



Chapter 10

Transportation Demand Management

INTRODUCTION

Transportation Demand Management (**TDM**) is the general term used to describe any action that removes single occupant vehicle trips from the roadway network during peak travel demand periods. The Transportation Planning Rule outlines a goal of reducing vehicle miles traveled (**VMT**) per capita. TDM measures, applied on a regional basis, can be an effective tool in reducing vehicle miles traveled. The strategies for transportation demand management were identified in working with the City's traffic Commission, the public and TSP Technical Advisory Committee. These committees provided input regarding the transportation system in Beaverton, specifically exploring TDM needs.

BACKGROUND

In 1993, the Oregon Legislature passed a law to help protect the health of Portland area residents from air pollution and to ensure that the area complies with the federal Clean Air Act. The Employee Commute Options (ECO) rules are provisions of the law¹. The ECO program requires larger employers to provide commute options to encourage employees to reduce auto trips to the work site. It is one of several strategies included in the Ozone Maintenance Plan for the Portland Air Quality Maintenance Area (AQMA) which will be in place until 2006. Employers in the Portland AQMA with more than 50 employees at a work site must provide commute options that have the potential to reduce employee commute auto trips by 10 percent within three years, and maintain the trip reductions through the life of the plan.

TDM can include a wide variety of actions, tailored to the individual needs of employers to achieve trip reduction. Table 10-1 provides a list of several strategies identified in the ECO program. Research has indicated that a comprehensive set of complementary policies implemented over a large

¹ Oregon Administrative Rules Chapter 340, Division 30.

Table 10-1
Transportation Demand Management Strategies

Strategy	Description	Potential Trip Reduction
Telecommuting	Employees perform regular work duties at home, or at a work center closer to home, rather than commuting from home to work. This can be full time or on selected work days. This can require computer equipment to be most effective.	82-91% (Full Time) 14-36% (1-2 day/wk)
Compressed Work Week	Schedule where employees work their regular scheduled number of hours in fewer days per week (for example, a 40 hour week in 4 days, or 36 hours in 3 days)	7-9% (9day/80 hr) 16-18% (4/40) 32-36% (3/36)
Transit Pass Subsidy	For employees who take transit to work on a regular basis, the employer pays for all or part of the cost of a monthly transit pass .	19-32% (full subsidy, high transit service) 2-3% (half subsidy, medium transit service)
Cash Out Employee Parking	An employer that has been subsidizing parking (free parking) discontinues the subsidy and charges all employees for parking. An amount equivalent to the previous subsidy is then provided to each employee, who then can decide which mode of travel to use (with subsidy above cost of a monthly transit pass, those employees would realize monetary gain).	8-20 % (high transit service available) 5-9 % (medium transit services available) 2-4% (low transit services available)
Reduced Parking Cost for HOVs	Parking cost charged to employees are reduced for high occupancy vehicles (HOV) such as carpools and vanpools.	1-3 %
Alternative Mode Subsidy	For employees that commute to work by modes other than driving alone, the employer provides a monetary bonus to the employee. Most often, the bonus is provided monthly in the employee's paycheck.	21-34% (full subsidy of cost, high alt.modes) 2-4% (half subsidy of cost, medium alt.modes)
On-Site Services	Provide services a the worksite that are frequently used by the employees of that worksite. Examples include cafes, restaurants, dry cleaners, day care and bank machines.	1-2%
Bicycle Program	Provides support services to those employees that bicycle to work. Examples include, safe/secure bicycle storage, shower facilities and subsidy of commute bicycle purchase.	0-10 %
On-site Rideshare Matching for HOVs	Employees who are interested in carpooling or vanpooling provide information to a transportation coordinator regarding their work hours, availability of a vehicle, and place of residence. The coordinator then matches employees who can reasonably rideshare together.	1-2%

