



**Rogue Valley
Metropolitan Planning Organization**

Regional Transportation Planning

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Jackson County • Rogue Valley Transportation District • Oregon Department of Transportation

DATE: December 10, 2008
TO: Technical Advisory Committee
FROM: Dan Moore and Eric Heesacker, Rogue Valley Council of Governments
SUBJECT: TDM Refinement Plan: Technical Memo 2 – TDM Strategies Necessary to Implement Alternative Measures and ILUTPs

I. BACKGROUND:

This document is Technical Memo #2 of twelve such memos written with the intent of updating the Transportation Demand Management (TDM) Element of the Regional Transportation Plan (RTP) which itself is scheduled for update in 2009. An additional primary intention is to encourage local MPO jurisdictions to adopt TDM programs of their own in order to assist the MPO in its identified quest to reduce reliance on the automobile.

This particular memo will detail TDM programs that can be utilized by member MPO jurisdictions to implement TDM strategies which in turn can be implemented in order to reach the overall goal of a TDM program for the MPO. That goal is the reduction of the use of the single occupancy vehicle (SOV). Reduction of SOV use is not only required by the Oregon Transportation Planning Rule (TPR), it is also a requirement of SAFETEA-LU.

On December 13, 2001, the Land Conservation and Development Commission approved seven Alternative Measures adopted by the RVMPO in place of the Vehicle Miles Traveled (VMT) reduction standard contained in the state Transportation Planning Rule (TPR). The Alternative Measures meet requirements for “alternative measure adoption” to reduced reliance on the automobile as specified in OAR 660-012-0035(5).

The seven adopted Alternative Measures relate to an overall TDM program combined with modification of land use. Therefore, these Measures are closely linked with work of the RVMPO and member jurisdictions to develop and implement integrated land use and transportation plans (ILUTPs). It is a goal of the RVMPO to update/modify the RTP’s TDM Element to identify TDM programs and strategies that can assist the MPO with implementation of Alternative Measures and ILUTPs.

II. INTRODUCTION:

The purpose of the this Technical Memorandum is to outline not only TDM strategies which may be adopted by RVMPO member jurisdictions, but to also identify TDM programs which can be utilized in order to meet TDM strategies. It is then intended that these identified strategies will be implemented so that the overall TDM goal (decreasing the use of SOVs) may be reached as well.

III. HOW TDM STRATEGIES CAN HELP IMPLEMENT OVERALL TDM PROGRAM GOALS

TDM can lower the use of single occupancy vehicles (SOVs), which in turn decreases demands made on the road/highway system while improving air quality. This TDM Refinement Plan focuses on identifying and describing different types of TDM programs that MPO member jurisdictions and large employers in the region may be interested in implementing. These types of programs include:

- carpooling,
- vanpooling,
- encouraging the use of public transit, bicycling, walking, and,
- adoption of comprehensive plan policies and code amendments.

TDM works by decreasing the attractiveness of SOVs. In essence, a good TDM program not only seeks to, but also successfully manages to modify the commuting public's travel behaviors to reduce SOVs. The Oregon Transportation Planning Rule (TPR) and federal law (SAFETEA-LU) both require all MPOs to focus on TDM programs.

The overall goal of TDM is to increase travel choices for the public, encouraging them to use each travel option most efficiently. Properly implemented, TDM can help create a more balanced, less automobile-dependant transportation system. TDM strives to achieve significant results by utilizing several non-conflicting TDM programs and strategies on a cumulative basis; i.e. taking a bicycle on a bicycle-friendly transit bus to get from home to work, or walking to a rideshare facility. An online TDM Encyclopedia (<http://www.vtpi.org/tdm/index.php>) suggests that when used alone TDM strategies are still desirable, but linking these strategies together is much more effective.

From the standpoint of jurisdictional incentive to have a TDM program, there are monetary benefits for an adopted TDM program. Tax credits are available through Business Energy Tax Credits (BETC) in Oregon (<http://www.oregon.gov/ENERGY/index.shtml>) and there are also federal fringe benefits available.

