

# TRANSPORTATION DEMAND MANAGEMENT APPENDIX



REGIONAL TRANSPORTATION PLAN  
**2012-2035** RTP  
SUSTAINABLE COMMUNITIES STRATEGY  
Towards a Sustainable Future



*Southern California Association of Governments*  
ADOPTED APRIL 2012

# TRANSPORTATION DEMAND MANAGEMENT

<b>Ridesharing</b>	<b>1</b>
<b>Telecommuting/Work-at-Home</b>	<b>2</b>
<b>Transit</b>	<b>4</b>
Recommendation	4
<b>Active Transportation</b>	<b>5</b>
<b>VMT Reductions</b>	<b>6</b>
Telecommuting	6
Flexible Work Schedule	7

Travel demand management (TDM) and the related transportation systems management (TSM) rose to prominence in the 1970s and 1980s as cost-effective alternatives to road capacity expansions. TDM strategies are of two kinds: voluntary, or “soft,” strategies—like preferential parking for carpoolers—that aim to lure some to alter their travel behavior in response to voluntary inducements, and “hard” strategies—like increased parking pricing—that shift the behavior of a large number of travelers by changing the price of travel. TDM also can include regulatory strategies, such as regional employer ridesharing mandates.

The Los Angeles area has been home to some of the more innovative and successful TDM efforts over the years. Some examples include rideshare programs, parking cash out and park and ride lots.

Careful evaluations of these efforts, and others around the U.S., have shown that soft TDM strategies can be very effective in reducing single-occupant vehicle travel at the scale of a large employment site, but that the staying power of soft TDM strategies can fade over time without constant attention from employers or the accompaniment of hard TDM strategies.

Hard TDM strategies, like road and parking pricing, have been shown to influence travel behavior more durably and, depending on the application, over much larger geographies.

This does not mean that soft TDM strategies should be dismissed and hard TDM strategies implemented. Precisely because the travel behavior effects are so significant, hard strategies can be controversial and require significant analysis, consensus building, and public education prior to implementation. However, pricing benefits have proven to be more sustainable over time and complement the integrated land use strategies adopted by the region.

In general, TDM strategies complement each other. More employees might use a transit subsidy if a guaranteed ride home program were in place in the event of a family emergency or unscheduled overtime. If the employer were to also implement a parking cash out program, the number of transit users would likely increase further.

Effective TDM programs can increase choices for travelers, and reduce per capita non-renewable energy consumption and emissions. When transit use, carpooling, biking, and walking rise, transportation system efficiency tends to increase, bringing many

benefits to the region. Thus, these benefits can justify substantial public expenditures on effectively implemented soft TDM programs, even absent regional congestion benefits.

This appendix outlines the TDM strategies that the SCAG region has committed to investing in the 2012 Regional Transportation Plan (RTP).

In summary, the 2012 RTP commits \$4.5 billion to fully implement TDM strategies throughout the region (a \$3.4 billion increase from the 2008 RTP) in three overall areas:

1. Reduce the number of single-occupancy vehicle trips through Rideshare (carpooling and vanpooling).
2. Redistribute vehicle trips from peak demand periods to non-peak periods via telecommuting or alternative work schedules.
3. Reduce the number of single-occupancy vehicle trips through selection of other modes of travel such as transit, bicycling or walking.

Among the three areas above, the 2012 RTP proposes the following strategies to expand and encourage implementation of TDM strategies to their fullest extent:

- Rideshare incentives/Rideshare matching
- Parking management and parking cash-out policies
- Preferential parking or parking subsidies for carpoolers
- Promotion and expansion of Guaranteed Ride Home program
- Telecommuting incentives
- Flexible work schedules
- Integrated mobility hubs
- Other First Mile/Last Mile Strategies
- Incentives for employees who bike to work
- Investments in bicycling and walking infrastructure.

## Ridesharing

The SCAG region continues to invest heavily in High Occupancy Vehicle (HOV) infrastructure that provides incentives for commuters to share rides with others. While the absolute number of HOV lanes is growing over time, the share of total travelers using carpools and vanpools is not.

One possible reason may be the abundance of free or low cost parking in many of our urban areas. The abundance distorts the actual cost of parking and encourages driving. Dr. Donald Shoup of the University of California at Los Angeles posits in his book *The High Cost of Free Parking* that because planners base minimum parking requirements on peak demand for free parking, the result is usually a surplus of [free] parking spaces that encourages vehicle use and lower density development (to relieve the congestion caused by cars).

