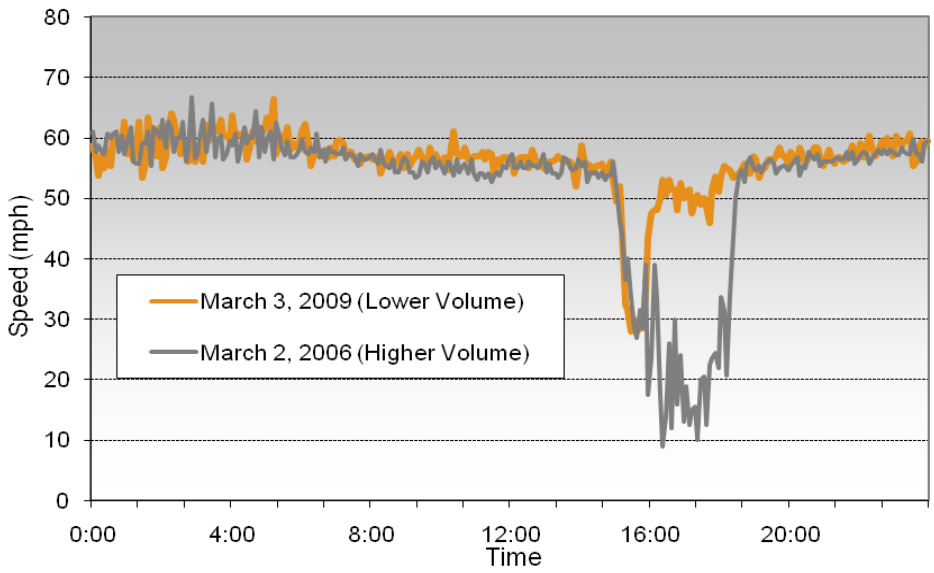
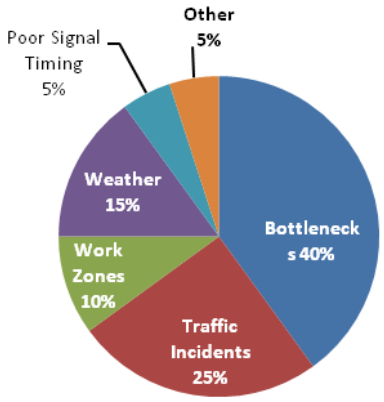
Transportation System Management and Operations (TSMO) strategies provide money saving multimodal solutions that relieve congestion, optimize infrastructure investments, promote travel options and reduce greenhouse gas (GHG) emissions.

Traditionally, improvements to transportation mobility, reliability, safety and accessibility are achieved through capital intensive infrastructure investments. But transportation infrastructure is expensive and cost estimates for the region's 25-year needs runs into the billions of dollars. Transportation system management and operations (TSMO) use past and future transportation investments to their utmost potential through system and demand management solutions that enhance overall system performance. Compared to traditional capital investments such as new roads or additional lanes, TSMO solutions offer high returns on comparatively low cost projects and can delay or remove the need for additional capital intensive infrastructure. This TSMO plan focuses on less intensive traffic operation improvements; delivery of multimodal traveler information; promotions and programs to increase walking, biking, transit use, carpooling, and telecommuting; and ongoing investments to optimize the existing transportation system operations and performance.



A comparison between 2006 and 2009 traffic flow on I-5 northbound near Rosa Parks Boulevard demonstrates that reducing demand reduces congestion. While the reduced demand in 2009 was likely due to the economy, TSMO strategies target system and demand management to achieve improvements in traffic flow.

Both recurring and non-recurring congestion can be addressed using system management and operation solutions.



A range of TSMO projects already completed in the Portland region proves the cost effectiveness of these solutions with a benefit to cost ratio of at least 2:1. For every dollar spent:

- Burnside Road adaptive signal system provides a benefit of $6.50 (after five years)[1]
- Traffic incident detection provides about $6.00 of benefit[2]
- Freeway service patrols range between a benefit of $2.00 to $42.00[2]

TSMO solutions help reduce transportation's contribution to greenhouse gas (GHG) emissions, a driving force in climate change. In Oregon, transportation represents 34 percent of the state's total greenhouse gas emissions.[3] The amount of greenhouse gas produced is directly proportional to the amount of fuel consumed by vehicles. TSMO solutions tackle the problem in two ways: by optimizing traffic flow for fuel economy and by reducing the number of miles driven.

TSMO Vision, Goals and Guiding Principles help to keep Portland a great place to live, work and play.

The Portland region's TSMO plan is part of a broader strategy for achieving regional values and goals, which are presented in two key regional plans – the 2040 Growth Concept and the 2035 Regional Transportation Plan (RTP). The 2040 Growth Concept guides how the region develops. The 2035 RTP implements the growth concept through strategic transportation investments. The 2035 RTP goals are:

Goal #1 Foster Vibrant Communities and Efficient Urban Form – TSMO solutions improve demand and encourage travel behaviors that support efficient urban form.

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[1] DKS Associates. City of Gresham - Burnside Road Adaptive signal timing project (Division to Powell). 2007

[2] US DOT, Intelligent Transportation Systems Joint Program Office. Investment Opportunities for Managing Transportation Performance through Technology. January 16, 2009.

[3] ODOT, Potential Effects of Tolling and Pricing Strategies on Greenhouse Gas Emissions, 2009.

Goal #2 Sustain Economic Competitiveness and Prosperity – TSMO solutions improve system reliability, increase safety and promote transportation choices and traveler information projects to help make the region more accessible and prosperous.

Goal #3 Expand Transportation Choices – TSMO solutions promote the use of travel options and provide multi-modal traveler information.

Goal #4 Emphasize Effective and Efficient Management of the Transportation System – TSMO solutions optimize operations of existing infrastructure, which is more cost effective than building new capital infrastructure and achieves substantial benefits.

Goal #5 Enhance Transportation Safety and Security – TSMO solutions reduce crashes and decrease the severity of crashes. By addressing safety concerns, the cost of incidents and the delays to travelers due to incidents is reduced.

Goal #6 Promote Environmental Stewardship – TSMO solutions manage congestion, provide traveler information and promote travel options resulting in reduced vehicle emissions, energy consumption and reliance on oil.

Goal #7 Enhance Human Health – TSMO solutions support and promote use of active transportation modes, including biking, walking and transit, all of which have demonstrated health benefits.

Goal #8 Ensure Equity – TSMO solutions benefit the entire Portland region and travelers from all geographic, income, and cultural backgrounds.

Goal #9 Fiscal Stewardship – TSMO solutions optimize the operations of existing infrastructure and offer a good return on public investment.