IV. TDM STRATEGIES TEND TO FALL INTO ONE OF FIVE GENERAL CATEGORIES:

- A. ***Reduction of peak-hour demand*** on roadways by eliminating person trips, or shifting these trips to shoulders of peak hours (a little before/after peak periods). This involves employers' willingness to adopt policies allowing flexible work schedules for their employees.
- B. ***Discouraging SOVs*** so that as many necessary person-trips as possible utilize as little roadway capacity as possible. This would include utilization of any number of methods described herein to limit the number of trips made.
- C. ***Encouraging non-motor vehicular alternatives to SOVs*** such as promotion of bicycling and/or walking for shorter trips. This involves a willingness on the part of employers to support these kinds of programs at their respective workplaces. However, focusing efforts on employers should not ignore the role of land use and promotion of transit-oriented developments (TODs).
- D. ***Encouraging HOV vehicular alternatives to SOVs*** such as use of carpooling, vanpooling, and transit for intermediate and somewhat longer trips.
- E. ***Decreasing the total distance to be traveled*** in hopes that the number of VMT goes down and that a smaller portion of the overall transportation network is utilized. This involves adoption of land use procedures to increase residential densities and promote mixed-use developments. This category is critical to achieve compliance with the TPR which requires Integrated Land Use and Transportation Plans (ILUTP).

In each of these categories, there can be several TDM programs that the RVMPO and member jurisdictions can implement. These programs are discussed below.

V. TDM PROGRAMS THAT CAN BE USED, BY CATEGORY:

- A. ***Reduction of peak-hour demand*** on roadways by eliminating person trips, or shifting these trips to shoulders of peak hours (a little before/after peak periods). This involves employers' willingness to adopt policies allowing flexible work schedules for their employees.

Types of Programs:

There are several types of TDM programs an employer can implement in order to comply with the above strategy. These include, but are not limited to the following:

1. Staggered Work Hours

Creating a work schedule where various workers can work **staggered hours**. In this scenario, an employer allows some workers to begin work (as examples):

- a. at 6am and leave for home at 3pm;
- b. or work can begin at 7am and end at 4pm;
- c. the standard 8am to 5pm can still be utilized for other workers while others can work from 9am to 6pm; and,
- d. still others can work from 10am to 7pm.

This type of staggered day would see every worker at the office during the core hours of 10am to 3pm, with employees staggering their days four hours to either side of the core hours. Additionally, the implementation of the core hours schedule creates known times for clients of the business when all employees are at the workplace.

Implementation of this program across a wide swath of employers in the same employment region creates a staggered commute from 6am to 7pm with lesser amounts of congestion occurring during what most would consider normal peak commuting hours.

2. **Compressed Work Week**

Another program is to allow employees to work a **compressed work week**. This involves allowing employees to work:

- a. four 10-hour days during the week;
- b. or three 12-hour days with one 4-hour day; or,
- c. 8 nine-hour days in a two-week pay period with one 8-hour day, or
- d. any combination thereof.

This type of compressed work week not only provides shoulder hours for congestion during the week, but also causes a decrease in congestion the one day per week when compressed schedules allow for an employee to do something else with their day besides commuting to/from work.

3. **Telecommuting**

This is another program which allows workers to stay home during the day and work from their home via computers, phones, and faxes.

Advantages to this program include:

- a. Staff schedule rotation through office personnel so that each employee gets a turn (or three?) every week to stay home instead of driving to the office.

- b. Offsetting costs associated with fewer workers in the office, or the fact that a few workers could share one cubicle as long as their partners work at home.
- c. Reduction in the amount of office space an employer needs to lease and utility costs.
- d. Like the other programs mentioned above, this program has proven to increase worker morale and productivity, while at the same time cutting absenteeism that has been associated with the stress of sitting in congested traffic during peak commuting hours. Alternatively, other studies suggest that there are also negatives associated with teleworking. This form of work requires a certain personality that can withstand the missed personal interaction 'face-time' at the workplace. This missed 'face-time' could also jeopardize promotions. In short, teleworking is not for everyone and there are clinics to help employers identify workers that should not telework and further smooth out the missed face-time for those who do.
- e. A final item to note here is the fast-approaching video-conferencing being made available by small video cameras people can have at home with their other telecommuting equipment. Video cameras and microphones allow for long-distance conferencing, another method to reduce the amount of office space (conference rooms) required of an employer.

