MTP2030 Issue Papers: Transportation Demand Management

Transportation Demand Management (TDM) questions and issues to consider for the MTP Process:

- What role does TDM play now and in the future of our region?
- Can TDM make a difference in reducing vehicle miles traveled or improving air quality?
- How effective are educational and incentive strategies in moving people out of cars and into carpools/vanpools, public transit, biking, walking and telecommuting?
- How can TDM be integrated into the larger transportation system?
- What would it cost for the Sacramento Region to have a first-class, fully coordinated TDM program?

What is TDM?

TDM is about reducing driving and improving air quality.

- With the growth in driving in our region, we can't build enough facilities to meet existing and forecasted travel needs. Sacramento is also a non-attainment area for ozone pollution – a problem that is exacerbated by the number of vehicle miles traveled.
- TDM encompasses strategies that reduce the amount of driving (or its growth) through behavior changes so that costly transportation infrastructure investments can be avoided, downsized or delayed.
- TDM focuses on the movement of people, rather than motor vehicles – through the promotion of "alternative travel modes" such as carpooling, vanpooling, public transit, bicycling, and walking. It also includes promotion of telecommuting and the use of alternative work schedules (either a reduced number of working days or non-traditional work hours). Promotion involves educating people about these travel options and providing incentives to encourage them to choose an alternative travel mode, telecommute, or use alternative work schedules.
- TDM is a piece of a holistic approach to managing access, mobility, and air pollution that includes road management (such as carpool lanes and highway message signs), capital improvements (such as new roads and transit), and land use changes (such as the Blueprint land use vision). Although a TDM program is a relatively small and low-cost part of the overall transportation system, if this program can cause a small percentage of trips to be shifted out of cars and into alternative modes or if trips can be avoided, it can lead to a noticeable difference to the operations of the transportation system.
- TDM improves the use of public transit services, bike facilities, sidewalks, and carpool lanes by educating users about their travel options and coordinating trips between users with similar trip patterns.

- Because areas of our region differ greatly in their demographic characteristics and transportation facilities – for instance, public transit is not present or effective in rural or many suburban areas – there will be no set of TDM strategies that are universally applicable. The TDM "toolkit" will vary depending on these characteristics. For example, employer-provided transit passes will work better in a more urban environment

with frequent transit service, and carpooling, bicycling and telecommuting may be strategies that work better in areas without frequent transit service. Vanpooling is a TDM measure that is convenient for longer trips between areas without direct transit service, especially where carpool lanes are present.

How do people travel in the Sacramento region today and how will they in the future?

An overwhelming number of trips in our region are made in private vehicles.

- During peak commute hours, when congestion is highest and the transportation system is used at greatest capacity, 92 percent of person trips are made in private vehicles (either by a single occupant vehicle or a carpool/vanpool) and 82 percent of person trips are made by people driving alone. Sharing a ride is more common in off-peak periods.
- Travel by public transit is highest in the peak periods, but still not even 3 percent of trips.
- Bicycling and walking is slightly lower during the peak period, but used by more commuters than public transit.

Areas with denser employment, good access to public transit and freeway carpool lanes, high parking costs, or formal rideshare programs show higher use of buses, trains, carpools, vanpools, walking, and biking.

- The *2001 Capitol Area State Employee Transportation Survey* found that 54 percent of State workers commute using alternative modes. State workers receive significant rideshare benefits, have access to rail and bus services, and are charged high parking costs.
- A 2005 Cleaner Air Partnership survey shows that downtown Sacramento workers are least likely to drive alone, whereas those working in outlying employment centers (most of which offer free parking) are most likely to drive alone.
- As the region begins to implement the Blueprint land use vision of more compact development, more bike and walking facilities, and a greater amount of public transit, alternative mode use will gain ground.

SACOG's Blueprint Preferred Scenario indicates that there will be a change in travel behavior leading to an increase in bike/walk share from the current 6 percent to 14 percent and the transit share from 1 percent to 4 percent by the year 2050. How will this be accomplished?

- These large increases in alternative mode shares can only be accomplished through aggressive carpool and vanpool formation, bike and pedestrian facilities, and a greatly stepped-up development of public transit.
- But with the Blueprint land use scenarios, more compact development means that carpoolers and vanpoolers will have a larger pool of potential partners to match within a close proximity of home and work. Also transit will be better able to serve the public because it is more cost efficient when it operates in more urban environments.