Goal #10 Deliver Accountability – The TSMO plan emphasizes open communication and coordination between partner agencies. Additionally, TSMO solutions deliver accountability through performance monitoring and evaluation requirements.

In compliance with federal guidelines established by the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and subsequent laws, TSMO strategies must be incorporated in the Regional Transportation Plan (RTP). Previous RTPs emphasize the use of TSMO strategies; the 2035 RTP will be the first to include a comprehensive regional strategy for transportation system and demand management. The Oregon Transportation Plan (OTP) adopted in September of 2006 also calls for the use of operational solutions as a priority, but does not provide the necessary detail to follow through with TSMO type projects. This TSMO plan fills that role. It identifies and recommends TSMO projects that will benefit the Portland region.

Regional partners create a vision for TSMO.

Starting in the fall of 2008, key stakeholders from across the region, including public agency staff, transportation operations professionals and private representatives of the traveling public, convened to develop the regional TSMO plan. Throughout the project, these regional partners worked together to reach consensus on each aspect of the plan. At the outset of plan development, the partners collaborated on the vision, goals and guiding principles of the TSMO plan.

Vision Statement:

The Portland metropolitan region will collaboratively and proactively manage its multimodal transportation system to ensure safe, reliable, efficient, and equitable mobility for people and goods. The region will strive to be a nationally recognized leader for innovative management and operations of its transportation system.

GOALS

1. **Reliability** – Provide reliable travel times for people and goods movement.
2. **Safety and security** – Enhance transportation safety and security for all modes.
3. **Quality of life** – Enhance the environment and quality of life by supporting state and regional greenhouse gas reduction and air quality goals.
4. **Traveler information** – Provide comprehensive multimodal traveler information to people and businesses.

GUIDING PRINCIPLES

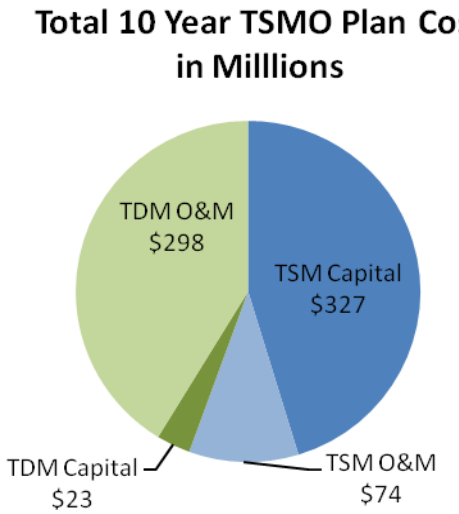
1. **Regional partnerships** – Enhance regional partnerships that support collaborative investment and implementation of management and operations strategies that benefit the region.
2. **System performance** – Monitor system performance and evaluate management strategies to aid equitable policy and sustainable investment decisions.
3. **Investment in ongoing operations** – Provide on-going maintenance and operations to support the transportation network.

The TSMO Action Plan identifies investments to achieve safe, reliable, accessible and seamless travel for people and goods.

The action plan is organized into four functional areas:

- Multimodal traffic management
- Traveler information
- Traffic incident management
- Transportation demand management (TDM)

Projects in each functional area target strategies that improve operations of the existing infrastructure and manage demand on the transportation system.



The TSMO plan is designed with a 10-year planning horizon. Full implementation of the plan means investing approximately $725 million over the next 10 years. Of that $725 million, about $400 million funds transportation system management (TSM) projects, and about $325 funds transportation demand management (TDM) projects. Funding for both TSM and TDM projects support capital and ongoing operations and maintenance costs.

The TSMO plan is aspirational and benefits will materialize even from partial investment and implementation. Also, some of the TSMO projects may qualify for funding through alternate sources such as capital improvement projects or public-private partnerships.

Example strategies in the four functional areas:

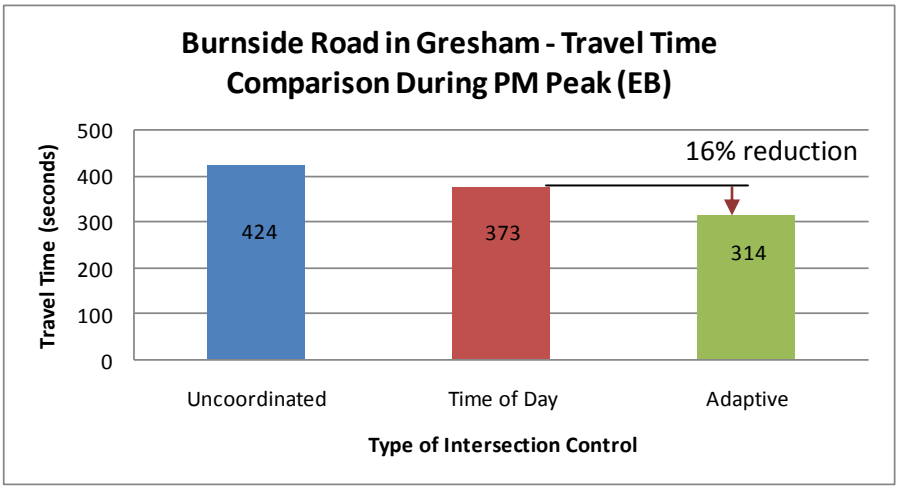
Multimodal Traffic Management • Traffic signal coordination • Transit signal priority treatment	**Traveler Information** • Real-time traveler information • Expand to arterials •
Traffic Incident Management • Improve surveillance • Expand incident management teams and training	**Transportation Demand Management** • Ridesharing • Collaborative marketing

Multimodal Traffic Management strategies reduce travel times, decrease vehicle emissions and improve transit performance.

Multimodal Traffic Management strategies improve metropolitan mobility by applying 21st Century technology solutions to actively manage the transportation network. Projects in this functional area seek to improve arterial traffic management (traffic signal timings, data collection and performance monitoring), expand transit priority treatments, pursue congestion pricing options, develop access management strategies and implement active traffic management techniques.

Responsive traffic signal systems reduce delays and travel times.

