

**Final Research Report**  
Agreement T2695, Task 70  
TDM Study

**WSDOT'S ROLE  
IN TRANSPORTATION DEMAND MANAGEMENT:  
STRATEGIC INTEREST, STRUCTURE, AND RESPONSIBILITIES**

by

Daniel Carlson  
Senior Lecturer

Zack Hill  
Graduate Research Assistant

Jill Simmons  
Research Analyst

Alex Atchison  
Graduate Research Assistant

**Evans School of Public Affairs**  
University of Washington, Box 353055  
Seattle, Washington 98195

**Washington State Transportation Center (TRAC)**  
University of Washington, Box 354802  
1107 NE 45th Street, Suite 535  
Seattle, Washington 98105-4631

Washington State Department of Transportation Technical Monitor  
Brian Lagerberg, CTR Program Coordinator  
Transportation Demand Management Office

Prepared for  
**Washington State Transportation Commission**  
Department of Transportation  
and in cooperation with  
**U.S. Department of Transportation**  
Federal Highway Administration

July 2005

## TECHNICAL REPORT STANDARD TITLE PAGE

1. REPORT NO. <b>WA-RD 616.1</b>	2. GOVERNMENT ACCESSION NO.	3. RECIPIENT'S CATALOG NO.	
4. TITLE AND SUBTITLE <b>WSDOT'S ROLE IN TDM: STRATEGIC INTEREST, STRUCTURE, AND RESPONSIBILITIES</b>		5. REPORT DATE <b>July 2005</b>	
		6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) <b>Daniel Carlson, Zack Hill, Jill Simmons, Alex Atchison</b>		8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS <b>Washington State Transportation Center (TRAC) University of Washington, Box 354802 University District Building; 1107 NE 45th Street, Suite 535 Seattle, Washington 98105-4631</b>		10. WORK UNIT NO.	
		11. CONTRACT OR GRANT NO. <b>Agreement T2695, Task 70</b>	
12. SPONSORING AGENCY NAME AND ADDRESS <b>Research Office Washington State Department of Transportation Transportation Building, MS 47372 Olympia, Washington 98504-7372 Tom Hanson, Project Manager, 360-705-7975</b>		13. TYPE OF REPORT AND PERIOD COVERED <b>Final Research Report</b>	
		14. SPONSORING AGENCY CODE	
15. SUPPLEMENTARY NOTES <b>This study was conducted in cooperation with the U.S. Department of Transportation, Federal Highway Administration.</b>			
16. ABSTRACT <p>The Washington State Department of Transportation (WSDOT) has posed several questions about its role in transportation demand management (TDM), including how it defines TDM, what its strategic interest in TDM is, how TDM relates to its transportation goals, what responsibilities it should assume, and how it ought to structure itself to implement TDM. WSDOT hired a research team at the University of Washington Evans School of Public Affairs to answer these questions, describing the current TDM environment, interviewing key stakeholders, and recommending approaches in each area.</p> <p>The research team found that TDM measures can enable the movement of more people and goods over existing and future state roads at far less capital, political, and environmental cost than construction of new highways. Among its recommendations are that WSDOT should do the following:</p> <ul style="list-style-type: none"><li>• Call out TDM as an explicit framework for managing and increasing the person throughput of the existing state transportation system.</li><li>• Take the lead in developing a TDM “brand,” which will serve as a universal identifier for TDM campaigns at the local, regional, and state levels.</li><li>• Set targets for the number of people—not vehicles—moving through key corridors during peak periods and targets for the number of people choosing to not drive alone in key corridors during peak periods.</li><li>• Develop TDM Priority Areas where state transportation investments are linked to local transit-efficient land uses.</li></ul>			
17. KEY WORDS <b>Transportation demand management, TDM, WSDOT and TDM</b>		18. DISTRIBUTION STATEMENT <b>No restrictions. This document is available to the public through the National Technical Information Service, Springfield, VA 22616</b>	
19. SECURITY CLASSIF. (of this report) <b>None</b>	20. SECURITY CLASSIF. (of this page) <b>None</b>	21. NO. OF PAGES	22. PRICE

## **DISCLAIMER**

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Washington State Transportation Commission, Washington State Department of Transportation, or Federal Highway Administration. This report does not constitute a standard, specification, or regulation.



# CONTENTS

<b>Executive Summary .....</b>	<b>ix</b>
<b>Section I: Introduction .....</b>	<b>1</b>
What Is TDM? .....	2
The Four Questions .....	3
What Is the Department’s Strategic Interest in TDM? .....	3
How Should WSDOT Employ TDM to Achieve Its Transportation Goals? .....	4
What, if Any, TDM Roles and Responsibilities Should WSDOT Have to Advance Those Goals? .....	6
How Should WSDOT Be Structured to Meet Its TDM Responsibilities and Achieve Its Goals? .....	8
<b>Section II: TDM in Washington—The Current Environment .....</b>	<b>15</b>
TDM Laws and Activities .....	15
Commuter Trip Reduction (CTR) .....	15
Commuter Trip Reduction Performance Grants .....	15
State Tax Credits and Exemptions .....	15
Passenger-Only Ferries .....	16
Regional Ridematching System .....	16
Vanpool Programs .....	16
Employer Flextime .....	16
Park-and-Ride Lots .....	16
U-Pass .....	16
FlexPass .....	17
Guaranteed Ride Home .....	17
Transit-Oriented Development (TOD) .....	17
I-405 TDM Working Group .....	17
PSRC Traffic Choices Pricing Study .....	17
TDM within WSDOT .....	19
<b>Section III: TDM in Other States .....</b>	<b>20</b>
New Jersey .....	20
Oregon—Portland Metro .....	20
Other States .....	21
<b>Section IV: Key Findings from Stakeholder Interviews .....</b>	<b>22</b>
Defining TDM .....	22
WSDOT’s Strategic Interest in TDM .....	23
Programs That Work Now and Could in the Future .....	23

Organizations That Should Be Involved in TDM .....	24
WSDOT’s TDM Role .....	24
<b>Appendix A—Interviewed Individuals and Organizations.....</b>	<b>A-1</b>
<b>Appendix B—TDM Interview Guide .....</b>	<b>B-1</b>
<b>Appendix C—TDM Liaison Interviews .....</b>	<b>C-1</b>
<b>Appendix D—Definitions of TDM—From Leaders in the Field .....</b>	<b>D-1</b>

## FIGURES

<u>Figure</u>		<u>Page</u>
1	TDM in WSDOT Organization Table, April 2005.....	11
2	An Inter-Divisional TDM Team in WSDOT—Option A .....	12
3	An Inter-Divisional TDM Team in WSDOT—Option B .....	13

## TABLES

<u>Table</u>		<u>Page</u>
1	An Overview of Organizational Roles for TDM Activities in Washington State .....	18





## **EXECUTIVE SUMMARY**

This report is intended as a starting point for internal discussions about policies and approaches, roles and responsibilities, and goals and objectives the Washington State Department of Transportation (WSDOT) could adopt to implement transportation demand management (TDM). It addresses four questions WSDOT has posed about TDM:

### **1. What is the Department's strategic interest in TDM?**

TDM measures can enable the movement of more people and goods over existing and future state roads at far less capital, political, and environmental cost than construction of new highways. TDM can increase the capacity of the highway system by moving more people into HOV (car/vanpools and bus), moving trips to less congested times, eliminating vehicle trips altogether, and moving trips to modes that do not use highway space at all (such as walking, biking, and rail).

