a 25% vehicle trip reduction on new commercial development and new commercial development represented 5% of employment destinations, then the effectiveness would be as follows:

**Short-Term:**      25% (effectiveness) \*  
                           5% (% of employment sites subject to ordinance) \*  
                           94% (% of peak hour vehicle trips made by employees) \*  
                           69% (% of those peak hour employee vehicle trips made for work  
                           purposes) = 0.8%

As new development represents more of the total volume of trips, the impact could increase as follows:

**Mid-Term:**        25% (effectiveness) \*  
                           10% (% of employment sites subject to ordinance) \*

94% (% of peak hour vehicle trips made by employees) \*

69% (% of those peak hour employee vehicle trips made for work purposes) =  
1.625%

**Long-Term:** 25% (effectiveness) \*

20% (% of employment sites subject to ordinance) \*

94% (% of peak hour vehicle trips made by employees) \*

69% (% of those peak hour employee vehicle trips made for work purposes) =  
3.25%

## 11. Parking Pricing

The most effective TDM strategy for reducing vehicle trip demand, as measured at the trip-attracting destination, is parking pricing. Several parking pricing strategies were developed in the Parking Pricing Element of the MTS<sup>37</sup>. Recommended pricing strategies include:

### Downtown parking district

- Limit monthly parking permits and increase rates;
- Make on-street meter parking rates and durations uniform;
- Maintain hourly parking rates in garages, expand to include multi-story lots, and increase rates over time; and
- Initiate paid parking in surface lots with possible validation.

### South of Laurel/Beach Area

- Maintain the existing parking pricing structure at the Wharf Lot and Lot 25 (Washington Street) surface lots;
- Standardize rates for convenient surface lot parking;
- Structure on-street meter parking rates and durations to reflect convenience; and
- Discount monthly permits at surface lots.

These pricing strategies are fully discussed in the Parking Pricing element. The strategies are designed to reduce trips, decrease search traffic as people look for the best deal, and improve parking convenience.

### *Effectiveness Estimate for Santa Cruz*

Limiting monthly parking permits and increasing rates, expanding the lots in which paid hourly parking is available, and increasing hourly rates over time will have the most influence on trip generation. In suburban California locations, charging for parking has

revealed trip reduction impacts ranging from 8% to 28%, and in urban California examples, charging for parking has revealed trip reduction impacts ranging from 7% to 29%<sup>38</sup>.

### *Work Trips*

Of peak hour vehicle trips (carpool and SOV), 94% are made by full and part-time employees<sup>39</sup>; and of these trips, 69% are for work purposes<sup>40</sup>.

We estimate that 25%<sup>41</sup> of these trips can be influenced by parking pricing policies and that fees and policies can cause an estimated 15%<sup>42</sup> decrease in commuter vehicle trips. The potential trip reduction in Santa Cruz becomes:  $95\% * 69\% * 25\% * 15\% = 2.5\%$

### *Shopping and Other Trips*

Of peak hour vehicle trips (carpool and SOV), 15% are shopping trips<sup>43</sup>. It is unknown how many of Santa Cruz's shopping trips are headed to destinations, like downtown, where parking pricing is feasible. If 30% of shopping activity is in such areas and if 5%<sup>44</sup> of these trips can be influenced by parking pricing policies, then the overall impact on peak hour vehicle trips would be  $15\% * 5\% * 30\% = 0.225\%$

### **Total**

The influence of parking pricing could potentially affect 2.75% ( $.225\% + 2.5\% = 2.75\%$ ) of the peak hour trips.

## **12. Raising the Cost of Using Private Automobiles**

The MTS looked at gas taxes and vehicle sales tax as demand management strategies that could be implemented in the City of Santa Cruz. As the discussion pointed out, research would be needed to determine if a local government can implement a gas tax. Gas and sales taxes are regressive, and implementing a sales tax could simply shift the City's auto sales tax revenues to other cities.

The most effective way, then, to raise the cost of using the private automobile is through parking charges.

### *Effectiveness Estimate for Santa Cruz*

As the economy evolves and as the demand for land becomes ever more important, the City can position itself such that charging for parking will be the norm throughout the City. Over time, the City could evolve its parking management strategy to include that all new commercial development, as well as existing development in more dense locations, be required to charge for parking. Employers that do not want to charge their employees for parking can offer parking cash-out instead.