A potential solution would be to increase the cost to park. The City of Los Angeles has recently begun experimenting with peak hour curb pricing in certain areas. Santa Monica requires employers to implement a parking cash out, where they give employees the cash amount of the subsidy for free parking and allow employees to pay for parking or choose an alternate mode of travel.

Accordingly, SCAG and its partners will strengthen their efforts to encourage ridesharing and other trip reducing strategies that aim to reduce vehicle trips, energy consumption, and air emissions. These efforts will include:

- Encourage local governments to require parking cash out programs, where feasible.
- Encourage cities to reconsider minimum parking requirements in zoning ordinances.
- Encourage the development and viability of Transportation Management Organizations/Agencies at major employment locations throughout the region.
- Program public funds in the FTIP to educate employers and expand the Guaranteed Ride Home Program.
- Provide seamless intra- and inter-county carpool services to the regional traveler.
- Encourage park-and-ride lots along suburban corridors, and in bedroom communities.
- Identify current dedicated funding sources and work with county transportation commissions and partners on identifying additional new funding sources.
- Increase the number of commuter vanpools through more effective marketing and the provision of non-monetary public sector incentives.
- Expand the provision for vanpool services in the region by encouraging employers to offer incentives, and develop policies that encourage employers to provide such services.

- Maintain and sustain a regionally coordinated marketing strategy among the public and private sectors to enhance vanpool programs, increase ridership and improve outreach efforts.

None of these efforts will work without the employee feeling confident that he/she can still get home in a timely fashion in case of an emergency or unforeseen overtime. The Guaranteed Ride Home program can help to alleviate those concerns, and is in place within the SCAG region.

## Telecommuting/Work-at-Home

Increasing the number of workers who work-at-home (self-employed, home based business owners) or who telework/telecommute (wage and salary employees conducting some or all of their work from home) decreases home based work trips, vehicle-miles of travel, congestion and vehicle emissions.

Telecommuting/teleworking can be defined as working outside the traditional office or workplace, usually at home, but also in motor vehicles, at client/customer workplaces, libraries and other internet accessible locations. Once thought of as a “magic bullet” for solving highway congestion problems, telecommuting is now seen as but one of many transportation demand management (TDM) strategies necessary to reduce congestion.

The existing data on telecommuting appears to be exclusively from surveys. While these surveys indicate telecommuting has increased steadily nationwide over the years, the recent economic downturn has negatively impacted telecommuting. According to the biennial survey conducted by WorldatWork, the total number of people nationwide who worked from home or remotely (for an entire day at least once a month) in 2010 was 26.2 million, down from 33.7 million in 2008. The majority of the decline was in contracted telecommuters. Directly employed telecommuters declined slightly, but not significantly.

In the SCAG region, approximately 4.4 percent of all workers (or 343,000 of 7.8 million) telecommute or work from home on a daily basis according to the American Community Survey. Separating out self-employed, the number of full time telecommuters in the SCAG region is closer to 2.6 percent for 2008. Currently, telecommuting is limited to “knowledge based” workers including some management functions. However, knowledge based workers exist in most industries, allowing some occasional telecommuting.

In 2002, SCAG contracted with NuStats to perform the regional household travel survey. NuStats surveyed by telephone 5028 households. Their results indicate about 25 percent of employees in the SCAG region have teleworked on occasion (at least once in the last two months).

NuStats' demographic results for the SCAG region are similar to the nationwide studies, in that telecommuters tend to be older and have a college education. People who work in firms with fewer than 25 employees are more likely to telecommute than those in firms with 25–249 employees. A formal telecommuting policy resulted in more frequent telecommuting as compared to informal agreements between an employee and supervisor.

Other metropolitan areas have similar overall percentages of telecommuters. San Diego estimates roughly 5 percent of workers telecommute regularly and about one third of the regional work force jobs are compatible with telecommuting. In the Bay Area, Contra Costa County is estimated at 6.35 percent and San Mateo County is estimated at 4.87 percent.

With the growth of both cellular technology and wireless/internet communication, the costs of telecommuting both from home or other locations has decreased tremendously. While the home is still the most common place for telecommuting, other locations are being used more frequently. These locations include in hotels, cafes/restaurants, airports, transit stations, client place of business and in cars.

Various barriers exist that are likely slowing down the growth of full-time telecommuting. In a 2001 report, the Government Accountability Office (GAO) delineated several barriers to telecommuting that could slow its growth. In summary, various laws and regulations put in place before telecommuting create challenges, particularly potential state tax effects and related administrative burdens arising from interstate telecommuters, and uncertainty surrounding employer responsibility to provide safe workplaces when it involves home offices.