### **2. How should WSDOT employ TDM to achieve its transportation goals?**

To achieve its transportation goals, WSDOT should do the following:

- Call out TDM as an explicit framework for managing and increasing the person throughput of the existing state transportation system. It should also link the variety of TDM actions and strategies to its internal performance measures and to the state benchmark measures.
- Expand on the I-405 Corridor project experience, which linked TDM actions with major highway and transportation investments, and apply it to other capital investments.
- Take the lead in developing a TDM “brand,” which will serve as a universal identifier for TDM campaigns at the local, regional, and state levels.
- Set targets for the number of people—not vehicles—moving through key corridors during peak periods and targets for the number of people choosing to not drive alone in key corridors during peak periods.
- Develop TDM Priority Areas where state transportation investments are linked to local smart growth and transit-efficient land uses, thereby reducing the demand for roadway space.

### **3. What, if any, roles and responsibilities should WSDOT have to advance those goals?**

WSDOT should be the statewide leader in branding TDM, administering the CTR-related programs, and integrating TDM in major highway projects. Additionally, WSDOT should be an advocate for, and implementer of, road pricing and should be a promoter and funder of TDM programs that have a high likelihood of success.

### **4. How should WSDOT be structured to meet its TDM responsibilities and achieve its goals?**

To achieve its TDM goals, WSDOT should do the following:

- focus on metropolitan regions
- form inter-divisional TDM teams
- develop clear TDM policies
- coordinate transit and highway (and ferry) service
- advocate for new forms of regional governance
- formalize a transportation/land use connection with the Department of Community Trade and Economic Development (CTED).

## **TDM in Washington—The Current Environment**

There are numerous TDM programs in the state of Washington, most of which are currently operational in the central Puget Sound region. These programs involve funding, oversight, and implementation from a variety of different sources, including federal, state, local/regional, transportation management association (TMA), and private interests.

Current TDM programs and activities include Washington's Commute Trip Reduction (CTR) law and the CTR Performance Grant Program, state tax credits for businesses that provide incentives for reducing single occupancy vehicle (SOV) travel, ridesharing, vanpools, employer flextime, park-and-ride lots, FlexPass, and transit-oriented development (TOD).

## **TDM In Other States**

Our research of state departments of transportation nationwide determined that very few states are directly funding or administering TDM programs at the state DOT level.

One state that is providing TDM planning, funding, and implementation is New Jersey. New Jersey created its "Commute Alternatives" program to provide non-SOV options for commuters. Commute Alternatives has a number of components, including rideshare matching, vanpooling, a park-and-ride program, and "Smart Moves for Business."

## **Key Findings from Stakeholder Interviews**

Key findings from interviews with TDM and transportation stakeholders include the following:

- Defining TDM – Most interviewees favored a broad definition of TDM.
- WSDOT's strategic interest in TDM – TDM can increase the road system's person-throughput capacity relatively quickly, at low cost, with high political acceptability and low environmental impact.
- Programs that work now and could in the future – vanpools, U-Pass, electronic fare cards, and roadway pricing all play roles in TDM.
- Organizations that should be involved in TDM – TDM should be implemented by multiple players at different jurisdictional levels.

- WSDOT's TDM role – The general consensus was that WSDOT should be primarily a policy maker, funder, and coordinator—not a provider—of TDM services.



## SECTION I: INTRODUCTION

This report addresses four questions the Washington State Department of Transportation (WSDOT) has posed about transportation demand management (TDM):

- What is the Department's strategic interest in TDM?
- How should WSDOT employ TDM to achieve its transportation goals?
- What, if any, roles and responsibilities should WSDOT have to advance those goals?
- How should WSDOT be structured to meet its TDM responsibilities and achieve its goals?

WSDOT is a large state agency responsible for constructing and maintaining a highway and ferry system serving a growing population and economy. Significant traffic congestion affects major metropolitan areas and several interstate highway corridors during peak and non-peak periods. Relieving this congestion by building new roads alone is impossible because there are fewer federal funds for highway construction, little land in metropolitan areas for expansion, and an understanding that in growing metropolitan regions the principle of triple-convergence applies, and residents will quickly use up new lane capacity.<sup>1</sup>

TDM represents a range of strategies and tools that can reduce congestion and increase the efficiency of the existing highway system through changes in individuals' choice of mode, time and frequency of trips, and the provision of alternatives to the single occupant vehicle (SOV). In many ways Washington State and WSDOT are nationally recognized leaders in the TDM field, having achieved the following:

- implemented the 1991 Commute Trip Reduction (CTR) Act, which requires employers of over 100 employees to develop alternatives such as vanpools to driving alone during commute hours
- constructed one of the nation's largest high occupancy vehicle lane systems
- extensively supported vanpool purchases and programs around the state and in the ferry system.
- incorporated TDM into the I-405 Corridor Plan and set aside funding for it.

As the transportation system and the demands on it change rapidly and congestion persists, WSDOT must regularly review its policies and approaches related to congestion. Taxpayers and political leaders have both cut revenue sources for transportation over the past

---

<sup>1</sup> Anthony Downs' principle of triple convergence says that in rapidly growing metropolitan areas, like Seattle, new highway vehicle carrying capacity will be quickly filled as those who had deferred auto trips now make them, those who had selected alternative routes abandon them, and those who had sought alternative times of travel revert to peak hours. The net effect is that new roadway space again reaches the congestion

ten years (eliminating the motor vehicle excise tax in 1999) and increased funding (\$4 billion for the Regional Transit Authority in 1996). Since the passage of ISTEA, the landmark federal transportation legislation that marked the end of the Interstate highway era, and a new emphasis on multi-modal funding, the Washington Transportation Commission and WSDOT leadership have developed (and dropped) a variety of policies, goals, and programmatic efforts that fit under the TDM banner. At the moment, according to the Department itself, it “does not currently have a strategic plan or clear objectives to guide its TDM activities.”

This report is intended as a starting point for internal discussions about policies and approaches, roles and responsibilities, and goals and objectives WSDOT could adopt to move forward a TDM agenda. Such an agenda could be part of an effort to build, manage, maintain, and operate a complex, integrated transportation system for the state’s residents and businesses.

It is difficult to imagine a ‘right’ answer to any of the four broad and challenging questions. Rather, our intent is to recommend a variety of ways WSDOT could focus and organize its TDM efforts. Our approach to addressing the questions was this: we first looked for a definition of TDM, then to other states and organizations for best practices, and then to personal interviews with twenty five knowledgeable individuals in the transportation/TDM field representing many stakeholders’ points of view. We asked these experienced hands—inside and outside of WSDOT-- how they defined TDM, what WSDOT’s strategic interest is in TDM, what roles and responsibilities the department ought to assume and which would be better filled by other organizations or private individuals. We compiled this information and translated it into a series of recommendations for WSDOT to contemplate, discuss, modify, accept or reject.