Assuming that employment will grow 20% over the next 20 years, this strategy could have a 30% trip reduction impact on that 20% of employment. The estimated effectiveness then is  $30\% * 20\% * 65\%$  of peak hour trips made by employees traveling to work = 3.9%

### 13. Employment Villages (TDM Target Areas)

The City could focus employment development in key locations, so that a critical mass of employment would exist in concentrated locations. This will allow trip reduction strategies to be more effectively applied in these areas (e.g. increased transit service, vanpools, carpools). The candidate areas include:

- Employment Centers on the far west side
- City hall
- County Government Centers on Ocean Street and on Emeline Avenue
- Harvey west Industrial Park
- Seaside Company
- Dominican Hospital Frederick Street
- Santa Cruz Medical Clinic Soquel Avenue

This strategy will allow increased public transit coverage and will create a greater market for vanpools and carpools. To be truly effective, however, it must embrace Smart Growth urban design practices to provide a mixed-use, pedestrian- and transit-friendly environment. Concentrations of employment, if located on circuitous streets and surrounded by copious amounts of parking do little to promote trip reduction. Retail and child care must be included to maximize trip reduction potential. An overlay district with reduced parking requirements should be part of this strategy. Finally, the parking management and pricing strategies described elsewhere in this chapter must be applied in these areas.

#### *Researched Effectiveness*

Studies of mixed-use, transit-oriented, pedestrian-oriented, concentrated office development have revealed the following vehicle trip reduction impacts.

- 12% to 27% reduction in midday office park vehicle trips at mixed-use sites compared to single-use sites<sup>45</sup>;
- A 39% reduction in commute vehicle trips in Arlington County, VA where over 95% of office space and 67% of retail is within walking distance of transit compared to the regional average<sup>46</sup>.

- A 25% reduction in office-generated vehicle trips at office land uses surrounding the Pleasant Hill BART station in the San Francisco Bay Area compared to typical suburban-styled development<sup>47</sup>.
- A 37% increase in commute transit trips at transit-oriented, medium-density residential development in San Jose compared to Santa Clara County as a whole.

#### *Effectiveness Estimate for Santa Cruz*

The effectiveness of this strategy will vary depending on how it is implemented. At its most successful, it would fully embody Smart Growth principles, parking pricing strategies, parking management strategies, and pedestrian-oriented design standards. If these strategies were implemented, Employment Villages could readily achieve a 30% reduction in vehicle trips compared to the status quo of suburban office parks. Assuming that some of this trip reduction effectiveness is accounted for in the parking pricing & management strategies described elsewhere in this chapter, we have used an estimate of a 20% reduction in vehicle trips at the Employment Villages. This estimate is based on the researched impacts described above. TDM Implementation

#### *Trip Reduction Effectiveness*

Table 3 presents the potential trip reduction effectiveness of an aggressive application of TDM measures, by person-trip.

**Table 3: TDM POTENTIAL TO SHIFT PM PEAK TRAVEL MODES -- YEAR 2020**

	TDM PROGRAM					
	Non-Employment Trips Parking Pricing shopping trip	Existing Employment + Job Growth Not Associated with New Development guaranteed Ride Home Program	Job Growth, New Development EV, Pkg Mgmt, TDM Ordinance, EcoPass			
% PM peak hour trips by employees	94%	94%	94%	94%	94%	94%
% of trips for work	15%	69%	69%	69%	69%	69%
% of sites	30%	90%	5%	9%	5%	5%
% effectiveness	--	1 - 3%	5 - 11%	10 - 15%	7 - 29%	12 - 39%
% mode shift	0.2%	2%	6%	15%	25%	20%
2020 SOV internal trips [2]	16,399	16,399	16,399	16,399	16,399	16,399
2020 SOV commute in trips (46%)	7,852	7,852	7,852	7,852	7,852	7,852
2020 potential SOV trips	24,251	24,251	24,251	24,251	24,251	24,251
SOV reduction	51	283	50	590	345	1,699
average vehicle occupancy	1.00	1.00	1.00	1.00	1.00	1.00
person trips shifted to non-SOV	51	283	50	590	345	1,699
effectiveness rank	10	4	11	2	3	1

[1] AM trip benefits. updated 9/16/02

[2] non-UCSC trips

[3] % of sites impacted by strategy represents 50% of private parking in downtown & beach using parking numbers provided by ESA.

[4] % of sites impacted by strategy represents 65% of city-owned parking in downtown & 30% of city-owned parking in beach. It is assumed that rest of city-owned parking will accommodate shopping, visitor & tourist trips.

[5] % of sites impacted by strategy represents # of jobs located in EV's (per Santa Cruz traffic mode) minus those located in Beach & Downtown areas that will be subject to parking pricing/parking car-out strategies.

[6] New job growth represents 20% of jobs in 2020. Assume that 50% will be created by new development and will be subject to TDM ordinances, etc. Assume that 50% of those will be subject to TDM ordinances, etc and will also implement parking pricing strategies.