The GAO identified the following barriers:

- Management concerns about supervising remote work
- Security/privacy concerns
- State tax laws (when crossing State boundaries) and their impact on corporate tax rate, individual taxes and sales tax application

- Applicability of potential OSHA requirements and/or ADA compliance
- Workers' compensation costs might increase
- Injuries at work, regardless of location, are covered under workers' compensation
- Injuries at a home office are not usually witnessed, raising concerns about whether they are work-related
- The reasonable accommodation provision of the Americans With Disabilities Act may require employers to pay for modifications to home offices or equipment
- Employers must not discriminate against non disabled employees in establishing telecommuting programs
- Employees face complicated tax home office deduction rules
- Federal/State wage laws, workers compensation, etc.
- The Fair Labor Standards Act establishes overtime and record-keeping requirements for the vast majority of workers
- Some categories of workers are exempt from the law (for example, executive, administrative, or professional positions)
- Most telecommuters may be exempt employees
- For the few nonexempt employees, employers had procedures to preauthorize and record overtime

Policies designed to promote telecommuting and reduce barriers include:

- Support and encourage ubiquitous high speed internet access throughout the region
- Recommend changing taxation policies that might discourage working at home/telecommuting
- Promote how telecommuters can easily meet OSHA/ADA compliance via self-certification
- Encourage revising workforce safety/fair labor standards to better reflect working away from a central location
- Set a regional goal for average frequency of telecommuting to increase to 2 days per week in 2020 and 3 days/week in 2035
- Set a regional goal that 50 percent of eligible workers adopt a flexible schedule (9/80, 4/10, etc.).

## Transit

The changes in land use patterns around our transit investments, referred to as transit oriented development (TOD), illustrate the trends of decreased auto trips and reduced vehicles miles traveled (VMT) through greater transit use, increased substitution of walk trips, and improved access to local jobs and services.

The transit recommendations of the 2012 RTP call upon the regional transit operators to address significant challenges to achieve better operational efficiency, to maintain a discipline of cost recovery through a consistent fare policy, to embrace the use of performance metrics to better serve their existing customer base, and attract new transit users. The Plan also encourages the regional transit operators to work cooperatively to offer complementary services, with ease of transfer between modes and operators, to utilize new intelligent transportation system (ITS) technologies to achieve and measure performance, and to offer its customers reliable “on-time” performance and real time information.

Continuing to expand our transit system and services is critical to realizing our vision described earlier in this report and ultimately meeting our broad societal goals and objectives. Key points considered in developing recommendations to expand our transit system include:

- Significant investments in transit already committed locally (CTCs)
- Changing demographics and urban forms call for more travel choices, particularly transit
- Transit can significantly relieve pressure on some of our most congested roadways
- Additional transit will be necessary to ensure our pricing strategies work efficiently and equitably
- Amtrak LOSSAN speed and service improvements
- Metrolink speed and service improvements
- California High-Speed Rail Phase One

## Recommendation

Significant investment in transit is already committed locally, primarily based on local sales tax measures as reflected in the current RTP. Some of the illustrative projects backed by current commitments are:

- Purple Line extension to Westwood
- Gold Line extension to Glendora
- Metrolink San Jacinto and Temecula Extensions
- High frequency Metrolink service from Laguna Niguel to LA
- Rail feeder service in Orange County
- Anaheim Rapid Connector
- New BRT services in Orange County
- Redlands Rail
- E Street Corridor

In addition to current commitments, SCAG proposes the following:

- Increase service in productive corridors
- New Point-to-Point Express bus service in key corridors
- New Bus Rapid Transit (BRT)/limited-stop service in key corridors

Some of the benefits of investing in transit and High Speed Rail are:

- New and enhanced transit services that provide new choices for commuters and residents
- Cleaner air and reduced congestion, VMTs and GHGs
- Facilitation of current and future smart growth and sustainable communities
- The ability for our residents to choose a healthier, more active lifestyle
- The ability for our residents who do not own a vehicle to remain mobile and active
- Reduced demand for short haul flights in our most congested airports, particularly LAX

## Active Transportation

Commuter trips within the region average a self-reported distance to work of 19.2 miles, too far for most bicyclists and all pedestrians. However, most trips in the SCAG region are less than three miles. A key focus would be to better link bicycling and walking to transit for commute trips, and create an environment for bicycling and walking for all other trips. SCAG proposes to increase funding level to \$6.7 billion (from current \$1.8 billion in the 2008 RTP) for bicycling and walking infrastructure improvements above and beyond the \$4.5 billion TDM investment.