## **What Is TDM?**

In its most recent examination, the Federal Highway Administration (FHWA) described transportation demand management this way:

To some, the realm of demand management applications is limited primarily to encouraging alternatives to single occupant vehicle travel for the commute to work. In practice, however, this narrow view is no longer consistent with the broad applications of demand-side strategies currently underway across the country. Today’s applications are not only limited to facilitating shifts in travel mode—they also address shifts in travel routes and travel departure-times (for all travelers, including single-occupant vehicle drivers). Today’s applications also extend beyond a focus on commute trips. At national parks, sports stadiums, university campuses, and other diverse destinations, transportation and facility managers are implementing demand-side strategies as part of coordinated efforts to reduce congestion. On bridges, and along corridors undergoing roadway reconstruction programs, demand-side strategies are helping travelers avoid congestion by utilizing alternative travel routes, travel times and/or travel modes—or by reducing the need for some trips altogether by facilitating work from home options a few days a month....A full understanding of demand-side strategies must recognize the reasonable limits of these applications. Demand-side strategies should not be

---

point in a few months or years. (Anthony Downs, *Stuck in Traffic*, Brookings Institution Press, Washington DC, 1992 p.27.)

considered total solutions to regional traffic congestion problems. Rather they should more often be implemented as part of an integrated set of solutions that balance supply-side infrastructure investments and demand-side strategies.<sup>2</sup>

There is no single definition of TDM nationally, and WSDOT does not have a definition in adopted policy or administrative directive.<sup>3</sup> We have compiled a list of TDM definitions in Appendix E. From these, we have distilled this working definition with our WSDOT advisors:

TDM is a broad range of strategies that reduce or shift use of the roadway, thereby increasing the efficiency and life of the overall transportation system. TDM programs influence travel behavior by using strategies that accommodate more person-trips in fewer vehicles, shift the location or time of day at which trips are made, or reduce the need for vehicle trips.

The 'broad range of strategies' addresses mode choice, departure time, route choice, trip reduction, and location/design choices.<sup>4</sup> This means that SOV alternatives must be comprehensively provided in the form of HOV lanes, vans, express bus routes, and other modal choices in order for TDM strategies to work. This expanded definition softens the demand-side versus supply-side dichotomy expressed in some of the literature and interviews. TDM itself is a mixture of incentives and provision of alternatives in many forms—cash incentives, high capacity transit, and transit supportive land uses—that enable behavior change.

## **The Four Questions**

### *What Is the Department's Strategic Interest in TDM?*

TDM measures can enable the movement of more people and goods over existing and future state roads at far less capital, political, and environmental cost than construction of new highways. This is of particular significance in populous and growing metropolitan areas where traffic congestion prevails at peak periods and demand for roadway space is persistent and growing. TDM can increase the capacity of the highway system by moving more people into HOV (car/vanpools and bus), moving trips to less congested times, eliminating vehicle trips altogether, and moving trips to modes that do not use highway space at all (walking, biking, rail). TDM is not

---

<sup>2</sup> 'Mitigating Traffic Congestion—The Role of Demand-Side Strategies, FHWA, October 2004, Publication FHWA-HOP-05-001, Introduction p 2, [www.ops.fhwa.dot.gov/publications/mitig\\_traf\\_cong/introduction.htm](http://www.ops.fhwa.dot.gov/publications/mitig_traf_cong/introduction.htm).

<sup>3</sup> TDM is an outgrowth of earlier efforts—collectively referred to as transportation systems management (TSM)—to maximize the efficiency of existing roadways through measures such as entry ramp metering and improved incident response to even out and keep the flow of traffic moving. TDM is also related to the concept of least-cost planning, by which the objective of moving X amount of people and goods is measured against the costs of various ways of accomplishing that. It is often more cost effective to remove a drive-alone trip from the system than to accommodate it with more road space. A 1993 FHWA report entitled "Implementing Effective TDM Measures" estimated that the average cost to society to accommodate a one-way daily solo commute trip was \$6.75, whereas the cost to employers to reduce a commute trip was \$1.33. Carpooling costs commuters \$1.92 per trip, whereas driving alone costs \$4.81 (from Mitigating Traffic Congestion, Conclusions pg 1)

a cure-all; it will result in marginal changes, although congestion reduction is all about changes at the margin when the addition or subtraction of just a few vehicles can free or stymie traffic flow. TDM is not for everyone or every geographic area; it applies primarily to congested metropolitan areas and corridors. In Washington State this translates into a focus on the central Puget Sound, where 57 percent of the state's population, and most of its employment, are located.

Several major factors in three broad categories—funding, land use, and pricing—contribute to regional traffic congestion:

- State and federal funding for new highway construction has dramatically decreased over the past twenty-five years.
- Population and employment have dramatically increased in the Puget Sound region during the same time period.
- Employment centers and residential locations have spread out, and most households have two wage earners going to different locations in SOVs at peak travel times.
- Residents own more cars and travel more miles in them than ever before.
- The pricing signals for car ownership and use encourage more, rather than less, use (once the car and insurance payments are made, every additional mile driven costs less).
- Ninety percent of employee parking is free.

In an era when budget accountability is of key importance to WSDOT, TDM, applied in appropriate places, offers the lowest cost mechanism available to WSDOT to increase mobility (increasing person use and freeing up scarce roadway space for freight movement) in the state's major urban areas. Successful TDM results in increased person throughput on the existing roadway infrastructure, while at the same time limiting the environmental impacts of providing transportation for the state's growing population.

### *How Should WSDOT Employ TDM to Achieve Its Transportation Goals?*

TDM provides a comprehensive framework for integrating structural and non-structural investments in the transportation system, and it ought to be articulated in the WSDOT business plan. WSDOT's business plan begins, "Our mission is to keep people and business moving by operating and improving the state's transportation systems vital to our taxpayers and communities." It follows with goal statements that define its key lines of business:

- plan and build capital investment projects
- maintain and operate the transportation facilities and systems
- optimize the operational efficiency and safety of the transportation systems and facilities.<sup>5</sup>

---

<sup>4</sup> See Mitigating Traffic Congestion, The Three Core Elements of Demand-Side Strategies, The Demand Side Framework Chapter, pg 4.

<sup>5</sup> Extracted from 2003-2007 Business Directions p 1-4, Washington State Department of Transportation, May 2004 Update.



TDM actions are largely absent from the list of activities itemized in the business plan. Of the eight major activity categories associated with “optimizing operational efficiency and safety of the transportation systems,” only one—the SR 167 HOT Lane pilot—identifies a TDM strategy. Of the eleven activities associated with “capital investment projects,” one—completing Regional Express projects—is related to a TDM strategy. In neither case is TDM mentioned as an approach to managing the highway system, increasing the movement of people or goods, or associated with several of the *measures* that WSDOT uses to monitor the state of transportation.