How many new carpoolers and vanpoolers would we need in 2030 to maintain the current peak-period mode share of around 10 percent?

- SACOG calculates that there will be around 1.8 million more peak-period trips each day in the Sacramento region by 2030. If 10 percent of those are made in carpools or vanpools, we would need 44,000 new 2-person carpools or 11,000 new vanpools to

maintain the current mode share. In reality, of course, it would be a combination of carpools and vanpools.

How can people be persuaded to use alternative modes of travel?

Sharing a ride, walking or biking works for some, and not for others.

- Modern life is busy and complex: Reasons cited for driving alone include convenience and time savings, mid-day errands, child pickup and dropoff, and irregular work schedules. Some people say they enjoy the time spent driving alone.
- Reasons cited for using an alternative mode include lower cost, less stress, time to relax, sociability, air quality and energy benefits, and in the case of biking and walking – health benefits.
- Although not everyone can use an alternative travel mode, it works best for people who work regular schedules, have fewer time constraints, are sensitive to the high costs of driving, or are health-conscious or environmentally minded.
- Changes in behavior can also be understood in terms of a pyramid. Those who will not try, or cannot try (bottom); those who are willing to try (middle); and those who are motivated and willing to try (top). TDM marketing strategies that focus on those towards the top of the pyramid are more successful.

How cost effective are publicly funded TDM programs?

The most effective indicators are those that directly measure travel behavior change.

- With SACOG's vanpool subsidy program, 14 vanpools were started in the first year, resulting in 53,000 fewer miles traveled while subsidized, costing the program 4 cents per commute mile eliminated. Most vans continue past the 6-month subsidy period.
- During the 2005 Bike Commute Week campaign, around 3,500 participants biked 500,000 miles during May, for a cost-effectiveness of $11 per participant. Many participants continued to bicycle to work after the campaign was over.
- A pilot project in personalized transit marketing conducted in Portland showed that where individuals in a particular neighborhood are provided information on transit and other travel options, car travel was reduced by 8 percent, with a 27 percent increase in travel by carpool, vanpool, transit, bicycling in walking in that same area. The Federal Transit Administration has chosen Sacramento as one of four communities nationwide for another round of pilot projects and SACOG will be evaluating the results of this study for possible expansion.

National and California data can help fill in the gaps.

- In *Mitigating Traffic Congestion, The Role of Demand-Side Strategies*, (2004, Federal Highway Administration), it is reported that a 2001 sample of 7,200 employed persons in Washington, D.C. showed that a $300,000 TDM program spent 1 cent for every VMT it reduced, 15 cents for every trip and $6,000 for every ton of reduced pollutant. As a comparison, the SECAT (Sacramento Emergency Clean Air and Transportation) program costs the Sacramento region $50,000 per ton of reduced pollutant.
- A study in the San Francisco Bay Area found that the typical commuter is more likely to drive alone than all alternative modes combined, but the drive-alone rate is 7 percent less at worksites with commute alternative programs. In San Mateo County, a 2005 survey showed that employees who worked for employers actively involved in the local TDM

agency had a 68 percent drive-alone rate, compared to an 80 percent drive-alone rate among employees of inactive employers.

- Only 17 percent of American workers have access to commuter assistance benefits – such as discounted transit passes, ridesharing boards, or carpool parking. Surveyed employees who have commuter assistance are almost eight times more likely to use public transportation such as the train, subway or bus than those employees who do not have assistance (15 percent versus 2 percent).
- In 39 cities reporting data on more than one transportation mode to the National Transit Database in 2001, vanpools had the lowest cost-per-passenger and cost-per-revenue mile expense to transportation agencies.
- Data from a 2004 survey of firms that participate in the Environmental Protection Agency's Best Workplaces for Commuters program showed that comprehensive benefit packages with financial incentives, services such as guaranteed ride home, carpool matching, etc. and informational campaigns, appear to produce reductions of trips, vehicle miles traveled, pollutants, and fuel consumption of around 15 percent even under conservative assumptions. Benefits packages offering services and information, but not financial incentives, appear to produce reductions of around seven percent under conservative assumptions.

Indirect measurements can tell us how many people show interest in alternative modes or could potentially take advantage of them in the future.