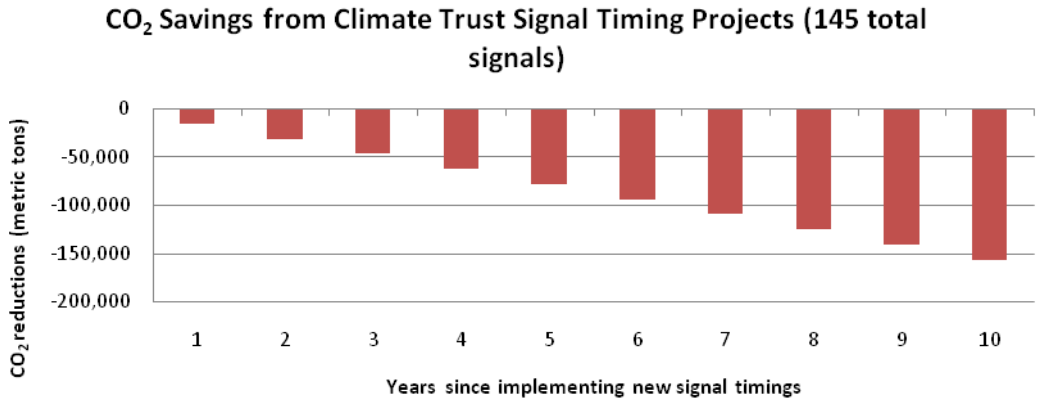
The City of Gresham upgraded traffic signals along East Burnside Road to adaptive signal timing, which adjusts to real-time traffic flow. As a result, average travel time along the corridor decreased by 16 percent, benefiting automobiles, trucks and buses.



Source: DKS Associates. Burnside Road Adaptive Signal Timing Project, 2007

Coordinated traffic signals decrease vehicle emissions and fuel consumption.

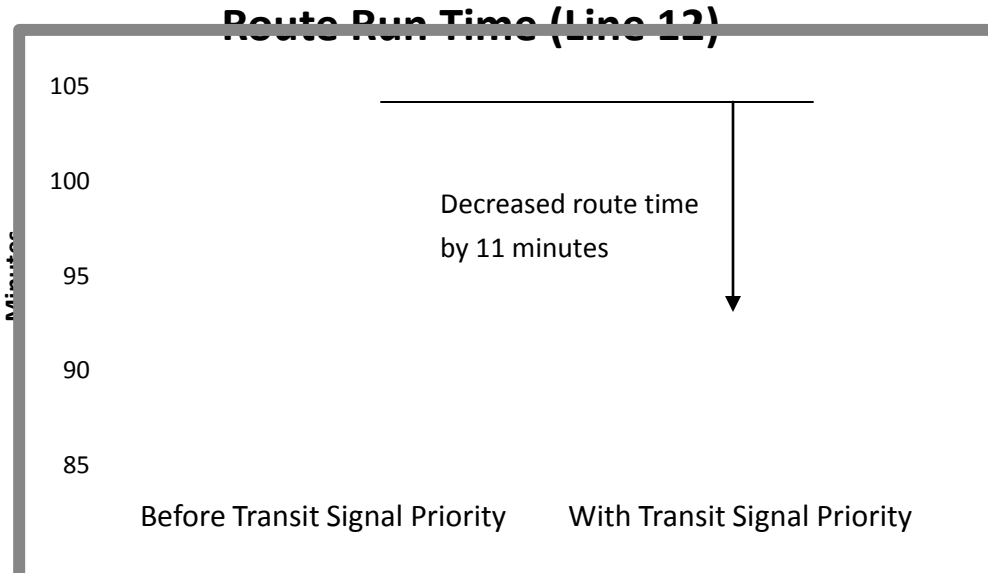
The City of Portland updated signal timings for 145 traffic signals and realized significant CO_2 reductions, resulting in health and environmental benefits across the region.



Source: DKS Associates, Climate Trust Signal Timing Project, 2005.

Transit signal priority treatments lead to improved on-time transit performance.

A study of transit signal priority performance showed that transit signal priority improved on-time performance by 14 percent and reduced route run time by 11 minutes (TriMet's Line 12 from Sandy to Barbur).



Source: Kittelson and Associates, 2009.

Bicyclists and pedestrians benefit from improved detection and countdown pedestrian timers.

Projects that upgrade traffic signal timing and equipment also benefit bicyclists and pedestrians. Bicycle detection can be installed with signal upgrades along facilities classified as bike routes. This helps reduce delay for bicyclists. Pedestrian countdown timers can also be installed to provide better crossing information.

The TSMO Plan recommends the following projects within the area of **Multimodal Traffic Management:**

	Project	Timeframe	Cost	
			Capital	O&M/year
REGION WIDE PROJECTS	Operate and maintain the regional intelligent transportation system (ITS) network	Ongoing	$0	$100K
	Develop an active traffic management regional concept of transportation operations (RCTO)	1-5 years	$350K	$0
	Create a transit priority treatment performance measurement system	1-5 years	$200K	$200K
	Enhance the regional traffic signal system	1-5 years	$12M	$50K
	Study and implement congestion pricing/high occupancy toll lanes	1-5 years	$5M	n/a
	Develop and implement region-wide access management strategies	6-10 years	$500K	$0
	Expand Portland State University's ITS freight data collection	6-10 years	$50K	$100K
	Implement an active traffic management pilot project	6-10 years	$5M	$100K
	Install next generation transit signal priority system	6-10 years	$500K	$100K
	Provide 24-hour transportation operations coverage	11+ years	$0	$100K
	Institute automated speed enforcement	11+ years	$1M	$100K
CORRIDOR PROJECTS	Invest in active corridor management (updating signal timing and installing cameras and communication equipment)	See corridor action plans.		
	Upgrade signals to adaptive traffic signal timing			
	Install transit priority treatments			

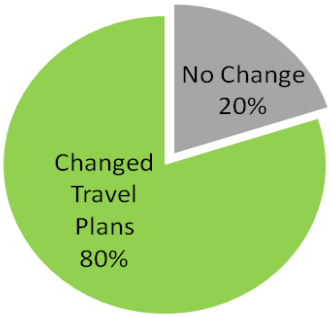
Traveler information helps users make informed decisions and avoid congestion.

Providing centralized real-time and forecast traveler information is one of the main goals of this TSMO plan. Accurate and comprehensive real-time traveler information allows system users to make informed decisions about their route, mode of transportation and time of day they travel. Ideally this will lead to optimal roadway usage, less unnecessary traveler delay more walking, biking, transit and carpool trips, reduction in vehicle miles traveled and an improved traveler experience, which benefits all modes of travel. Drivers and freight haulers can make alternate route choices and avoid congestion; transit users can plan and make their transit trip with more certainty; and the information will show travelers walking or biking routes for that meet their preferences.

Traveler information projects expand traveler information to arterial roadways, centralize all real-time data, continue to expand travel option marketing, improve multimodal traveler data and tools, and enhance data collection capabilities. The information can reach travelers through a variety of interfaces including the Internet, radio, cell phone, in-vehicle navigation devices or variable message signs.

Currently, real-time traveler information system in the Portland Metro area is provided for most freeways and is distributed via variable message signs, radio, traffic surveillance cameras, Tripcheck.com, TriMet trip planning tools and Portland Oregon Regional Transportation Data Archive Listing (PORTAL). Recently TriMet and ODOT began allowing open access to transit and traffic data. TriMet provides schedule and real-time transit data to the public. This open source policy has led to the creation of many beneficial applications by third party developers. For example, TriMet's TransitTracker data, which predicts next arrival times for vehicles, can now be accessed through a variety mobile phone applications. Traveler information is one area where public-private partnerships can flourish with benefits to all transportation system uses.