WSDOT Should Do the Following:

- **Call out TDM as an explicit framework for managing and increasing the person throughput of the existing state transportation system. It should also link the variety of TDM actions and strategies to its internal performance measures and to the state benchmark measures.** For example, “travel times on 12 Puget Sound region corridors, drive alone commute rates” and “number of operating vanpools in the Puget Sound region” are performance measures collected by the Department and compiled in the quarterly performance report *Measures, Markers, and Mileposts*, known as The Gray Notebook. Each measure relates to congestion, travel behavior, and alternatives to driving alone during peak hours. But none is linked to the business plan’s key activities or a comprehensive approach to moving more people on congested roadways and/or providing alternatives such as carpools or transit service.
- **Expand on the I-405 Corridor project experience, which linked TDM actions with major highway and transportation investments, and apply it to other capital investments.** The I-405 project defined a broad regional corridor, set aside 1 percent of project funds for TDM construction mitigation, and addressed individual travel choices, land uses, and provision of transportation alternatives during construction. It involved local jurisdictions, non-profit, and private agencies in providing and utilizing transportation alternatives and services. WSDOT could go beyond this prototype; it could make state highway investments contingent on the provision of TDM mechanisms, including parking management districts, carpooling incentives, transit efficient land uses, and transit service by local and regional entities. The TDM framework is not about either supply or demand side actions, but their integration to increase transportation capacity and effectiveness.
- **Take the lead developing a TDM “brand” that will serve as a universal identifier for TDM campaigns at the local, corridor, regional, and state level.** TDM is about conservation of scarce lane space, about personal, individual mobility choices, and about providing a variety of ways for people to get around. However, it is not a user-friendly term that has meaning outside a small circle of transportation professionals. Several people/interviewees suggested that a statewide “brand” for TDM actions is needed with

an easily identified theme similar to the universal understanding of “Recycling.” This identifier of personal transportation choices would be used by public agencies and private employers at the most local level or at a metropolitan region level.

- **Set targets for the number of people—not vehicles—moving through key corridors during peak periods and targets for the number of people choosing to not drive alone in key corridors during peak periods.** Such performance targets create incentives for the use of TDM strategies and actions and focus on corridors of significance to the state and region. Even if congestion is not appreciably better, experienced political and transportation leaders advise that voters and taxpayers understand that drivers taken off the road is a meaningful result.

**Develop TDM Priority Areas.** When the state makes substantial investments in major corridor developments, it should want to maximize the utility and duration of the new highways and bridges. This means that local jurisdictions should be zoning land uses and developing local roads, rails and transit service in alignment with comprehensive TDM strategies. Under current institutional formulations there are neither incentives nor requirements for local jurisdictions to coordinate or provide these efforts. WSDOT should borrow Maryland’s Priority Funding Area (PFA) model, which is part of its Smart Growth legislation. The state will invest in infrastructure projects in these areas only when localities follow smart growth principles of protecting open and critical areas, and concentrating development near transit services. Similarly, WSDOT would invest its billions of dollars in the SR 520 or I-5 Columbia River bridge and Alaskan Way viaduct replacements only *if* the affected localities provide high capacity transit and transit efficient land uses supportive of the investment. (See discussion below of CTED and GMA).

*What, if Any, TDM Roles and Responsibilities Should WSDOT Have to Advance Those Goals?*

Role

WSDOT should be the statewide leader in branding TDM, administering CTR and performance grant programs, and integrating TDM in major highway projects. WSDOT is already recognized nationally for its Commute Trip Reduction law and implementation efforts and for its I-405 Project commitments to TDM.

Responsibilities

The following responsibilities are assumed to grow and strengthen WSDOT’s leadership role:

- Articulate and adopt a TDM policy and infuse it into each line of business in the business plan.

- Develop, fund, and sustain a statewide TDM branding and marketing campaign to unify TDM efforts of local employers, transportation management associations (TMAs), transit operators, and public, non-profit, and private entities.
- Fund other organizations to implement most TDM efforts, setting performance targets and providing incentives for reaching them.
- Own more state benchmarks and tailor them to corridors of significance. For example, the existing statewide benchmark of vehicle miles per capita could be made more meaningful if it were targeted to metropolitan region corridors and if the Department set as its target no increase in VMT in the corridor, but an increase in number of people moving in the corridor.

### Role

WSDOT should be an advocate for, and implementer of, road pricing. Variable road pricing (value pricing) can probably manage highway congestion more effectively than any single measure.<sup>6</sup> Variable pricing is common in most other sectors of our society, from entertainment to travel to utilities. Telling the SOV driver the cost of using the roadway at a given point in time enables the driver to make a personal choice to pay a fee that guarantees speedier travel times. The pricing technology exists, successful models nationally and internationally exist, and the political acceptability of pricing as a congestion management and revenue generating tool in Washington State is increasing.<sup>7</sup>

WSDOT can take a leadership role in developing pricing scenarios over a long-term future to inform policy makers and taxpayers how revenue will be allocated to a range of transportation choices.

### Responsibilities

- Focus on the central Puget Sound region to demonstrate road pricing, beginning with the SR 167 HOT Lanes
- Develop a 20-year regional pricing plan with the Puget Sound Regional Council (PSRC) that sequences pricing and tolls during the time period and distributes revenue in a variety of formulations to TDM and capital strategies.

---

<sup>6</sup> Transportation equity—the effect that pricing has on users of different income levels—is a genuine concern. Lower income residents may already have to travel longer distances to their jobs, and pricing would have far greater impacts on their lives than on high income drivers. Provision of viable alternatives to SOV road pricing, adjustments of disproportionate burdens for low income users, and investment of fees in TDM alternatives are critical elements of a road pricing scheme.

<sup>7</sup> In 1997 the PSRC and the Evans School of Public Affairs organized the Transportation Pricing Working Group, a dozen leaders from newspaper executives, and elected officials, to environmentalists—to discuss the political acceptability of pricing. Their recommendation was to start with HOT Lanes as it had the greatest political acceptability. The SR 167 HOT Lanes project is just about ready to get started. Now opened pieces are calling for road pricing and tolling in the state, and some are from unlikely sources such as the president of the Association of Washington Business (“The Time has Come for Tolls in State,” Tacoma Weekly, April 7, 2005)

- Educate policy makers and stakeholders about roadway, transit, and environmental improvements that they will get from regionally based pricing (these steps were key to success in places such as Trondheim (Norway) and London).
- Support related pricing strategies that enable individuals to make personal choices to use the roads less, such as mileage based car insurance.

#### Role

WSDOT should be a promoter and funder of TDM programs that have a high likelihood of success. For example, University-transit provider “unlimited access” programs have been resounding successes at the University of Washington (U-Pass) and major urban campuses around the country. The formula for success revolves around charging for SOV parking, subsidizing pre-paid transit fares, and constraining campus expansion until mode-split targets are met. This model can be applied to other large institutional and employment centers in urban environments, although resistance to them can be high.

