



SPR Research Program Stage 2 Problem Statement FY 2010-11

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I. PROBLEM NUMBER

PEA-10-01 / PEA-10-03

II. PROBLEM TITLE

Relating TSMO Strategies to Policy Goals

III. RESEARCH PROBLEM STATEMENT

In an effort to maximize the use of limited funding, ODOT and other transportation agencies have turned to low cost strategies to address transportation problems. The majority of these strategies are grouped under, what is sometimes termed Transportation System Management and Operations (TSMO) strategies. TSMO strategies are characterized as follows: Transportation System Management (TSM), such as signal timing, transit signal priority, one-way streets, etc.; Transportation Demand Management (TDM), such as rideshare/vanpool, parking pricing, employer/employee incentives, etc.; and Intelligent Transportation Solutions (ITS), such as CCTV, weather stations, traffic detectors, etc.

The Oregon Transportation Plan (OTP) and Oregon Highway Plan (OHP) cite various TSMO strategies as effective ways to manage aspects of the transportation system. While TSMO strategies have been recognized as potential solutions, the value associated with the use of these strategies, in relation to differing policy goals, is not commonly understood by transportation professionals and as a result the use of TSM, TDM and ITS has been limited.

In some instances where TSMO strategies have been used, it has proved difficult to characterize the impact. For example, where motor vehicle mobility is a policy/performance goal, transportation plans and plan amendments must demonstrate the effect of the TSMO strategy on motor vehicle mobility (volume to capacity (v/c) ratio). Without a rational approach to quantify the impact, ODOT staff has found it difficult to determine if statements or assumptions made in the plans and plan amendments are reasonable or not. This is particularly an issue when reviewing local plans containing mixed-use, pedestrian friendly centers/neighborhoods where the focus is on access and mobility for people (not motor vehicles), and which can be eligible to receive credits for potential reduction in vehicle trips.

While data is available on the impact of certain strategies, these impacts have rarely been related to policy goals. The Victoria Transport Policy Institute has developed an online Transportation Demand Management (TDM) encyclopedia, which details the performance of certain TDM strategies and draws a relationship between some strategies and a limited number of specific objectives (<http://www.vtpi.org/tdm/>). However, research is needed to relate additional strategies to goals and to be able to simultaneously compare the trade-offs and impacts of each strategy to multiple policy objectives/goals, which may be unique to a particular transportation agency.

In seeking lower cost alternatives to meet policy goals (such as motor vehicle mobility, congestion, greenhouse gas emissions, etc.) there is need to better understand the impact of TSMO strategies in relation to specific ODOT policy goals/objectives and to be able to simultaneously compare the benefits and weaknesses.

IV. RESEARCH OBJECTIVES

The goal of the research is to identify the quantitative strengths and weaknesses of select TSMO strategies relative to specific policy goals (such as greenhouse gas reduction, increased motor vehicle mobility, reduction of annual vehicle miles traveled (VMT), more efficient mobility and access, etc.). The objectives of the study are as follows:

- Identify and agree on ODOT goals/objectives relevant to TSMO strategies
- Determine which TSMO strategies are measurable, predictable and potentially appropriate for ODOTs policy goals
- Quantify strategies
- Develop a comparison matrix that can be used by decision makers and reviewers to relate the trade-offs and benefits of each TSMO strategy in relation to ODOTs goals/objectives

V. WORK TASKS, COST ESTIMATE AND DURATION

ID	Task
1.	Revisit ODOT Policy Goals (relevant to TSMO): In the early 1990's ODOT developed a number of policy goals related to Transportation Demand Management (TDM) strategies (such as reducing the number of cars at peak hours, and annual VMT reduction) (<i>OTC 1992</i>). The 2006 Oregon Transportation Plan confirmed many of these Goals but did not set specific standards for meeting them. The 1991 Oregon Highway Plan includes specific motor vehicle mobility standards. A committee would be formed to review current policy goals and consider updates appropriate to TSMO strategies. Any updated goals would be informal and not policy (efforts to update the policy would not be part of this research project) (3-months).
2.	Select the TSMO Strategies to be Investigated: A list of TSMO strategies will be developed from the TDM/[TSMO] toolbox in the ODOT Transportation System Planning Guidelines document, the TSMO toolbox developed for METRO (2008), and in consultation with an ODOT Technical Advisory Committee (TAC). Each strategy will be preliminarily investigated for the location, availability, and format of data to determine which TSMO strategies are measurable and predictable for all, or most, ODOT goals (defined in Task 1). Possible data sources will be recorded. The TAC will select 5-10 strategies from each of the TSMO categories: TSM, TDM and ITS. These strategies shall be selected based on the likelihood that they can be evaluated for impact and value associated with one or more of the goals identified under Task 1. (5-months)
3.	Literature Review: Where information is available, research will be reviewed on selected TSMO strategies to discuss its relative impacts to each ODOT policy goal. Previous studies will be investigated to determine how data has been used to quantify TSMO strategies and determine if the same methods or results could be used or applied in Oregon. (4-months)
4.	Data Collection: Preliminary data sources identified in Task 2 will be further investigated for reliability. Multiple data sources will be explored to relate the selected strategies to each ODOT goal. The majority of data is expected to be pre-collected and will need to be compiled, though a limited amount of primary data collection may need to be completed. (3-months)
	Develop Methodology for Data Quantification: Where applicable, methodology will be used that has been developed in other studies (as identified in Task 3- Literature Review). In other cases, information gathered in the data collection process (Task 4) will be used to characterize the data and develop methodology. Guidelines for quantification will be developed. (2-months)
5.	Data Analysis: The data will be analyzed in an attempt to quantify the impact of the selected strategies to each ODOT goal. A matrix will be developed for comparison purposes. (2-months)
6.	Quantify TSMO Strategies: The results from the literature review and data analysis will be compiled and summarized in an attempt to quantify the impacts of TSMO strategies. The results will be summarized in a comparison matrix describing the impact of each TSMO strategy relative to each policy goal. It is desirable that, where possible, quantitative data be used to show standard reductions or increases. Limited evaluation will be completed to identify which TSMO strategies are complementary. (3-months)
7.	Final Report: Prepare the draft final report for review and comments. Address any comments or concerns and finalize the report. (2-months)
<i>Duration 20-months</i>	
<i>Total Cost: \$155,000</i>	

VI. IMPLEMENTATION

A matrix will be developed to show the impact of select TSMO strategies to each ODOT policy goal. Ideally the impacts of strategies will be displayed in a way that allows combinations of strategies to be examined for maximum performance or benefits. The matrix can be used by planners to determine the appropriate strategy given the outlined benefits and weaknesses. The research could provide a foundation for future efforts to develop decision-making matrices.

VII. POTENTIAL BENEFITS

This project could provide ODOT with the ability to:

- compare the impact of select TSMO strategies to specific goals in order to select the best and most efficient transportation solution;
- show the measurable expected benefits of a TSMO project when evaluating and prioritizing potential Statewide Transportation Improvement Program (STIP) projects;
- rationally and consistently assess transportation system plans and plan amendments, and streamline the review process; and
- give local jurisdictions full “credit” for implementing the TSMO strategies that the Oregon Transportation Commission as well as the Land Conservation and Development Commission favor.

VIII. SUBMITTED BY

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