A disadvantage to note with the telecommute is the additional increase in capital costs (such as software and/or hardware purchase) associated with this program not incurred by the other two programs (staggered and/or compressed hours) mentioned above.

All these programs, especially when utilized with larger numbers of employees, can significantly reduce congestion during peak commuting hours by staggering more of these employees over a wider range of time in the mornings and the evenings or by avoiding a few commuting trips each week altogether.

- B. *Discouraging SOVs*** so that as many necessary person-trips as possible utilize as little roadway capacity as possible.

Types of Programs:

Below are some possible programs that can be implemented to discourage the use of SOVs in order to reduce the demands on the transportation network. The bulk of these programs rely on the simple fact that in order to reduce demand for auto oriented space such as parking, a value should be placed on that space, such

as charging parking fees or charging tolls, or using congestion pricing on the street system.

1. Parking:

The availability of parking, whether limited and costly or abundant and costly (or free), has been proven to be one of the most important indicators for whether the majority of TDM programs will be successful. If parking spaces come at a premium by lowering the availability of parking stalls, or if they come at a high cost by charging for their use, people will think a little harder about the benefits of driving. Fewer parking spaces that cost more money could force people to make choices regarding carpooling and utilizing other modes of transportation. With this choice being made, congestion gets reduced and so do trips in SOVs.

2. Tolls:

If there are costs associated with utilizing the most efficient route to get to work, people might make the choice to find alternative routes, a carpooling buddy, or a different mode of transportation.

3. Location-based pricing:

An example of this is Singapore. When people drive into a certain (usually very congested) area of the city, they are charged a fee. If the fee gets steep enough, people may be financially forced to seek alternative methods of getting to work.

4. Cessation of infrastructure improvements:

In this instance, instead of merely adding capacity to existing roadways in order to accommodate more traffic, a jurisdiction could prolong or omit improvement. This existing congestion may serve to force ever-increasingly frustrated motorists stuck in congested areas to find other means of getting to work. Combined with this could be neglected maintenance needs. Although costly to commuters and dangerous in terms of potential lawsuits, letting a roadway significantly deteriorate without improvement could provide another incentive for commuters to leave their cars home instead of driving that car over deteriorated roadways.

5. Cost of fuel:

Another strategy that is implementing itself; the **cost of fuel**. As the costs of barrels of oil escalate, the cost of refined fuel escalates also. For some

SOV drivers, this cost alone may cause many to seek other means of transport. Studies show that once fuel reaches \$5.00 per gallon the majority of drivers may begin to consider alternatives.

With these programs, we see a reduction in provided facilities and an increase in costs to the driver. These factors can frustrate drivers of SOVs to seek other means of getting to work. All this is designed (sometimes unintentionally) to get people to leave their cars home and find other methods to commute.

- C. *Encouraging non-vehicular alternatives to SOVs*** such as promotion of bicycling and/or walking for shorter trips. This involves a willingness on the part of employers to support these kinds of programs at their respective workplaces.

Possible programs listed here to promote non-vehicular alternatives to SOVs encompass many of the programs discussed above. Below are programs related to actions that employers could implement. The work commute accounts for only 25-30% of all trips made. Other commuting destinations include schools, shopping, recreations, etc.

Employers have the ability to provide incentives to get their employees to find alternatives to commuting in SOVs. In the case of non-SOV alternatives, there are many choices: cycling; walking; skating; skateboarding/push scooters; public transit; carpooling, and/or vanpooling. The last three choices are discussed in the next section (D); this section (C) focuses on the first five choices.

1. Provision of facilities:

To promote non-motor vehicular alternatives is to rely on people to go places under their own power, i.e. if gas and/or diesel motors are not used, people will be pedaling, walking, and/or pushing their way to work. This entails exercise and people tend to sweat under these conditions. An immediately seen program here then is for employers to provide facilities to shower and change clothing at the workplace.

2. Provision of onsite bike racks:

Another program would see the employer providing an array of bike racks, lockers for smaller implements like skates/skateboards, and provision of infrastructure for non-motorized vehicles. This could entail construction of pedestrian/bicycle pathways throughout the worksite(s), or the restriping of roadways to provide a means of separation between the motorized and non-motorized modes of transport.