#### Responsibilities

- Target likely state institutions, including state government centers and community colleges for unlimited access programs.
- Help fund new or existing high capacity transit routes that serve congested highway corridors in urban areas and TDM alternatives for recreational and entertainment destinations such as national parks and ocean beaches across the state.
- Link investments of funds in new or upgraded highways in the metropolitan area to local and regional provision of TDM measures, such as parking management associations, transit service, location-efficient mortgages, transit-oriented development (TOD) zoning, and other actions in keeping with the intent of the GMA

#### *How Should WSDOT Be Structured to Meet Its TDM Responsibilities and Achieve Its Goals?*

##### Develop Clear TDM Policies

The Gray Book masthead declares, “What gets measured gets managed.” Along those same lines, a clear policy focuses organizational and staff resources. A clear TDM policy from the Transportation Commission with administrative directives from the Secretary and the cabinet would marshal staff energy and resources in productive ways. The absence of any explicit TDM policy makes it impossible for WSDOT managers to manage to a common target. An example of a policy mentioned by several interviewees is establishment of a TDM set-aside for each major capital project, borrowing from the I-405 experience in which 1 percent of the construction budget was devoted to TDM. There is no particular basis for selecting 1 percent; one interviewee suggested ½ percent, or it could be greater than 1 percent. Getting the right mix might vary from

project to project and would greatly benefit from a simulation tool such as TEEM, which projects the impacts of various TDM activities over time in a given corridor.<sup>8</sup>

#### Focus on Metropolitan Regions

As traffic congestion is primarily a problem in urban and suburban central Puget Sound and the I-5 corridor, WSDOT's responses should be focused in that region. This is already the case, as most of the planning and construction for large highway projects – SR 520, I-405, Alaskan Way Viaduct, and the Tacoma Narrows bridge – are based there, and the Urban Corridors and Urban Planning Offices and the Northwest Regional Office are located in Seattle. The proposed TDM inter-divisional team structure described below would enable this emphasis and could address planning and implementation in Vancouver, Spokane, and other metropolitan regions as necessary.

#### Form Inter-divisional TDM Teams

TDM planning functions for highway and construction projects in the central Puget Sound region are located primarily in the Urban Planning Office (UPO), which houses the TDM resource center, and plans and funds corridor and construction mitigation TDM activity. The UPO is housed in the Strategic Planning and Programming Division. Corridor projects are planned, designed, and constructed through the Urban Corridors Office (UCO), which reports to the Head Engineer and Director of Regional Operations. Commute Trip Reduction and vanpool funding is located in the Public Transportation and Rail Division, based in Olympia (Figure 1 depicts WSDOT's current organizational structure). Separate physical locations and different departmental locations could stand in the way of maximizing organizational intent and talent and the ability to integrate TDM strategies into WSDOT's major transportation initiatives, But the answer is not necessarily to consolidate all staff in Seattle. There are reasons to administer the CTR program and TDM policy department-wide and statewide; proximity to headquarters and the locus of policy is beneficial to TDM.

However, effective management emphasizes teamwork and learning from the expertise of each member of the team. Figures 2 and 3 depict TDM team members in shaded areas and two possible ways to align TDM/CTR functions with the newly mandated Office of Transit Mobility.

Toyota and Boeing moved their engineers and top managers to the factory so that they can problem solve with the fabricators on the assembly line floor. If TDM strategies are to become an integrated part of the way WSDOT designs and builds its highways and transportation systems, then the same model should be employed to integrate TDM functions into operations, and not segregate them as a planning function or an afterthought. The I-405 Project

---

<sup>8</sup> The TDM resource center developed TEEM during the Translake Study and claimed it had great value for estimating the impacts of various TDM activities such as pricing, land use, and alternative mode options. However, TDM and modeling experts interviewed in the course of this study were not familiar with TEEM,

demonstrated some of this integration, as the first and second project managers came out of the UPO (and its predecessor); one headed the UPO and the other is assistant director of the UCO. Building engineering-based and planning-based teams around specific projects for periods of months or years may be a way to integrate TDM and highway building and break down old cultural barriers.

Figures 1, 2, and 3 follow. Figure 1, *TDM in WSDOT Organization April 2005*, identifies the locations of TDM functions in a simplified WSDOT organizational chart. Direct lines of responsibility are indicated with solid lines, and indirect relationships are indicated by dotted lines.

Figure 2, *An Inter-Divisional TDM Team in WSDOT – Option A*, introduces the new Office of Transit Mobility within the Public Transportation and Rail Division and places the CTR/TDM office directly under it. The advantage of maintaining the CTR/TDM presence at headquarters would be that the CTR law and program apply statewide and have application in both urban and rural areas. As vanpool efforts are often operated by transit agencies, these efforts would be best realized through the new coordination responsibilities of the Office of Transit Mobility. Figure 2 also identifies the core members of the inter-divisional TDM team, its very strength coming from the fact that it would bridge disciplines and cultures within the agency and integrate planning and operations functions. The TDM team would likely report directly to the Secretary or Chief of Staff.

Figure 3, *An Inter-Divisional TDM Team in WSDOT – Option B*, moves the CTR/TDM functions from the Public Transportation and Rail Division to the Strategic Planning and Programming Division in the Urban Planning Office. The advantage of consolidating CTR/TDM/HOV and Transit would be twofold. First CTR/TDM is not a mode, like buses or rail, but a framework and set of strategies within which different modes are employed to increase person-throughput. Second, most TDM activity is in the metropolitan region, and the UPO would centralize these activities where most of the action takes place.

#### Coordinate Transit and Highway Service

Highway investments and consumer choices are maximized when locally or regionally operated transit service is properly aligned at appropriate frequency. The new Office of Transit Mobility within WSDOT will have responsibility for developing corridor-wide and region-wide guidelines for transit service as part of the state transportation system. In this way, service could be rationalized to reduce congestion in key highway corridors. This new office and function would provide the basis for establishing and measuring performance targets and would enable WSDOT to fund transit operators to meet state TDM targets and benchmarks.

---

how it worked, or its validity. The TEEM model should be more widely disseminated and accepted to be a trusted tool in determining which TDM measures to include and fund in major corridor projects.

### Advocate for New Forms of Regional Governance

Transportation funding, service, and pricing decisions are regional decisions. WSDOT does not have the right partners to join with in making the substantial changes that need to be made in the regional transportation system. There is broad agreement that new forms of regional governance (similar in scope to Portland Metro) are needed, but it is extremely difficult to make such changes from the bottom up. WSDOT needs to push for better partners to work with in order to have a successful TDM future.