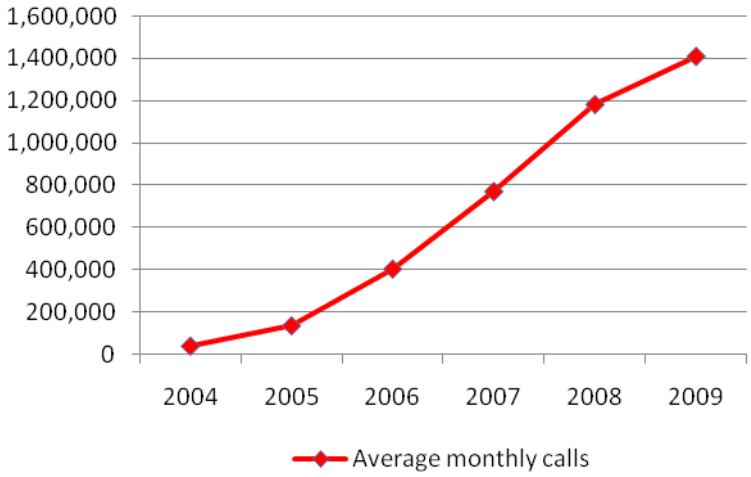
Providing real time-information allows travelers to alter decisions.



A 2007 survey found that almost 80% of respondents change their travel plans, such as taking a different route, taking a different mode, going at a different time or canceling the trip because of information on the website.

Increased visits to the Transit Tracker demonstrate widespread use of traveler information.

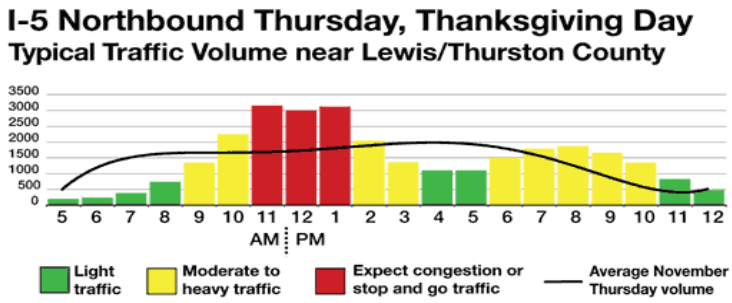
TriMet's Transit Tracker service is available online and by phone. Customer use of the Transit Tracker website has expanded from an average of 10,000 visits per month in 2002, its first year of operation, to an average of 100,000 visits per month in 2009. Growth in average monthly use of Transit Tracker by phone has increased by 3432% from its inception in 2004 and 2009.



Source: TriMet, 2009.

Forecasting traveler information enhances traveler experience.

By forecasting traveler information, people can plan ahead and avoid traveling during peak periods. For example, the Washington State Department of Transportation used a forecasting tool to show travelers what conditions to expect around the Thanksgiving holiday.



Source: WSDOT website, 2009.

The TSMO Plan recommends the following projects within the area of **Traveler Information**:

Project		**Timeframe**	**Cost**	
			Capital	**O&M/year**
REGION WIDE PROJECTS	Upgrade and enhance Portland Oregon Regional Transportation Data Archive Listing (PORTAL)	Ongoing	n/a	$100K
	Provide and maintain multi-modal traveler data and tools	Ongoing	$0	$100K
	Add Park &Ride traveler information to route planning tools	Ongoing	$500K	$150K
	Enhance and centralized all real-time roadway traveler information to TripCheck Travel Information Portal (TTIP)	1-5 years	$3M	$2M
	Develop the arterial performance measure regional concept of transportation operations (RCTO)	1-5 years	$750K	$100K
	Develop a transit performance measurement system	1-5 years	$750K	$50K
CORRIDOR PROJECTS	Install traveler Information devices on arterial roadways	See corridor action plans		

Traffic Incident Management strategies reduce crashes, delay, costs and improve traveler safety.

Efficient incident management is critical to reducing incident-related congestion and restoring capacity as quickly as possible. Strategies enhance incident management capabilities, increase surveillance for faster incident detection, improve inter-agency communications and implement active traffic management.

Incident management targets safety and reliability. By clearing incidents quickly, the chance of secondary incidents decreases and safety is improved. The primary transportation modes that benefit from incident management strategies are automobiles, buses and trucks.

Managing traffic incidents improves traveler safety.

Once an incident occurs, it can be a roadway hazard that leads to secondary crashes. Managing incidents quickly and efficiently can prevent additional injury and property damage. Also, implementing active traffic management techniques, such as variable speed limits and lane management signs, can help to reduce the number and severity of crashes.[4]

Past studies show:

- 20% of all incidents are secondary crashes
- for every 1 minute a primary incident continues to be a hazard, the likelihood of a secondary crash increases by almost 3%.

Active traffic management can:

- reduce primary crashes by 3% to 30%
- reduce secondary crashes by 40% to 50%
- reduce crash severity

[4] Research and Innovative Technology Administration (RITA) Intelligent Transportation Systems Benefits Database. Website: http://www.benefitcost.its.dot.gov/its/benecost.nsf/BenefitsHome (June 2009)

Detecting and clearing incidents quickly restores lost capacity.

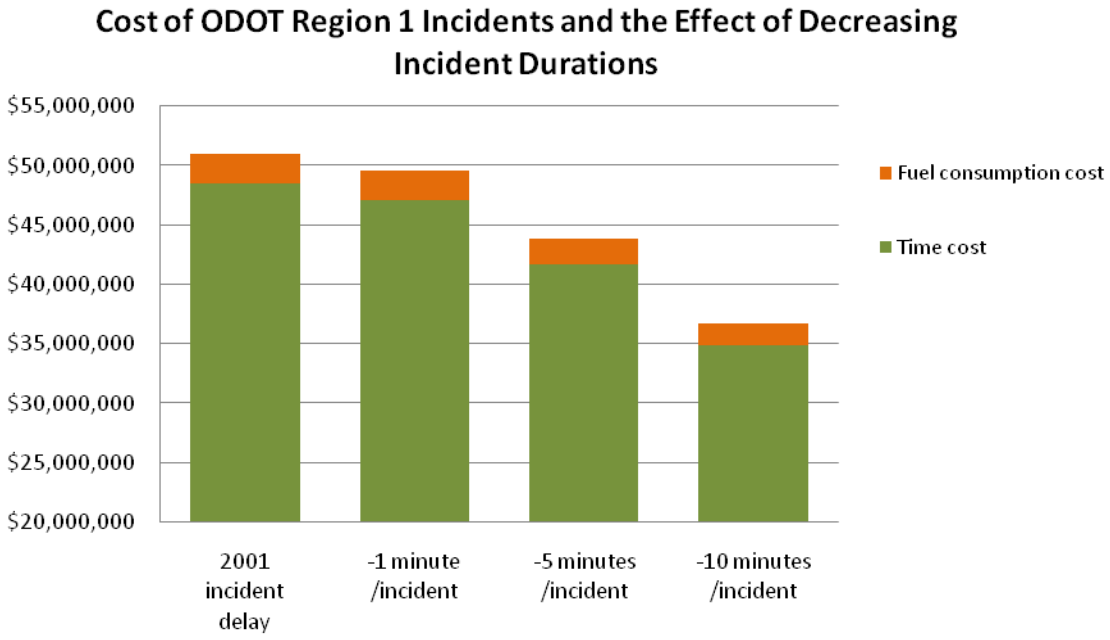
Incidents that block travel lanes decrease capacity and lead to unreliable travel times. When lanes are blocked due to an incident, capacity decreases significantly (even when the incident is on the shoulder) and travelers experience delays.