Provide Vanpools	Employees that live near each other are organized into a vanpool for their trip to work. The employer may subsidize the cost of operation and maintaining the van.	15-25% (company provided van with fee) 30-40% (company subsidized van)
Gift/Awards for Alternative Mode Use	Employees are offered the opportunity to receive a gift or an award for using modes other than driving alone.	0-3 %
Provide Buspools	Employees that live near each other or along a specified route are organized into a buspool for their trip to work	3-11 %
Walking Program	Provide support services for those who walk to work. This could include buying walking shoes or providing showers.	0-3 %
Company Cars for Business Travel	Employees are allowed to use company cars for business-related travel during the day.	0-1 %
Guaranteed Ride Home Program	A company owned or leased vehicle or taxi fare is provided in the case of an emergency for employees that use alternative modes.	1-3 %
Time off with Pay for Alternative Mode Use	Employees are offered time off with pay as an incentive to use alternative modes (rather than monetary, bonus, gift or awards)	1-2%

research geographic area can have an effect on vehicle miles traveled². However, the emphasis of much of the indicates that these policies go well beyond the low-cost, uncontroversial measures commonly attributed to **TDM** (such as carpooling, transportation coordinators/associations, priority parking spaces). Elements including parking and congestion pricing, improved services for alternative modes and other market-based measures are needed for TDM to have significant impact on reducing overall vehicle miles traveled.

At the same time, the same research indicates that employee trip reduction programs can be an effective instrument of localized congestion relief³. For example, employers can substantially reduce peak hour trips by shifting work schedules, which may not reduce VMT, but can effectively manage congestion. In Wilsonville, a Nike warehouse/distribution site generates 80% less vehicle trips than standard similar uses in the evening peak hour by using employee shifts that are outside the peak

² *The Potential for Land Use Demand Management Policies to Reduce Automobile Trips*, ODOT, by ECO Northwest, June 1992.

³ *Evaluation of Employee Trip Reduction Programs Based upon California's Experience with Regulation XV*, Institute of Transportation Engineers, Technical Council Committee 6Y-5I, January 1994.

period (4 - 6 PM)⁴. This type of congestion management technique can extend the capacity of transportation facilities.

CRITERIA

Beaverton's Traffic Commission, the public and Technical Advisory Committee created/refined a set of goals and policies to guide transportation system development in Beaverton (see Chapter 2). Several of these policies pertain specifically to transportation demand management:

Goal 4, Policy 1: Support trip reduction strategies developed regionally, including employment, tourist and recreational trip programs.

Encourage implementation of travel demand management program, which reduce the number of single occupant vehicle trips per capita. Shift traffic to off-peak travel hours. Coordinate trip reduction strategies with Washington County, Metro, Tri-Met, Westside Transportation Alliance, ODOT and DEQ. Seek to raise PM peak average vehicle occupancy (AVO) to 1.3 AVO in the evening peak and/or move 50 percent of standard evening peak trip generation outside the peak hour. Educate business groups, employees and citizens about trip reduction strategies and work with business groups, citizens and employees to develop and implement travel demand management programs.

Goal 4, Policy 2: Limit the provision of parking to meet regional and state standards.

Meet Metro Urban Growth Management Functional Plan Title 2 requirements. Establish maximum and minimum parking requirements. Utilize research conducted by DEQ for guidance in determining demand. Reduce parking by ten percent per capita relative to prior parking standards in Beaverton. Minimize impact to neighborhoods.

Goal 4, Policy 3: Maintain level of service consistent with regional goals. Reduce traffic congestion and enhance traffic flow through such measures as intersection improvements, intelligent transportation systems and signal synchronization.

Level of service D, Highway Capacity Manual, Chapter 11 is recommended to balance provision of capacity with level of service and funding. Monitor Washington County's current work to develop a regional level of service standard

Goal 4, Policy 4: Plan land uses to increase opportunities for multi-purpose trips (trip chaining).