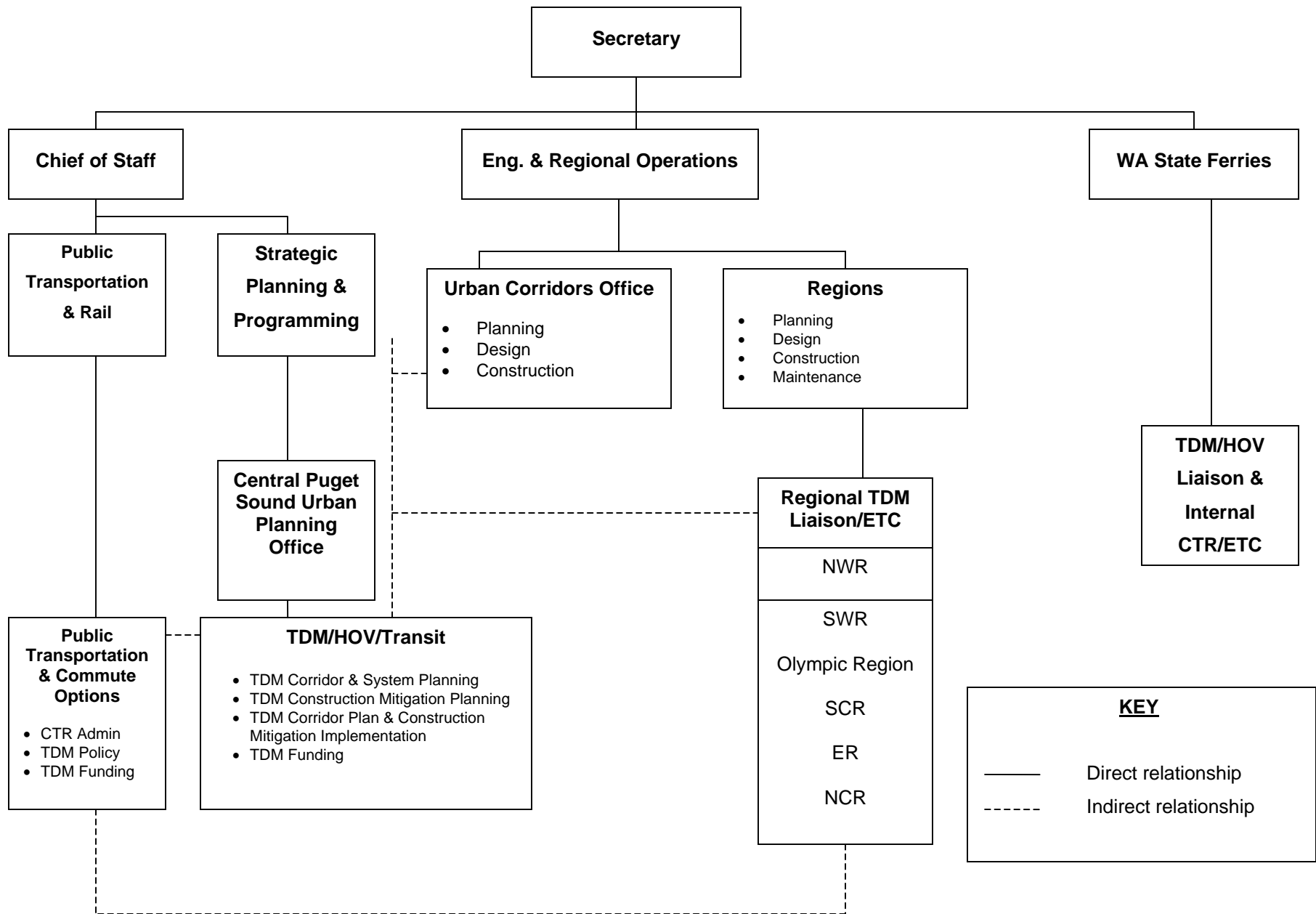
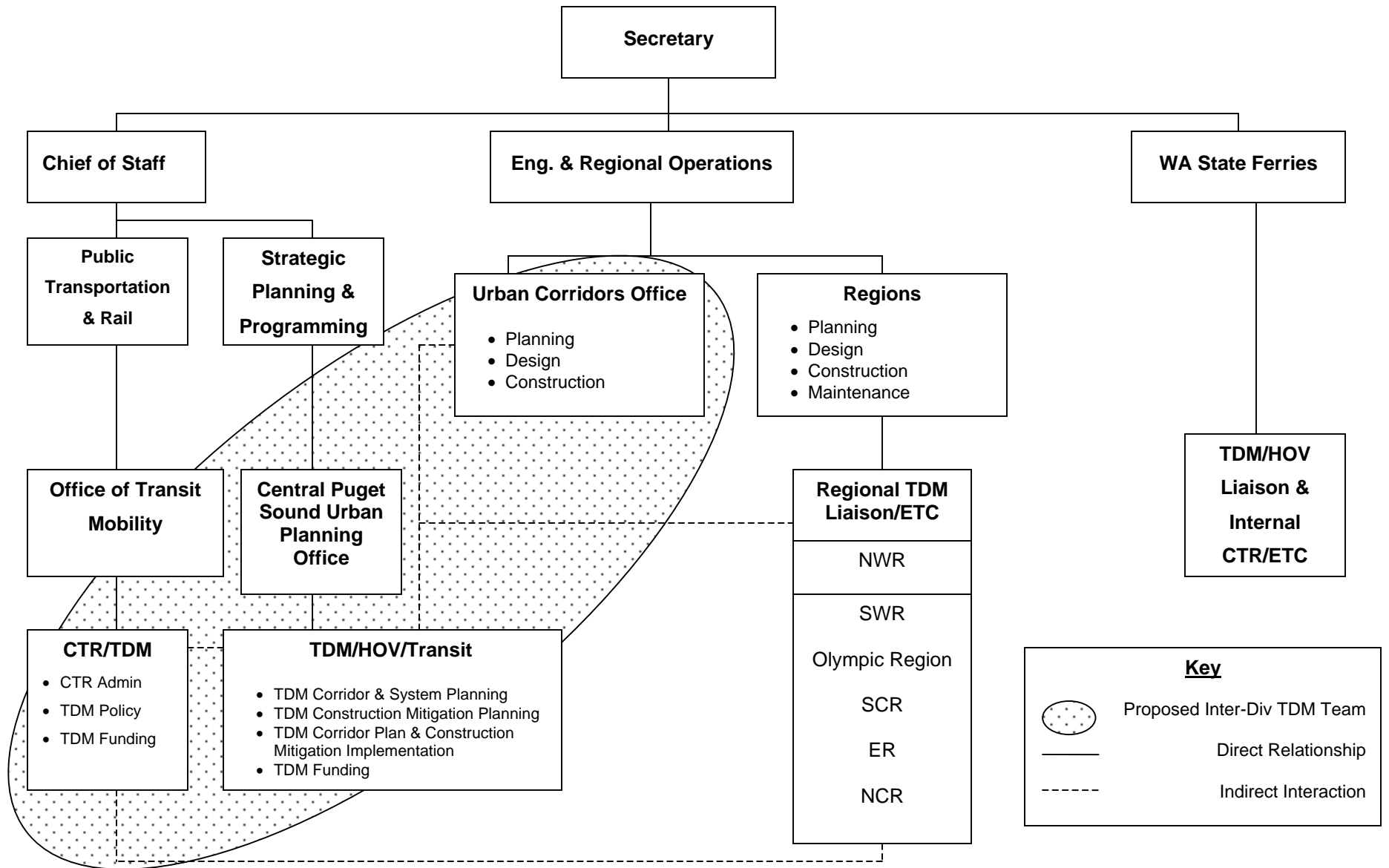