3. Provision of Incentive programs:

Examples of incentives include, but are not limited to: an extra day of vacation for every “x number of days” an employee commutes to work without the use of gas/diesel motors; extra pay; lunch vouchers; or, abbreviated work days such as allowing for later arrivals, earlier departures, and/or extra time at lunch.

Cost to employers for providing these incentives might include those of facility and/or infrastructure improvement and/or loss of productivity (abbreviated workdays). Benefits of these programs might include:

- a. A lower rate of employee absenteeism due to better health associated with the daily exercise of getting to/from work under the employees’ own power;
- b. A lower rate of employee absenteeism because the stress of sitting on congested roadways is avoided;
- c. Lower costs associated with the provision of vehicular parking spaces (this could be offset by the cost of providing bike racks and/or lockers); and,
- d. Higher productivity/morale associated with better employee health.

A difficult situation to overcome with travel modes requiring people-power is the fact that in order for employees to be able to commute without the use of gas/diesel engines, they should not live too far from their place of work. An employer has no control over this situation, but an employer could provide incentives to get as many employees as possible to commute to/from work/home under their own power.

Other difficulties here include an employer’s ability to get local government to adopt land use strategies promoting these alternative modes, such as TODs. It is important that the local land use codes contain ordinances fostering creation of nonmotorized infrastructure on public roadways, and/or the combining of mixed land uses (residential, office, and commercial) into smaller areas.

- D. *Encouraging vehicular alternatives to SOVs*** such as use of carpooling, vanpooling, and transit for intermediate and somewhat longer trips.

Programs:

1. The Rogue Valley Transportation District (RVTD) provides the Rogue Valley MPO (RVMPO) with public transit (except Eagle Point which is

part of the MPO). Along with this provision, RVTD promotes use of their bus system and carpooling/vanpooling with local employers, along with many other TDM strategies/programs. Programs below describe how RVTD has been accomplishing this, while Technical Memos 3 and 5 of the TDM Refinement Plan contain more detailed information.

- a. In the early 1990s, RVTD initiated a rideshare program which they still present to local employers. This is a carpooling/vanpooling program that instructs employers on the logistics of setting up employee carpool/vanpool matching for employees. RVTD also offers to implement this program to employers who do not wish to undertake the task on their own. This entails matching via a website (www.carpoolmatchnw.org) and ride matching performed at the worksite by RVTD staff.
- b. Carpooling/vanpooling can also be setup by employees at a workplace who all live in the same general area, or by neighboring property owners who all live and work close to each other.
- c. Local fixed-route and paratransit opportunities are provided by RVTD, a transit agency created in 1975. Since that time, RVTD has been promoting their service through media ad campaigns, educational events and programs, which are enumerated and discussed at length in the TDM Refinement Plan's Technical Memos 3 and 5.

Eventually, with continued local growth (and also escalating fuel prices), the MPO's population will increase and people will become more frustrated having to sit longer on more congested roadways. When this happens, people will begin to more easily make the choice to leave their SOV at home and utilize the local bus system.

E. Decreasing the total distance to be traveled:

The adoption of land use procedures to increase residential densities and promote mixed-use developments (TODs) will decrease total commute distances to be traveled. This category is critical to achieve compliance with the TPR which requires integration of land use and transportation plans.

Programs:

While this is probably the most difficult TDM goal to implement, it offers substantial benefits. If proximity (home/work) had been the incentive for land use implementation 100 years ago, we would not be seeing the urban sprawl that more and more people today consider "blight" for our urban areas. With the automobile's invention so long ago, combined with the decades-long cheap price

of gasoline, urban sprawl was conceived as people desired to live further away from city/employment centers.

1. Transit-oriented development (TODs):

TOD is the acronym that best describes this concept of somehow getting people to live closer to the workplace, shopping and recreation, and alternative travel modes such as transit for long trips and walking bicycling for short trips.

A TOD is a mixed use development that is located along, or within ¼ mile of, established transit lines that encourages residents in higher density dwellings to utilize transit service. Included in the design is the provision of commercial, office, residential, and open space uses in an effort to keep people from following their counterparts' examples of living in areas of urban sprawl.