Multi-stop trips are an effective means of trip reduction. A well planned trip with multiple stops in a compact area is much more efficient than various individual trips. Encourage commercial developments in the City to use new technologies to assist the public in trip chaining

⁴ Nike Parking Lot Expansion Trip Generation Study, City of Wilsonville, by DKS Associates, May, 1997.

Goal 4, Policy 6: Support mixed-use development

Mixing of residential and commercial land uses within compact areas that encourage use of alternative modes of travel (walking, biking and transit) has proven to reduce vehicle trips, particularly near major transit stops. Where projects or collective phases of projects generate more than 1000 peak hour vehicle trips, mixing of land uses must be considered (for example, large retail projects mixed with employment, residential and/or entertainment; large office/industrial uses mixed with services).

Goal 4, Policy 6: Improve local transit services to increase transit ridership potential.

Bus service should be available within a 1/4 mile to all residents in Beaverton. Bus service improvements are needed to meet this policy and other policies recommended in this plan. Establish standards necessary for development adjacent to transit streets.

These goals and policies are the criteria that all transportation demand management strategies in Beaverton should be compared against to determine if they conform to the intended vision of the City.

STRATEGIES

Several strategies were evaluated and ranked by the Traffic Commission and the public for transportation demand management in Beaverton. These strategies aimed at providing the City with priorities toward implementing transportation demand management projects that meet the goals and policies of the City. The ranking of the strategies follows from most important to least important:

- Encourage linkage of housing, retail and employment centers
- Provide incentives to take transit and use other modes (i.e., free transit pass)
- Flexible working hours
- Schedule deliveries outside of peak hours
- Coordinate shift changes/staggered work hours
- Telecommuting
- Participate in Westside Transportation Alliance
- Provide information regarding commute options to larger employers
- Work with property owners to install bicycle racks and bicycle amenities

RECOMMENDED PLAN

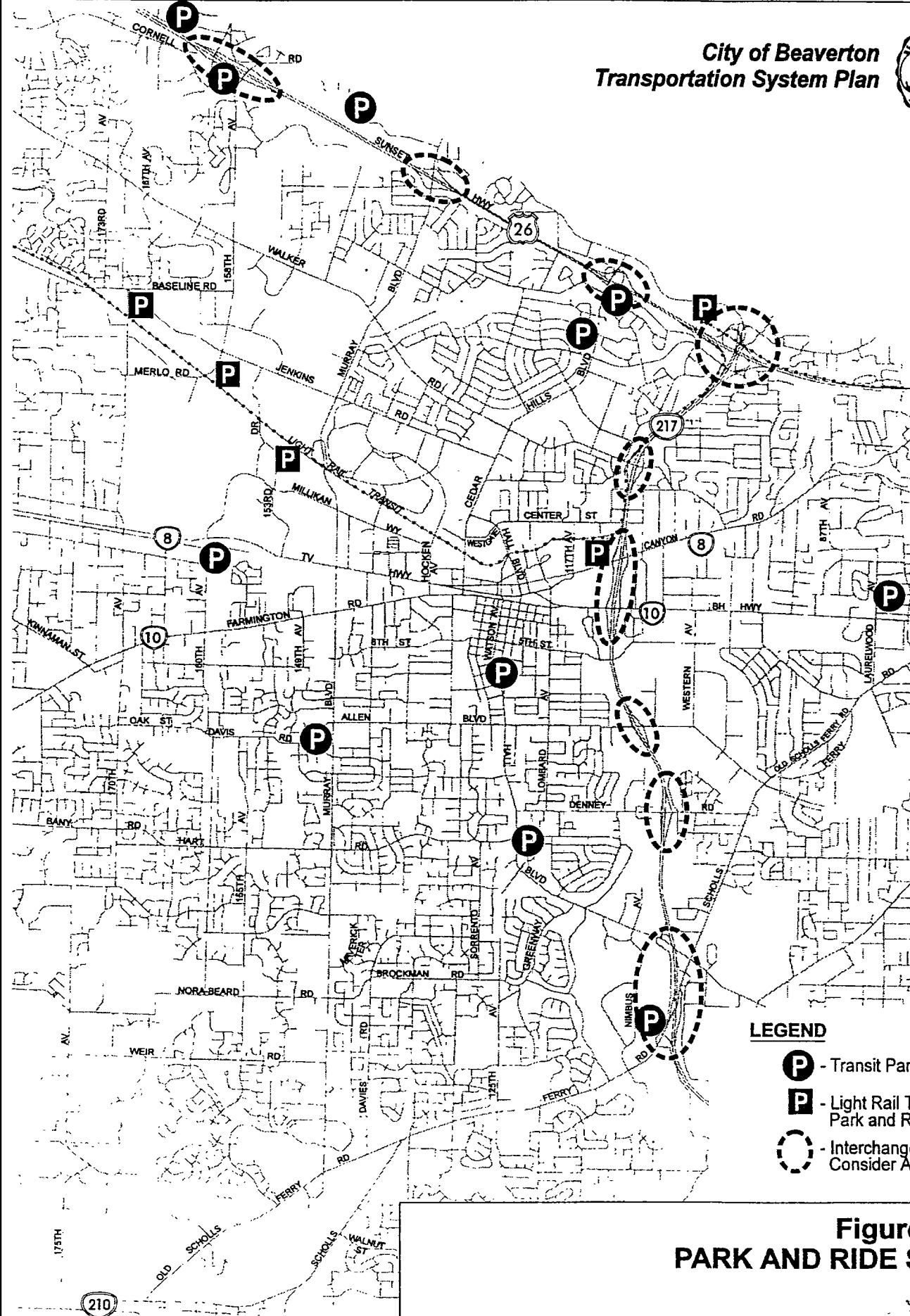
State, regional and county policy ⁵ all call for encouraging and promoting transportation demand management. The proposed policy of this plan calls for the city to support TDM. Unlike bicycles, pedestrians and motor vehicles, implementation of this policy does not necessarily require capital