Number of Hwy Lanes	% Facility Capacity Lost by Blockage Type			
	Shoulder	1 Lane	2 Lanes	3 Lanes
2	19%	65%	100%	N/A
3	17%	51%	83%	100%
4	15%	42%	75%	87%

Source: TRB[5]

Improving incident clearance times reduces incident delay and cost.

In a study conducted by Portland State University, the cost of incident delay was related to incident duration. Every one minute of incident delay, for all Portland region incidents, costs approximately $1.5 million annually. By improving incident management and reducing incident duration, the region can substantially reduce costs associated with incident delay.



Source: Portland State University, 2004[6]

[5] Highway Capacity Manual 2000. *Transportation Research Board, National Research Council, Washington, D.C., 2000.*

The TSMO Plan recommends the following projects within the area of **Traffic Incident Management:**

Project		**Timeframe**	**Cost**	
			Capital	**O&M/year**
REGION WIDE PROJECTS	Expand and improve incident management (expanding routes, adding surveillance, establishing target clearance goals and expanding staffing and training)	1-5 years	$2M	$200K
	Expand incident management teams/training	1-5 years	$0	$500K
	Integrate voice and data networks	1-5 years	$10M	$500K
	Upgrade emergency responder geographic information system (GIS) system	6-10 years	$200K	$50K
	Initiate dynamic routing and preemption pilot project	11+ years	$500K	$75K

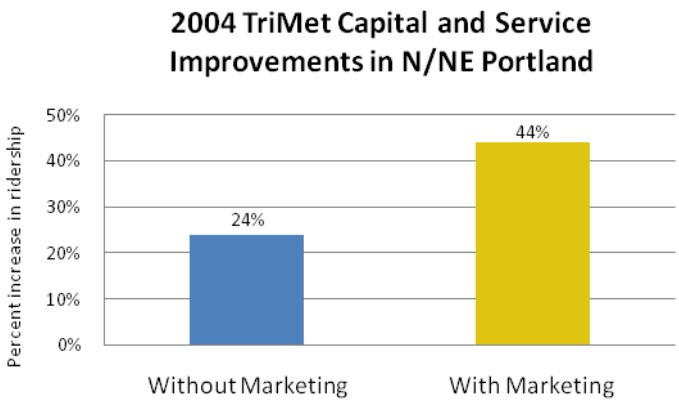
[6] Robert L. Bertini, Michael W. Rose, Ahmed M. El-Geneidy (Portland State University). Using Archived Data to Measure Operational Benefits of ITS Investments: Region 1 Incident Response Program. Sponsored by Oregon Department of Transportation Northwest with US DOT and FHWA. June 2004.

Transportation Demand Management (TDM) strategies reduce vehicle miles traveled, and increase the share of transit, bicycle, walk and carpool trips.

TSMO also manages transportation from the demand side to help residents and employees of the region increase their use of travel options and reduce the number of trips made while driving alone. TDM increases the share of trips that have a lower impact on the transportation system. TDM projects support rideshare and employer commuter services, expand collaborative marketing campaigns for travel options and incorporate employer and youth transit pass programs.

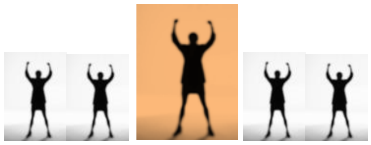
All modes benefit from TDM projects. TDM projects raise general awareness about walking, bicycling and transit use, which in turn increases safety for all users. TDM projects encourage travelers with flexibility to use non-drive alone options or travel during off-peak hours. By providing travel information and option incentives like employer or youth passes, travel behavior will adjust to create more space on roadways, resulting in improved travel times for other roadway users.TDM projects support the 2040 growth concept by encouraging people to make choices that reduce their dependence on cars. As a result, vehicle trips are reduced saving energy and reducing GHG emissions.

Marketing travel options encourages travel choices.
Regional Travel Options (RTO) partners market several programs that increase bicycling, walking, ridesharing and transit use. In neighborhoods targeted by individualized marketing for the opening of the MAX Yellow Line, ridership was nearly double compared to the control group that received no targeted marketing. The 2009 tracking survey for the Drive Less/Save More campaign found that one out of every five Portland residents took action to reduce their drive-alone car trips.



Source: Socialdata America, March 2006

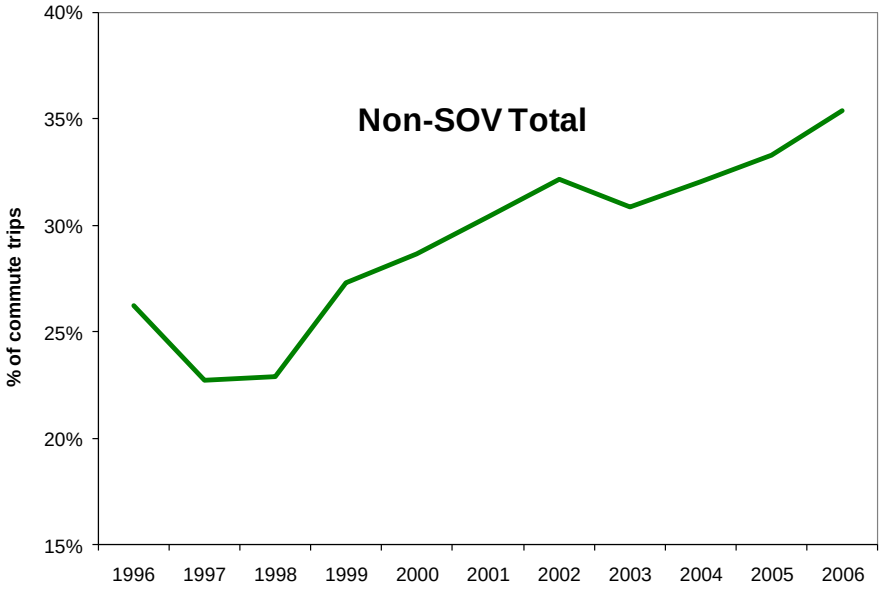
Drive less. Save more. 1 out of 5 Portland residents reduced car trips due to the campaign.