The intent of TOD development is to discourage this sprawl and long trips to work on congested roadways. With provision of this higher density mixed-use development, pedestrian/bicycle pathways are provided which also foster connectivity to the transit lines. The SOV is thus discouraged in these types of developments.

Downtown Central Business Districts (CBDs) are earlier examples of what future TODs might look like. TODs can be planned so that people could live and work in the same mixed use development. In this case, bicycle/pedestrian pathways are provided throughout the development and in many instances where TODs exist. The intent is to cause TOD residents to actually choose to get rid of one of the family vehicles. TODs are also constructed closer to city centers (where the transit routes are) and provision of higher density housing closer to CBDs allows more people to get to work without an SOV.

2. Parking Standards:

Other examples of land use code revisions include the creation of new parking standards. Research indicates that most land use codes require too much parking for many commercial, office, and residential uses.

Developments could be approved which provide for shared parking, especially in those areas where office uses (typically open from 8am-5pm) could share parking with retail uses that are normally operating from 10am-10pm. Shared parking is not itself a new concept, but it is a concept which could be utilized on a much broader basis.

3. Park and Ride Lots:

Development of park and ride lots are another example of land use code changes. Some codes do not allow for provision of space just for parking, but in some areas where park-and-rides are allowed, the parking space is provided so people can choose to ride the bus. As an example, somebody could commute to the lot, park their car (or preferably some non-motorized form of transportation), and get on the bus while leaving their car behind, utilizing the car for a far shorter commute.

There are many examples of land use code revisions being made to foster shared park-and-ride lot parking. A great example of this is for a local jurisdiction to draw up a shared parking agreement with a church. During the weekdays when people commute to work, cars could be parked in the unused church parking lot (otherwise mostly used on Sundays) then ride a nearby transit system to work.

4. Connectivity:

Another program would cause land use codes to be modified in order to enforce connectivity. Most residential developments today cater to sprawl by proposing cul-de-sac after cul-de-sac instead of connecting one roadway with another.

Provision of cul-de-sacs is nothing more than provision of more roadways and longer routes for commuters and emergency response vehicles. By promoting connectivity in/amongst various residential developments, commuting distances are actually shortened and pedestrians/cyclists might actually be more tempted to leave their cars home. As stated previously, the shorter the commuting distance and ability to avoid circuitous (out-of-direction travel), the more likely people will make a non-motorized choice in their commute.

5. Signalization:

Ordinances can also be passed to modify a system of intersection signals so they are coordinated with each other facilitating fewer stops/starts along a route. While this tactic doesn't necessarily shorten the distance of a commute, it certainly shortens the amount of time of a commute.

6. Safety:

If safety is an issue preventing users of nonmotorized commuting choices, infrastructure can be modified to provide on street bikeways and to provide more pedestrian pathways. In order to provide on street bikeways, ordinances can be adopted which call for all on street parking on collector/arterials streets to be removed, then have the roadway restriped for on street cycling pathways. People who feel "safer" on a roadway

shared with cars may then more readily make the choice to ride their bikes for their daily commute.

7. Traffic Calming:

Creation of bicycle boulevards, pedestrian blocks, and bulb-outs, tree-lined streets, window and visibility, (and other tactics) all play a role in whether someone feels safe or comfortable in walking or cycling.

VI: Conclusion:

Many programs have been described above which show how TDM actions designed to reduce use of SOVs might be implemented. Research indicates that when such programs are combined (i.e.: a person lives in a TOD, rides a bike to a bus route then places their bike on the bus, rides the bus to work where they enjoy a compressed work week of four 10-hour days) with each other, people are much more likely to utilize alternate means of getting to work and leave their SOVs at home. It is expected that as more people realize:

- A. The effects auto emissions most certainly have on global warming and air quality;
- B. What congestion does to stress levels;
- C. How healthy it is to commute under their own power; and,
- D. That the cost of fuel is only going to get higher, these people will then more readily abandon their SOVs to find other commuting alternatives.

Not every member jurisdiction has the capacity, tools, or ability to implement every program and every strategy. Based on this presentation, the volume of information presented, and realizing that any reader of this document may have many questions, MPO staff are ready to entertain questions about the overall TDM program and may assist member jurisdictions in “where to go from here”.