Goal – Create an environment that encourages active transportation use

- Objective: Increase active transportation options for trips less than three miles
- Objective: Increase dedicated funding for active transportation infrastructure
- Objective: Decrease bicycle and pedestrian fatalities and injuries
- Policy: Connect all cities in the SCAG region through a regional bikeway network
- Policy: Implement all local bicycle/pedestrian plans
- Policy: Encourage local jurisdictions to prioritize improvements to comply with ADA requirements
- Policy: Encourage local jurisdictions to prioritize active transportation needs of the growing number of senior citizens, including access to transit
- Policy: Encourage the use of Intelligent Traffic Signals that can detect slower pedestrians in signalized crosswalks and extend the signal time appropriately
- Policy: Encourage local jurisdictions to adopt and implement Complete Streets Policies

In 2009, SCAG undertook a ground-breaking study with the City of Los Angeles to examine first mile/last mile strategies at transit stations by developing these transit stations as mobility hubs. By improving access to transit stations, the reach of transit can be extended from ½ mile to over 2 miles. Various strategies studied include bike sharing, folding bikes on transit, bikes on rail, short-term car rental, car sharing, taxi service and neighborhood electric vehicles.

SCAG is following up to this study by partnering with Los Angeles County Metropolitan Transportation Authority to develop guidelines for mobility hub development with a focus on improving bicycling and pedestrian access to transit.

In addition, to reduce trip chaining, various strategies have been used at major transit stations, including farmers markets during afternoon commutes, locating a major grocery store next to the San Bernardino Metrolink Station.

Metrolink is experimenting with a bicycle car along one of its weekend routes.

Bicycling is an increasing mode of transportation. However, a paper from the City of Portland indicates that on street facilities (bike lanes and routes) will likely only reach a 6-8 percent bicycle mode split. Extensive development of physically separated bicycle facilities (Class 1 and Cycle Tracks) can increase bicycling mode share to well over 10 percent. SCAG recommends several investments in bicycling, that, when combined, should increase bicycling in the SCAG region:

- Increase existing network of about 4,300 miles of bikeways to about 10,200 miles (more than double)
- Connect all cities in the SCAG region via dedicated bicycle facilities
- Develop regional bicycle routes, including wayfinding signage
- Increased use of Cycle Tracks where feasible in place of Class 2 or Class 3 bike facilities
- Development of bicycle boulevards as a method of traffic calming
- Installation of triple racks on buses
- Support of folding bikes on transit pilot program
- Provide current and relevant information to bicyclists regarding bike parking opportunities and bicycle access located at transit stations and major employment areas through a variety of formats, such as on City websites, bike maps and standard signage/wayfinding
- Increase in the availability in convenient, secure bicycle parking
- Support the use of signage to guide bicyclists to secure bicycle storage facilities in major employment areas

- Regularly maintain and expand as necessary the local and regional bicycle networks as part of routine roadway construction and maintenance
- Support the development of bicycle facilities that provide access to and from major transit centers
- Support the development of secure on-demand bicycle storage at major transit centers
- Adoption of a Complete Streets Policy that would ensure that all streets are safe, comfortable, and convenient for travel for everyone, regardless of age or ability – motorists, pedestrians, bicyclists, and public transportation riders

In addition, the following pedestrian investments are recommended.

- Recommend targeted pedestrian improvements at least one mile from major transit stations
- Recommend the use of Intelligent Traffic signals that can detect slower pedestrians in signalized crosswalks and extend the signal time appropriately
- Recommend the development of mid crossing sanctuaries where appropriate to improve pedestrian safety
- Encourage street design standards that increase pedestrian personal security
- Recommend Cities and Counties prioritize and provide adequate funding for improvements to pedestrian facilities throughout the region to comply with current Americans with Disabilities Act requirements.

## VMT Reductions

When aggregated, the TDM strategies described in this appendix are expected to result in a substantial reduction in the region's VMT.

### Telecommuting

#### 2008

According to data from the American Communities Survey and US Telecommuting Forecast, 2.5 percent of all workers in the SCAG region, or 198,890 workers telecommuted in 2008. Literature research on telecommuting suggests that the telecommuters tend to take incidental trips at a higher rate than regular commuters, thereby offsetting part of the VMT reduction from telecommuting. Accounting for 2 work trips per worker and lowering the VMT reduction benefit by 25 percent to account for new trips made by telecommuters (such as errands and trips made during the course of work), this resulted in 298,340 trips saved each day. Utilizing an average work trip length of 14.3 miles in 2008, this resulted in 4.3 million miles saved each day in 2008.