Source: Moore Information, Inc, January 2009

Providing employer services increases non-drive-alone mode split.

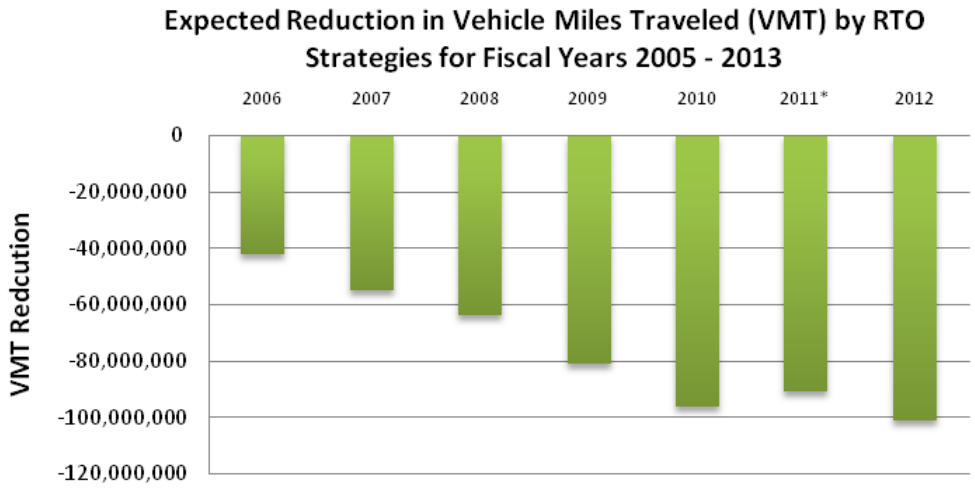
RTO partners provide services to over one thousand employers throughout the Portland region. Employers may implement travel option programs such as buying transit passes for their employees. Over the last decade, employee commute trips that used non-drive-alone modes (transit, bicycling, walking, carpooling/vanpooling, and telecommuting) rose from 22 percent average to over 35 percent average among participating employers.



Source: Portland State University Center for Urban Studies, July 2007

Promoting travel options reduces vehicle miles traveled.

Based on current, steady funding levels, the RTO program and its partners plan to reduce even more vehicle miles annually.



Source: 2008-2013 RTP Strategic Plan, March 2008

*The dip in expected VMT in 2011 is related to the timing of individualized marketing projects

The TSMO Plan recommends the following **Transportation Demand Management Strategies**:

Project		**Timeframe**	**Cost**	
			Capital	**Annual O&M**
REGION WIDE PROJECTS	Continue collaborative marketing	Ongoing	$0	$975K
	Implement and support employer services	Ongoing	$0	$1M
	Implement and support rideshare services	Ongoing	$0	$360K
	Measure program effectiveness to facilitate decision making	Ongoing	$0	$150K
	Support strategic and collaborative TSMO program oversight.	Ongoing	$0	$335K
	Implement a pilot project that provides incentives for jurisdictions to manage parking	1-5 years	$0	$100K
	Develop and implement a smartcard fare system regional concept of transportation operations (RCTO) and pilot project	1-5 years	$12M	$0
	Develop and implement a regional youth transit pass program	1-5 years	$100K	$15M
	Develop a regional parking management strategy	1-5 years	$100K	$0
	Provide a regional incentive system for demand management	11+ years	$9M	$200K
CORRIDOR PROJECTS	Support outreach and individualized marketing for travel options	See corridor action plans.		
	Invest in TDM to mitigate impacts during construction of large transportation projects			
	Encourage rideshare and employee incentives			

Project		Timeframe	Cost	
			Capital	Annual O&M
CORRIDOR PROJECTS (cont.)	Support transportation management associations	See corridor action plans.		
	Provide funding for a bike sharing program			
	Support location-efficient living			
	Pursue entrepreneurial capacity purchases			
	Negotiate shared parking agreements for rideshare Park &Ride and manage parking			
	Support car-share operations			
	Build beginning- and end-of-trip bike facilities			
	Provide first and last-mile services connecting transit stops with significant destinations (shuttles or demand responsive transit) especially for hours not served by transit			

Successful implementation of the regional TSMO plan will require enhancing partnerships and increasing funding.

Successful implementation of the regional TSMO plan depends on continued commitment and cooperation by regional partners, both public and private. The regional partners recommended many non-capital actions that are needed to support implementation.

Recommended organizational and policy actions include:

- Establish a regional TSMO policy group from members of TransPort, the RTO Subcommittee of the Transportation Policy Alternatives Committee (TPAC), the Regional Freight Technical Advisory Committee (TAC) and other public and private stakeholders to address joint funding and project development.
- Leverage TSMO results through local policies, codes and Capital Improvement Project (CIP) investment decisions.
- Explore opportunities for public-private partnerships.
- Formalize roles and relationships between agencies in order to continue the effective communications that exist today with informal agreements.
- Explore the development of a corridor management association to guide on-going implementation of system and demand management strategies.
- Support best management practices for operations, staff training/workforce development.
- Reevaluate staffing needs at agencies in order to support expansion of on-going operations.
- Tie TSMO to regional climate action plan.
- Continue to pursue cooperative purchasing agreements and joint operating agreements to save resources.
- Publish regular reports documenting the implemented TSMO projects, performance outcomes and key agency functions that need to be maintained throughout the life of the TSMO plan.
- Pursue interagency agreements for region-wide 24-hour traffic operation center coverage.
- Account for operations and management in the formal planning process.

Recommended funding actions include:

- Work to increase use of federal funds for TSMO.
- Develop a TSMO funding strategy to support regional systems such as traveler information, carpool match, ITS network and PORTAL.
- Tie operations capital to on-going operations and maintenance funding.
- Work with finance managers in partner agencies to have outcome-focused budgeting.
- Request separate RTO/TSM program and capital infrastructure funds in Metropolitan Transportation Improvement Program (MTIP) process.
- Link availability of funding for on-going operations and maintenance as a review criteria for MTIP funding.

- Identify and develop new funding sources for TSMO capital and operations.
- Investigate regional and sub-regional opportunities for group purchasing agreements.
- Align regional TSMO priorities with regional policies to make the case for additional funding.
- Expand MTIP funds available for TSMO projects.
- Work with regional partners to gain commitment for funding ongoing operations.