**CAR SHARING POTENTIAL**

	Car Share
<i>total members</i>	1,000
<i>% members with cars</i>	50%
<i>trip reduction pool</i>	500
<i>% employed</i>	75%
<i>% of PM peak trips for work</i>	69%
<i>% choose transit/carpool</i>	50%
<i>% mode shift participants</i>	26%
<b>person trip reduction</b>	<b>129</b>
<i>potential effectiveness range</i>	30 - 69%
<i>% reduction total internal trips</i>	0.8%
<b>effectiveness rank</b>	<b>7</b>

observations

1. Parking pricing/car share small employers.

**SUMMARY**

Sum of all TDM measures	3,836
Transit services	485
<b>total</b>	<b>4,321</b>

**2020 TARGET PERSON TRIP MODE SHIFTS (non-UC trips)**

	From SOV	To Carpool	To Transit	To Bike	To Walk
internal	(5,304)	2,324	1029	790	1,161
commute in	(2,849)	2,424	425	0	0
<b>total</b>	<b>(8,153)</b>	<b>4,748</b>	<b>1,454</b>	<b>790</b>	<b>1,161</b>
<i>% shift from SOV</i>		-58%	-18%	-10%	-14%

**CITY TDM**

<i>city employees</i>	500
<i>effectiveness</i>	24.0%
<b>trip reduction</b>	<b>120</b>
<i>potential effectiveness</i>	up to 40%
<b>rank</b>	<b>8</b>

**EMPLOYMENT**

	2000 employment	2020 employment	growth
Harvey West	3,092	3,716	624
Downtown	6,941	8,821	1,880
Beach	1,828	2,462	634
Mission St.	3,597	4,370	773
Westside	2,802	3,367	565
Eastside	5,749	7,262	1,513
Employment Villages	24,009	29,998	5,989
UCSC	3,153	3,153	0
Other	4,628	6,569	1,941
<b>Total</b>	<b>31,790</b>	<b>39,720</b>	<b>7,930</b>

<sup>1</sup>February 7, 2002 memo from Commute Solutions Executive Director Linda Wilshusen to Regional Transportation Commission.

<sup>2</sup>2,572 participants in Spring 2001 bicycled to work/school an average of 3.5 times per week = 9,002 bicycle round-trips or 18,004 one-way bicycle trips. 2,465 participants in Fall 2001 bicycled to work/school an average of 4 times per week = 9,860 bicycle round trips or 19,720 one-way bicycle trips. The total is 37,724.

<sup>3</sup>Comparison between 1999 Downtown Employer Survey data and 1995 Employee Commute Survey data. Downtown survey represents 139 employers, representing 1,045 employees. 1995 survey represents 3,010 employees at 42 worksites throughout city (no state or federal employers included). Vehicles/employees calculated assuming an HOV AVO of 2.23.

<sup>4</sup>Comparison between UCSC 1997 Cordon Count and 1995 Employee Commute Survey data. UCSC generates 61.5 vehicle trips/100 employees, while city average is 80.6. UCSC data does not count trips generated by on-campus resident students, which would lower UCSC's vehicle trip generation rate even more.

<sup>5</sup>1999 Downtown Employer Survey

<sup>6</sup>Transportation Demand Management: A Guide for Including TDM Strategies in major Investment Studies and in Planning for other Transportation Projects. Washington State Department of Transportation. (August 1996)

<sup>7</sup>Association for Commuter Transportation.

<sup>8</sup>UCSC Spring 1997 Cordon Count. Assumes average vehicle occupancy of carpools and vanpools = 2.23.

<sup>9</sup>3,010 employee responses received from 4,651 employees at 42 worksites with 50 or more employees in the City of Santa Cruz. No state or federal employers included.

<sup>10</sup>Assumes average vehicle occupancy of carpools and vanpools = 2.23.

<sup>11</sup>Gene Bregman and Associates, November 2000. (185 SOV and carpool trips made by full and part-time workers out of 216 total trips taken by full and part-time workers = 86% vehicle trips.)

<sup>12</sup>City jobs represent 1.67% of all jobs in the City of Santa Cruz (500/30,000)

<sup>13</sup>W S Atkins (1999) Assessing the Effect of Transport White Paper Policies on National Traffic, London.

<sup>14</sup>Marin Safe Routes to Schools Program, June 13, 2001.

<sup>15</sup>According to the November 2000 City of Santa Cruz telephone survey conducted by Gene Bregman and Associates 8% of peak AM trips are made by people picking up/taking someone to work or school. It is assumed the majority of these are school-based. It is further assumed that the vast majority of the 13% of peak AM trips designated as going "to school" are made by UCSC students and that only 1 or 2 percent are made by high school students. Thus, a total of 6% of total AM peak trips is used for the above calculation.

<sup>16</sup>Based on results seen elsewhere.