#### 2020

This telecommuting percentage increased by anywhere from 7–12 percent each year between 2008 and 2011. Our forecast assumes that this increase will slowly level off through the year 2020, at which time 4.4 percent of our workers would be telecommuting, or 391,280 workers. Accounting for 2 work trips per worker and lowering the VMT reduction benefit by 25 percent, this will result in 586,920 trips saved each day. Assuming an average trip length of 14.5 miles in 2020, this will result in 8.5 million miles saved each day in 2020, or 4.2 million miles reduced from the 2008 base year.

#### 2035

In the year 2020, the median age of baby boomers will reach 65. As they begin to retire in increasing numbers, the average age of our region's workforce will decrease at a higher rate than ever before. As younger, generally more tech-savvy workers take over the workforce and employers begin to embrace remote access capabilities where practical, we can expect to see a renewed increase in the percentage of workers who

telecommute. Given limiting variables, primarily the inability of certain worker types to telecommute, we assume that this increase will level off once again by 2035, at which year the percent of workers who telecommute will have peaked at 10 percent, or 983,950 workers. Accounting for 2 work trips per worker lowering the VMT reduction benefit by 25 percent, this will result in 1,475,920 trips saved each day. Assuming an average trip length of 14.7 miles in 2035, this will result in 21.7 million miles saved each day in 2035, or 17.4 million miles reduced from the 2008 base year.

## Flexible Work Schedule

Flexible work schedules provide the opportunity for employees to work slightly longer hours in return for more days off. Flexible work schedules include 9/80 (9-hour days and every other Friday off), 4/40 (10-hour days, 4 days/week), and 3/36 (12-hour days, 3 days/week).

### 2009

According to the 2010 South Coast Air Quality Management District's (AQMD) Rule 2202 Employee Commute Reduction Program (ECRP) survey, 4 percent of all workers in the air basin utilized a flexible work schedule in 2008. Assuming the same percentage for the SCAG region would suggest that 321,040 workers in the SCAG region used a flexible work schedule. Utilizing the 25 percent trip increase factor, this resulted in an average of 112,420 trips saved each day. Assuming an average trip length of 14.3 miles, this resulted in 1.6 million miles saved each day in 2008.

## FUTURE YEARS

Given its similarities with telecommuting regarding the compatibility of a worker type to utilize a flexible work schedule, and a similar level of willingness for an employer to allow this strategy, our forecast assumes the same growth rate as telecommuting, resulting in 7 percent of all workers in 2020 and 9 percent in 2035 on a flexible work schedule.

### 2020

In 2020, 7 percent of all workers, or 575,650 workers would utilize flexible work schedules in 2020. Applying the 25 percent trip increase factor, this will result in 205,350

trips saved each day. Assuming an average trip length of 14.5 miles in 2020, this will result in 3.0 million miles saved each day in 2020, or 1.4 million miles reduced from the 2009 scenario.

### 2035

In 2035, 9 percent of all workers, or 891,600 workers would utilize flexible work schedules in 2035. Applying the 25 percent trip increase factor, this will result in 312,220 trips saved each day. Assuming an average trip length of 14.7 miles in 2035, this will result in 4.6 million miles saved each day in 2035, or 3 million miles reduced from the 2009 scenario.

REGIONAL TRANSPORTATION PLAN  
**2012–2035** RTP  
SUSTAINABLE COMMUNITIES STRATEGY  
Towards a Sustainable Future



**SOUTHERN CALIFORNIA  
ASSOCIATION of GOVERNMENTS**

818 West 7th Street, 12th Floor  
Los Angeles, CA 90017  
Phone: (213) 236-1800  
Fax: (213) 236-1825  
[www.scag.ca.gov](http://www.scag.ca.gov)

REGIONAL OFFICES

*Imperial County*

1405 North Imperial Avenue  
Suite 1  
El Centro, CA 92243  
Phone: (760) 353-7800  
Fax: (760) 353-1877

*Orange County*

OCTA Building  
600 South Main Street  
Suite 906  
Orange, CA 92863  
Phone: (714) 542-3687  
Fax: (714) 560-5089

*Riverside County*

3403 10th Street  
Suite 805  
Riverside, CA 92501  
Phone: (951) 784-1513  
Fax: (951) 784-3925

*San Bernardino County*

Santa Fe Depot  
1170 West 3rd Street  
Suite 140  
San Bernardino, CA 92410  
Phone: (909) 806-3556  
Fax: (909) 806-3572

*Ventura County*

950 County Square Drive  
Suite 101  
Ventura, CA 93003  
Phone: (805) 642-2800  
Fax: (805) 642-2260