The TSMO plan recommends programming regional funds to target travel options, traveler information and arterial traffic management.

Implementation of the TSMO plan is smoother when regional programs are dedicated to advancing TSMO actions. The Regional Mobility program focuses on TSM solutions and is supported by Metro and Regional Flexible Funds. The Regional Travel Options program implements TDM solutions and is supported by Metro, Regional Flexible Funds, Oregon Department of Energy Business Energy Tax Credit (BETC) and other project-specific grants.

The Regional Mobility program will receive $6 million over the next four years to fund TSM solutions. The Regional Flexible Fund program allocation for TSM investment is $3 million for 2010-2011 and an additional $3 million for 2012-2013. Since the 10-year regional TSMO plan is estimated at $725 million, careful deliberation was used to recommend the first set of projects. These projects were chosen based on equitable distribution, dependencies, readiness and agency input.

TransPort recommends the following projects from the action plan for the 2010-2013 funding with approximate allocations shown.

Project	Allocation
PORTAL enhancements and support	$450 K
ITS network – operate and maintain	$100 K
Active traffic management regional concept of transportation operations (RCTO)	$300 K
Arterial performance measure regional concept of transportation operations (RCTO)	$150 K
Arterial traveler information for TripCheck Traveler Information Portal (TTIP) enhancement – Phase 1	$500 K
Tualatin Sherwood Rd/99W – active corridor management with adaptive signal timing and transit priority treatments	$1.85 M
Canyon Rd – adaptive signal timing	$750 K
I-84/Powell/Glisan/Sandy - active corridor management projects	$1.9 M
TOTAL	**$6 M**

This list contains five regional and three corridor-specific projects. The corridor-specific projects, although defined by a geographic area, do provide a regional benefit as system users travel across the Portland region. The following project descriptions detail how the funding allocation should be used, and why each project is recommended for inclusion under the 2010-2013 funding allocation. Future funding will be allocated to projects using the selection criteria in Appendix G.

Regional Projects

The regional projects focus on programs and studies that are not geographically based. These projects benefit all modes of travel by improving traveler information, supporting necessary transportation operations and laying the groundwork for future projects.

- **PORTAL enhancements and support** – Supporting the PORTAL system provides new tools and an upgraded interface to archive transportation data. This data can be used to make decisions to improve the transportation system.
- **Operate and Maintain the ITS network** – This project funds replacement parts and new equipment to enable new agencies to access the ITS network.
- **Active Traffic Management Regional Concept of Transportation Operations (RCTO) –** The active traffic management RCTO evaluates the potential effectiveness of variable speeds and managed lanes. It analyzes the regional corridors and prioritizes investments in active traffic management.
- **Arterial Performance Measure RCTO –** The arterial performance measure RCTO identifies performance measures for the region's arterial roadways and develops standards for data collection and dissemination to travelers. The RCTO lays the groundwork for all future arterial system management projects and guides selection of data collection equipment and design.
- **Arterial traveler information for TTIP enhancement– Phase 1** – This project focuses on updating software and in-field systems on arterial roadways necessary to capture and transfer data to ODOT's TripCheck Travel Information Portal (TTIP) data exchange system. In many cases, existing field equipment is capable of gathering information such as traffic counts, travel times and speeds; however, software upgrades are necessary to actually collect and distribute the data.

Corridor projects

The corridor projects target highly congested areas across the Portland region. These corridor projects benefit travel by freight, bicycles, pedestrians and transit in addition to automobiles. By implementing a focused group of corridor projects, results can be collected to determine more accurate benefit-cost analysis and lead the way for similar projects in other corridors.

- **Tualatin Sherwood Rd and 99W improvements** – This project addresses facilities that currently operate below jurisdictional standards during mid-day and peak hours. It builds on two current projects and provides a complete traveler information and arterial management system on 99W and Tualatin Sherwood Road connecting Sherwood, Tualatin, and Tigard.
- **Canyon Road Adaptive Signal Timing** – The Canyon Road project provides adaptive signal timing on Canyon Road through downtown Beaverton. It builds on the current adaptive signal timing project on Beaverton Hillsdale Highway. Due to the close proximity of the two facilities and the several cross streets that intersect the two, optimal operations occur when both are equipped with adaptive signal timing systems.
- **Active Corridor Management Projects on I-84, Powell, Glisan, and Sandy** – This project extends traveler information and supports incident management techniques that reduce traveler delay and improve safety through the I-84 corridor. Real-time traveler information along I-84 and parallel facilities allows travelers to make informed route decisions. The project also implements incident management strategies such as variable speed limits and event signal timing plans.

The Regional Travel Options (RTO) Program will receive $9.7 million over the next four years to fund TDM solutions.

The Regional Flexible Fund program allocation for the RTO program investment is $4.3 million for 2010-2011 and $4.3 million for 2012-2013. The program anticipates receiving an additional $1 million in funds from other sources. Project priorities for 2010-2013 were developed through a strategic planning process that involved RTO partners and stakeholders. The Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council adopted the plan in March 2008.

Project	Allocation
Employer and commuter outreach program	$2.9M
Transportation Management Association program	$1.3M
Regional Travel Options grants to local jurisdictions and non-profits	$1.2M
Collaborative marketing program	$860K
Rideshare services	$1.1M
Individualized marketing grant program	$750K
Evaluation and measurement	$800K
Program coordination and policy development	$770K
TOTAL	**$9.7 M**

Regional Projects

Metro manages and administers the RTO program, measures results and provides assistance to partners. Public and private partners carry out local strategies through grant agreements. Collaboration among partners is emphasized to leverage resources, avoid duplication and maximize program impacts.