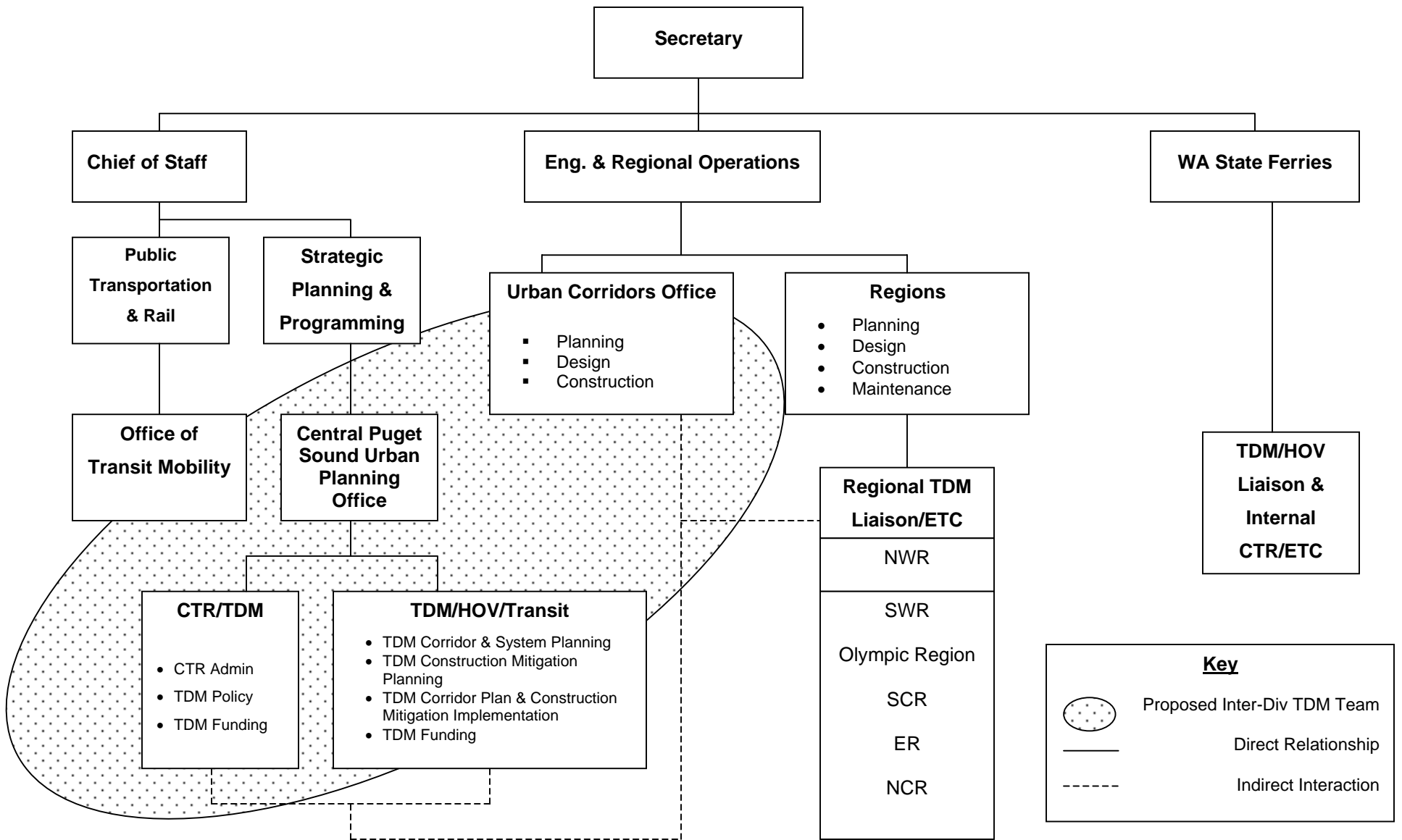
Figure 1: Locations of the TDM Function in the WSDOT Organization Table, April 2005





**Figure 2: An Inter-Divisional TDM Team in WSDOT – Option A**

The new Office of Transit Mobility is within the Public Transportation and Rail Division, and the CTR/TDM office is directly under it. The advantage of maintaining the CTR/TDM presence at headquarters would be that the CTR law and program apply statewide and have application in both urban and rural areas. As vanpool efforts are often operated by transit agencies, these efforts would be best realized through the new coordination responsibilities of the Office of Transit Mobility. Also identified are the core members of the inter-divisional TDM team, its very strength coming from the fact that it would bridge disciplines and cultures within the agency and integrate planning and operations functions. The TDM team would likely report directly to the Secretary or Chief of Staff.



**Figure 3: An Inter-Divisional TDM Team in WSDOT – Option B**

The CTR/TDM functions are moved from the Public Transportation and Rail Division to the Strategic Planning and Programming Division in the Urban Planning Office. The advantage of consolidating CTR/TDM/HOV and Transit would be twofold. First CTR/TDM is not a mode, like buses or rail, but a framework and set of strategies within which different modes are employed to increase person-throughput. Second, most TDM activity is in the metropolitan region, and the UPO would centralize these activities where most of the action takes place.

Formalize a Transportation/Land Use Connection with the Department of Community Trade and Economic Development (CTED)

Washington state's Growth Management Act was intentionally designed to be implemented from the "bottom-up," with counties and cities developing their own plans in accordance with state guidelines. Fifteen years ago, the idea was that incentives to practice growth management would be forthcoming from the state. But these have never appeared. One incentive could be major WSDOT highway, bridge, and interchange investments to those city and county areas that put in place comprehensive TDM measures. CTED and WSDOT would designate Priority TDM Areas (see discussion above). Common sense and a whole body of literature show the relationships between transportation and land use. Specifically, transit-oriented development and transit-efficient land uses enable greater density and livability within the urban growth areas. But a structural disconnect exists between the localities that control land use and the entities that provide transit service and build highways. Priority TDM Areas would provide a vehicle for the two related state agencies to work together on the transportation land use connection and provide incentives to local jurisdictions to follow state growth management policies.

The remainder of this report puts the answers to these questions into a broader context. It documents the current TDM environment in Washington; identifies the level of TDM work occurring in other states; outlines key findings from interviews with local, state, and national TDM stakeholders; and discusses policy options for WSDOT moving forward. A section of appendices completes the report.

## **SECTION II: TDM IN WASHINGTON – THE CURRENT ENVIRONMENT**

### **TDM Laws and Activities**

State law requires WSDOT to develop a multimodal transportation plan and a public transportation plan (RCW 47.06, et. seq.), encourages WSDOT to invest in TDM strategies because they have proven successful in addressing mobility needs (RCW 47.80.01), and requires WSDOT to oversee implementation of the Commute Trip Reduction Program (RCW 70.94.521-551). However, with the exception of the Commute Trip Reduction Act, state law does not explicitly establish WSDOT's responsibility for implementing or funding TDM activities.

There are numerous TDM activities in the state of Washington, most of which are currently operational in the Central Puget Sound region. They are ordered below beginning with programs operated/implemented directly by the state to those implemented by regional and local agencies. A brief description of each program, including funding and implementation authority, follows:

#### *Commute Trip Reduction (CTR)*

The CTR law, passed by the Washington State Legislature in 1991, requires jurisdictions of more than 150,000 residents to adopt ordinances that require employers of 100+ employees to implement programs that reduce SOV commute travel. The Legislature provides \$5.5 million per biennium to encourage commuters to use transit, walk, bike, work from home, or modify their commute hours in order to reduce peak-period trip making, thus lowering congestion and decreasing air pollution. The CTR program removes approximately 19,000 commute trips from state roadways every morning.