<sup>17</sup>Sperling, Daniel Ph.D. et al. "Carsharing and Mobility Services, An updated overview," 2000. Citing studies of three European car-share programs conducted between 1990 and 1994.

<sup>18</sup>Assume 65% of Santa Cruz's population is the driving population.

<sup>19</sup>% of trips estimated to generate from new commercial, retail and residential development.

<sup>20</sup>Implementing parking management strategies for all new development can be difficult as many developers will push back based on the status-quo expectation of what makes a project marketable.

<sup>21</sup>The existing GRH program within the City of Santa Cruz is restricted to members of TMA.

<sup>22</sup>Nelson\Nygaard Consulting Associates, March 2002.

<sup>23</sup>Bay Area Air Quality Management District.

<sup>24</sup>Washington State Department of Transportation, 1996.

<sup>25</sup>Gene Bregman and Associates, November 2000 (185 vehicle trips made by full & part-time employees during peak/196 vehicle trips made during peak = 94%)

<sup>26</sup>Gene Bregman and Associates, November 2000 (171 work vehicle trips/249 total vehicle trips made by full & part time employees during peak = 69%)

<sup>27</sup>Shoup, Donald C., "Evaluating the Effects of Parking Cash Out: Eight Case Studies," Sacramento: California Environmental Protection Agency, 1997, 240 pp.

<sup>28</sup>Trip reduction calculated by Nelson\Nygaard based on data presented in the following paper which was presented at the 2001 Transportation Research Board conference in Washington, DC: Walukas, Beth, "Financial Incentive Programs in Alameda County, California," Alameda County Congestion Management Agency.

<sup>29</sup>Ibid

<sup>30</sup>Ibid

<sup>31</sup>Ibid

<sup>32</sup>Gene Bregman and Associates, November 2000 (185 vehicle trips made by full & part-time employees during peak/196 vehicle trips made during peak = 94%). Student vehicle trips not considered, because it is assumed that vast majority are traveling to UCSC, which would not be influenced by this strategy.

<sup>33</sup>Gene Bregman and Associates, November 2000 (171 work vehicle trips/249 total vehicle trips made by full & part time employees during peak = 69%)

<sup>34</sup>Because some of the employment trips travel outside the City limits and because not all work locations will be able to implement cash out due to site logistics, we assume the strategy would target about 15% of the commuting population in Santa Cruz in the short-term, 25% in the mid-term and 40% in the long-term.

<sup>35</sup>Based on results seen elsewhere, and assuming a cash-out value of ~\$2/day.

<sup>36</sup>The City had a local trip reduction ordinance in place in the early 1990s that required all employers with 50 or more employees to reach an average vehicle ridership (AVR) goal of 1.25 by 1996. This ordinance was eliminated after statewide legislation prohibited local jurisdictions from requiring employers to implement trip reduction programs. Trip reduction requirements, however, are still allowed as a condition of development.

<sup>37</sup>The Parking Pricing Element also recommends Parking Cash-Out, which is discussed as a separate TDM strategy in this chapter. The Parking Pricing Element also recommends updating the deficiency fee program, which is discussed under "parking management strategies" in this TDM chapter.

<sup>38</sup>Nelson\Nygaard, April 2001; review of parking pricing research/studies.

<sup>39</sup>Gene Bregman and Associates, November 2000 (185 vehicle trips made by full & part-time employees during peak/196 vehicle trips made during peak = 94%). Student vehicle trips not considered, because it is assumed that vast majority are traveling to UCSC, which would not be influenced by this strategy.

<sup>40</sup>Gene Bregman and Associates, November 2000 (171 work vehicle trips/249 total vehicle trips made by full & part time employees during peak = 69%)

<sup>41</sup>Because these strategies would be targeted to downtown Santa Cruz the South of Laurel/Beach Area, they will impact about 25% of the commuting population in Santa Cruz (about 7,500 jobs).

<sup>42</sup>Based on results seen elsewhere.

<sup>43</sup>Gene Bregman and Associates, November 2000. 41 shopping trips/265 peak hour vehicle trips.

<sup>44</sup>See Parking Element for a discussion of the impact of parking fees on shopping trips. One study showed impacts on shopping vehicle trips of 8% and the other showed no loss in travel to the CBD, as people parked elsewhere.

<sup>45</sup>California EPA Air Resources Board. 1994. The Land Use - Air Quality Linkage: How Land Use and Transportation Affect Air Quality.

<sup>46</sup>Source: "Improving Conditions for Bicycling and Walking," FHWA, 1998.

<sup>47</sup>Calthorpe Associates (1997) Design for Efficient Suburban Activity Center Phase 1 Report - Prepared for FHWA and PTA Planning Office