- In our region, the 511 website, www.sacregion511.org, where users can access information on alternative modes, receives around 2,000 to 3,000 hits per month.
- There are 3,000 registrants currently in SACOG's Rideshare database. Registrants receive lists of potential carpool/vanpool partners or bike buddies through this ridematching system.
- In 2005, SACOG's Commuter Club Rewards campaign rewarded participants for collectively traveling 34 million commute miles in alternative modes, or 138,696 miles for each dollar spent on rewards. The total cost was $6,712.
- Most of the cost of the Best Workplaces for campaign is covered by the federal Environmental Protection Agency. The number of participating employers in the Sacramento Region grew from 40 in 2004 to 60 in 2005 as employers became aware of the recruitment advantages of being known as a workplace with significant commuter benefits such as paid transit passes.
- The Cleaner Air Partnership's 2004 survey of the Sacramento region found that 18 percent of drive-alone commuters said it would be possible to carpool and 17 percent said it is possible for them to telecommute. Also, 11 percent of drive-alones said they could walk to and from work. None of these numbers varied much among jurisdictions in the region. When drive-alones were asked if they could take transit, carpool, or bicycle, as many as 29 percent could, but this varied a lot by location depending on the availability of transit lines, carpool lanes, and bicycle routes.

Cost Comparisons

TDM should not be considered a tradeoff with other types of transportation improvements, but as a complement. However, the public cost of TDM is significantly less than many types of infrastructure improvements.

What will $1 million buy?

- 333 8-person vanpool startups, if each was subsidized with $3,000 for a six-month initial period. If 50 percent of the vanpools survive the startup, they would end up serving about 1,300 people.
- Construction of ¼ of a mile of an arterial roadway.
- Construction of 7/100 of a mile of a new freeway.
- Construction of a bike/pedestrian bridge over an arterial roadway.

What are the costs, weakness and threats for TDM in our region?

The time/money tradeoff

- For individuals, using an alternative mode is usually more time consuming, and for many, time is as valuable as money.

The costs of a fully-coordinated regional TDM program

- SACOG's TDM/Rideshare program currently costs $600,000 per year, from federal sources – half is passed to outreach partners (TMOs) in the region. The SACOG program provides 511 traveler information, a rideshare matching database, a vanpool incentive program, marketing campaigns to promote public transit, biking, carpooling, vanpooling, walking, and telecommuting.
- TMOs leverage the federal funds through employer memberships, air district funding, and in some cases, developer and other fee programs. TMOs make direct contact with employers, employees, and residents in their areas to promote their own and SACOG's programs.
- In last Metropolitan Transportation Plan, adopted in 2002, $44 million of public funding was reserved for TDM programs, through 2025. This compares to $7.6 billion for public transit and a similar amount for roads, highways, and bridges. At an average annual rate of nearly $2 million per year, the TDM amount is approximately half of what is spent in comparable regions such as Portland and Denver.
- A doubling of SACOG's investment could reasonably be expected to support the following fully coordinated program: 100 percent of employers served by a Transportation Management Organization, larger rideshare databases so that searches average 20 ridematches, monetary incentives offered for taking alternative modes and telecommuting, personalized alternative trip-planning available to the public, expanded promotion campaigns, including Best Workplaces for Commuters program, Bike Commute Month, a large vanpool subsidy program, and demonstration projects for such programs as shuttles, carsharing, instant ridematching, TDM plans for large development projects and road construction projects, etc.

Weaknesses and threats

- Throughout the region, there is a need for convenient non-driving alternatives such as public transit, carpool, biking, and walking facilities. Without transportation infrastructure, TDM strategies are not as effective.
- At the regional level, TDM is funded at a relatively low level.
- TDM competes with other transportation projects and programs for funding.
- Programs are voluntary and require strong public/private partnerships.

- As a nationwide phenomenon in recent decades, alternative mode use has actually decreased. Much of this is attributed to suburban development with longer commutes in areas not well-served by public transit.
- Travel patterns can be complex and not amenable to non-driving modes.
- Employers often cannot pay for employee transportation benefits or in-house coordinators, or are not inclined to do so. (Transportation management organizations fill this gap for many employers.)
- Driving is convenient for people; personal vehicles offer flexibility, time alone, and time savings, and parking is often free and available.
- Drivers often want control over their own travel, time, and space, and to not share it with others.
- There is a lack of quality data on program effectiveness, because high-quality evaluation can be high-cost.
- TDM programs don't have high visibility with the public and decision makers.