- **Employer services** – The purpose of this project is to implement and/or support outreach and technical support in a collaborative manner with RTO partners to help employers increase non-drive-alone travel modes. Employer services are provided by Metro, TriMet, the Oregon Department of Environmental Quality (DEQ), Wilsonville South Metro Area Regional Transit (SMART), the city of Portland, and area Transportation Management Associations.
- **Collaborative marketing** – This campaign continues the Drive Less/Save More regional marketing campaign, which increases awareness and use of travel options and reduces drive-alone trips; promotes active transportation by updating and distributing the regional Bike There! map, Walk There! guidebook and other collateral materials; provides sponsorships for RTO partner events and activities; conducts outreach to the public; and develops additional partnerships and support partner collaboration and coordination.
- **Rideshare services** – Services are intended to implement and/or support marketing, outreach, vanpool fare incentives, and other services directed at residents and employees to encourage ridesharing and to provide customer service for CarpoolMatchNW.org.
- **RTO grant program for regional projects** – The grant program provides federal Congestion Mitigation and Air Quality (CMAQ) funds to support travel options projects and programs that reduce transportation-related emissions in an effort to meet and maintain national air quality standards. Projects must show an air quality improvement and must include an evaluation component. The RTO Subcommittee of the Transportation Policy Advisory Committee (TPAC) selects projects through a competitive process and has selected projects to be carried out in 2009 to 2011. The group will accept applications for 2011 to 2013 projects in 2010.
    - **TriMet, Multi-Modal Trip Planner, $68,930** – The project will test the usability of an Open Source Multi-Modal Trip Planner System that is expected to increase mode share for bike, walk and transit trips during peak commute hours while decreasing drive-alone trips.
    - **Bicycle Transportation Alliance** (**BTA), Bike Commute Challenge, $25,000** – The program challenges employers/workplaces to see who can get the most people biking in September. Any business, non-profit or public agency is eligible to participate. Individual cyclists may also participate on their own.
    - **Westside Transportation Alliance** (**WTA), Carefree Commuter Challenge, $38,000** – The Carefree Commuter Challenge creates excitement, competition and camaraderie at the workplace to reduce auto trips. WTA staff presents a turn-key trip reduction program to

worksite transportation coordinators to help them motivate employees to use transit, bike, walk, carpool, vanpool and telecommuting instead of driving alone.

- **Measurement** – This project implements and/or supports strategies that invest in cost-effective strategies by measuring program effectiveness and easing data sharing among partners.
- **Program coordination and policy development** – The purpose of this project is to support strategic and collaborative program oversight; support meetings and activities of the RTO Subcommittee of TPAC, administer RTO grant programs; develop equitable and sustainable funding plans, seek additional funds to leverage federal grants; and track and support the development of regional, state and local policies that advance TDM strategies.

Corridor/local projects

Projects at the local and/or corridor level are carried out by local jurisdictions and agencies and by non-profit organizations. The RTO Subcommittee of TPAC selects grant projects and programs through a competitive application process, establishes performance measures and provides oversight for transportation management association funding. Metro administers the funds for local projects.

- **Transportation management associations** – RTO supports public-private partnerships including transportation management associations (TMAs) in regional or town centers that assist employees and/or residents to increase use of travel options. The RTO program provides grants to Clackamas Regional Center TMA, Gresham Regional Center TMA, Lloyd TMA (serves Lloyd District in NE Portland), Swan Island TMA (serves Swan Island Business District in N Portland), and Westside Transportation Alliance (WTA) (serves Washington County businesses).
- **Individualized marketing grants** – Implement and/or support intensive outreach to interested residents in targeted neighborhoods to encourage use of travel options through delivery of local travel options information and services. The RTO Subcommittee has selected the following individualized marketing projects to be carried out from 2009 to 2011:
    - City of Portland, North/Northwest SmartTrips, $200,000, 2009
    - City of Gresham, Civic Drive MAX Station, $100,000, 2010-2011
    - City of Portland, Green Line SmartTrips, $300,000, 2009-2010
    - Wilsonville SMART, Wilsonville Residential Areas, $228,480, 2010-2011
    - City of Portland, Street Car Loop SmartTrips, $171,520, 2011-2012
- **RTO grant program for local/corridor projects** – The grant program provides federal Congestion Mitigation and Air Quality (CMAQ) funds to support travel options projects and programs that reduce transportation-related emissions in an effort to meet and maintain national air quality standards. Projects must show an air quality improvement and must include an evaluation component. The RTO Subcommittee of TPAC selects projects through a competitive process and

has selected projects to be carried out in 2009 to 2011. The group will accept applications for 2011 to 2013 projects in 2010.

- **TriMet, Bike Parking at Beaverton Transit Center, $50,000** – Electronic-access bike lockers will be installed at Beaverton Transit Center and their effectiveness evaluated as a strategy for encouraging bicycling to transit. Evaluation will include the controlled-access bike parking facility at the Portland State University light rail station.
- **Lloyd TMA, Lloyd Links, $41,445** – The program links Lloyd District employees from the residence to their Lloyd work sites via personal contact and direct one-on-one assistance. This is coupled with education, promotion, incentives and evaluation.
- **City of Portland, Sunday Parkways, $30,000** – Three Sunday Parkways events will be held in 2009. Sunday Parkways provide a car-free environment where families, cyclists, walkers and others can enjoy streets and parks. Sunday Parkways reduce auto trips, improve air quality, increase the health and activity levels of residents and promote the awareness and acceptability of bicycling and walking as modes of travel in Portland.
- **City of Tigard, Bike Map, $20,000** – The Tigard-area bike map published in 1983 will be upgraded and enhanced. The bike-route map will include grades, key neighborhood trails and access ways, bus stops, transit and how to access transit, including commuter rail, and will make it easier for people to use their bicycles for all types of transit trips.
- **Westside Transportation Alliance (WTA) Bike Racks for Commuters, $15,000** – Stable bike racks will be made available to businesses that participate in the WTA's Westside Commuter Club. There will be assistance for fees associated with installing racks.
- **Wilsonville SMART, Bike/Pedestrian Coordinator, $80,000** – A Bike/Pedestrian Coordinator will be hired to implement the City of Wilsonville's Bicycle and Pedestrian and Transit Master Plan priorities. The coordinator will develop maps and brochures and engage the community in walking and biking programs.
- **City of Gresham, Wayfinding**, **$50,000** – The program will install a network of pedestrian and bicycle way-finding signs to aid travelers in finding local amenities and facilities. The signs will include arrows and distance markers. The City of Gresham will also produce a map for the Gresham area that will show bicycle routes and amenities.
- **Community Cycling Center, Diverse Cultures Cycling Needs Assessment and Pilot Project, $78,625** – The project aims to increase the awareness and acceptability of bicycling as a transportation option among minority and low-income participants in North and Northeast Portland by creating a culturally-specific program to meet the unique needs of a diverse community. The project includes a culturally-appropriate needs assessment and development of a pilot program to increase bicycle trips and reduce car trips among target audiences.

- **Swan Island TMA, TNT (Trip Not Taken)**, **$28,000** – The project seeks to reduce vehicle miles traveled by encouraging Swan Island employees to relocate to adjacent neighborhoods in North and inner Northeast Portland and by helping residents of those neighborhoods find job and career opportunities on Swan Island.

There is more to learn about the future of TSMO in the Portland metropolitan area.

The executive summary provides an overview of the regional plan for TSMO. The Regional TSMO Plan provides more detailed information about the planning process, policy framework and the 10-year list of projects and implementation strategies. Technical appendices include the background research and development memos supporting the recommendations.

Visit www.oregonmetro.gov/rtp to download the full plan and technical appendices.