⁵ Transportation Planning Rule, Section 660-12-035; Regional Transportation Policy, Metro, July 1996, page 1-39; and Washington County Transportation Plan, October 1988, page 30.

infrastructure. In fact, much more of TDM is policy and management rather than concrete and asphalt. Because of this, the recommended TDM plan for Beaverton consists of the following:

- Encourage development that effectively mix land uses to reduce vehicle trip generation. These plans may include development of linkages (particularly non-auto) that support greater use of alternative modes. Land use density should be higher at transit stations (half mile radius) than elsewhere in the community.
- Develop consistent conditions for land use approval that require all future employment related land use developments to agree to reduce peak hour trip making, through individual **or** collective TDM efforts. For example, measures which are appropriate for site planning such **as** close-in parking for carpools, bicycle parking, shower facilities and convenient transit stops should be considered in the design review process.
- Support continued efforts by Washington County, ODOT, DEQ, Tri-Met and the Westside Transportation Alliance to develop productive TDM measures that reduce VMT and peak hour trips. This may require City funding of **TDM** management to get maximum benefit or results (possibly \$25,000 to \$75,000 per year).
- As a capital oriented element, coordinate with ODOT and Tri-Met on the development of park-and-ride transit station or freeway interchange locations in Beaverton (these are locations proven to be successful in attracting carpool/transit use. Figure 10-1 shows the current park and ride locations. Expansion of these sites should focus on transit station or freeway interchange locations. Interchange reconstruction projects should be required **to** identify potential sites for park and ride (even small sites of 50 spaces). Over the next 20 years, a reasonable budget for park **and** ride expansion might be about \$100,000 per **year** (about 50 spaces a year, assuming pre-existing ROW).

**City of Beaverton
Transportation System Plan**



LEGEND

- P** - Transit Park and Ride
- P** - Light Rail Transit Park and Ride
- - Interchange Areas to Consider Additions

**Figure 10-1
PARK AND RIDE SITES**