What are the benefits, strengths and opportunities for TDM in our region?

Benefits:

- To individuals – lower monetary cost (for the average American household, transportation costs represent 18 percent of total household expenditures), reduced stress and more relaxation time (although not everyone would describe sitting on a crowded bus or train as relaxing).
- To the public – greater mobility and access, reduced congestion, improved air quality, less fossil-fuel use and greenhouse gas production.
- To public agencies -- less need for costly transportation infrastructure, more usage of existing transit, bike lanes, and sidewalks, better public health.

Strengths:

- Programs are low-cost in comparison to capital improvements and are cost-effective.
- TDM programs are conducted in the Sacramento region through a public-private partnership with support from public and private employers, and in some cases, required by city TDM ordinances.
- TDM messages can be easily disseminated through larger employers or in areas of concentrated employment.
- Employee transportation benefits such as free transit passes cost employers less than the land rent cost of providing free parking.
- Some of the alternative modes – rail, bicycling, and walking – are normally not subject to road congestion, so travel times are more predictable.
- Potential travel market segments include commuters with regular hours, those living near transit or bicycle trails and routes, those facing high levels of traffic congestion, those who are cost- or environmentally sensitive, or health-conscious.

Opportunities:

- The on-going development of the carpool lane network on area freeways is an opportunity for carpooling, vanpooling, and express buses.
- Land use that follows the Blueprint principles, with more compact development, makes alternative mode use easier.
- The growth in traffic congestion spurs some people to change travel mode.

- As gas costs approach the $3.00/gallon level, those who are price-sensitive will look at other modes of travel that cost less.
- High parking cost and low availability in some areas, where parking cash-out programs can become an employee benefit. (Cash-out programs pay people the equivalent of the cost of providing parking if they take transit, walk, or bike).
- The obesity epidemic has raised public awareness about the importance of biking and walking for health.
- The recent development of web-based route-planning tools, including transit trip planning, will make planning easier.
- When high-occupancy vehicle (HOV) lanes or high-occupancy toll (HOT) lanes are implemented, TDM strategies can increase their use.
- When there are road/bridge closures or construction causes heavy traffic congestion, information on travel options can assist commuters (for example, www.50corridor.com was developed to help commuters understand and navigate the multiple projects along that corridor.).

TDM Structure

In the Sacramento region, TDM is promoted by a public-private partnership.

- SACOG's Rideshare program is a Transportation Control Measure mandated by the *1984 State Implementation Plan for Air Quality for the Sacramento Region*. The region must maintain this program indefinitely, or substitute some other action of equivalent air quality value until ten years after Sacramento attains clean air status.
  - Included in the Rideshare Program are the 5-1-1 phone number and www.sacregion511.org website that provide travel and ridematching services, Bike Buddy matching, a Vanpool Incentive Program, Bike Commute Month, the Best Workplaces for Commuters program, the Regional Commuter Club, informational brochures and 5-1-1 incentive items.
- Transportation Management Organizations (TMOs): These are private non-profit Transportation Management Associations (TMAs) that serve employers in a given area, as well as public agencies that provide employer/employee commute assistance: Collectively, they are all known as the *Regional Rideshare Partnership.*

TMOs provide employers in their area with transportation programs that benefit employees.

- Emergency Ride Home programs for alternative mode users
- Commute assistance, such as trip planning and vanpool formation
- Alternative mode information and educational programs
- Incentives
- Events such as transportation fairs, Bike Commute Month and Walk to School Week
- Shuttles between workplaces and transit stations
- Bicycle parking
- Advocacy for local and regional commute alternatives and improvements

Employers offer TDM programs at each employment site

- Employee Transportation Coordinators are the point of contact for employees

- Alternative mode benefits, such as subsidized transit passes and lower-cost carpool parking.

Public agencies and policies also support TDM

- Air districts support TDM in plans and programs because of air quality benefits. Air districts also adopt rules that support TDM.
- Local jurisdictions create TDM ordinances.
- The federal Environmental Protection Agency and Department of Transportation recognize employers with outstanding commuter benefits through the Best Workplaces for Commuters program
- The federal tax code allows employers to provide tax-free transit, vanpool and parking benefits to their employees. The employer and employee save on taxes, since neither pays federal income or payroll taxes on these benefits.