#### *Commute Trip Reduction Performance Grants*

The CTR Performance Grant Program is managed by WSDOT and funded with a \$1.5 million annual award from the State Legislature. It is designed to test innovation in trip reduction. Recipients are given funds to help set up a trip removal program and then are awarded a grant of up to \$460 per annual trip removed if their trip reduction efforts are successful.

#### *State Tax Credits and Exemptions*

The state provides a 50 percent tax credit to employers and property managers for providing incentives for non-SOV commuting, including ridesharing, vanpooling, carpooling, and transit usage. The maximum credit is \$60 per employer per year. This legislation, passed in 2003, is capped at \$2.25 million in annual credits.

### *Passenger-Only Ferries*

Washington State Ferries operates one passenger-only ferry route, from Vashon Island to Seattle, that removes cars from the road system.

### *Regional Ridematching System*

Employers, TMAs, and transit agencies offer assistance in forming carpools and vanpools for commuters with similar commute origins and destinations.

### *Vanpool Programs*

Vanpool passengers commute in groups of 5-15 people, from one locality to the same worksite for a modest monthly fare. Typically, vanpools are funded by a combination of state and local dollars. In Washington State there are currently over 1,700 public vanpools, which is not only an all-time high for the state, but is also a greater number than any state in the country.

### *Employer Flextime*

Some employers offer the option of a flexible work schedule, which can include a compressed (e.g., four-day) workweek or altered work hours so that employees are not commuting at peak travel times.

### *Park-and-Ride Lots*

Park-and-ride lots help remove SOV commuters from Washington roadways by allowing residents to park their car near their point of origin and ride public transportation to their worksite. There are approximately 300 park-and-ride lots in Washington offering more than 30,000 parking spaces to commuters. Park-and-rides are also used to reduce traffic stemming from special events and major sporting events. These lots are variously funded, owned and operated by WSDOT, multiple transit agencies, local governments, and other jurisdictions.

The Legislature's recent passage of HB 2124 creates an Office of Transit Mobility, which, among other things, has responsibility for further developing a park-and-ride lot policy and program.

### *U-Pass*

The University of Washington sponsors and funds the U-Pass program, which offers all students and faculty a free pass for usage on local buses. The program's success stems from the complimentary forces of the high cost of parking on campus and the low cost (free) of riding the bus. The University budgets approximately \$11 million per year for the U-Pass program, with 50 percent of this revenue raised from user fees that are billed to students with their tuition statement.

### *FlexPass*

The FlexPass program is a commute benefits package for employees providing unlimited transit access on four regional and local systems in King County; it may include vanpool and carpool subsidies, as well as emergency rides home. The program is partially subsidized by King County Metro and federal grants. The remainder of funding for each pass is paid by employers. The subsidies are gradually eliminated over the first three years of the program, with employers eventually paying the full cost of the pass.

### *Guaranteed Ride Home*

This program offers an occasional ride home to non-SOV drivers in the event of an emergency or other circumstance in which a vehicle is required. This program is offered through TMAs, the U-Pass program, and through many employers. The ride home may be via taxi, rental car, or company vehicle.

### *Transit-Oriented Development (TOD)*

Transit-oriented development (TOD) is the practice of bringing residential, commercial, and transportation development closer together to reduce the need for SOV travel. King County's TOD efforts have helped create high density, mixed-use affordable and market-rate housing and retail developments in close proximity to park-and-ride lots and transit centers. The county has also provided subsidized bus passes to residents to help encourage transit usage. King County has eight TOD projects (Burien, Convention Place, Kent, Northgate, Overlake, Redmond, Renton, and Shoreline) either completed or under development.

TOD developments are typically public/private partnerships, with funding coming from the private developer, the county, and federal housing tax credits and tax-exempt financing.

### *I-405 TDM Working Group*

The I-405 TDM Working Group is in the process of creating and implementing a plan to utilize TDM for construction mitigation during the upcoming I-405 construction project. The Working Group consists of representatives from the state, local jurisdictions, transit agencies, and private stakeholders. The \$13 million budget for this project will be used to increase the number of vanpools and carpools in the I-405 corridor during construction, shift trips out of the peak commute periods through flexible work hours, and eliminating trips where possible by using strategies such as telecommuting.

### *PSRC Traffic Choices Pricing Study*

The Traffic Choices study is an attempt to learn more about how value pricing affects commuters' driving behavior in regard to time, frequency, route, and duration of trips when financial incentives/disincentives are explicit. This yearlong study, a partnership of PSRC and the Federal Highway Administration, will examine the travel behavior of 300 households in the Puget

Sound region. Participants will have their car fitted with a metering system and GPS system, and they will be “charged” a variable fee for their vehicle usage, with a greater fee assessed during peak travel times and on high-volume highways.

Table 1 below provides a quick snapshot of each of the above TDM activities, and outlines what role is played by the federal government, WSDOT, local or regional governments, TMAs, private/corporate interests, or other entities such as universities. In each case, we indicate whether the given municipality or agency provides funding (in the form of cash or tax subsidies), oversight assistance, and/or actual implementation.

**Table 1: An Overview of Organizational Roles for TDM Activities in Washington State**

<b>Activity</b>	<b>Federal</b>	<b>WSDOT</b>	<b>Regional and Local Gov't, Transit Agencies</b>	<b>TMA</b>	<b>Private, Corporate, Other</b>
<i>CTR Law</i>		Implementation, Funding	Implementation		Implementation
<i>CTR Performance Grants</i>		Oversight, Funding			Implementation
<i>State tax credits and exemptions</i>		Funding, Oversight			Implementation
<i>Passenger-only ferries</i>		Funding, Implementation			
<i>Ridematching</i>	Funding		Funding, Implementation	Funding, Implementation	Implementation
<i>Vanpools</i>	Funding	Funding, Oversight	Funding, Oversight	Implementation	
<i>Employer flextime</i>					Implementation
<i>Park-and-rides</i>	Funding	Funding, Implementation	Funding, Implementation		
<i>U-Pass</i>	Funding				Funding, Implementation
<i>FlexPass</i>	Funding		Funding, Implementation		Funding, Implementation
<i>Guaranteed Ride Home</i>				Funding, Implementation	Implementation
<i>TOD</i>	Funding		Funding, Implementation		Funding, Implementation
<i>I-405 work</i>	Funding	Funding, Implementation	Funding, Implementation	Implementation	
<i>PSRC Traffic Choices study</i>	Funding		Funding, Implementation		

## **TDM Within WSDOT**

Within WSDOT, TDM planning, funding, implementation, and administration occur in several divisions and offices. There is no apparent TDM office or policy shop within the Department; responsibilities lie primarily with the CTR office in the Public Transportation and Rail Division and the Central Puget Sound Urban Planning Office in the Strategic Planning and Programming Division. TDM-related functions exist within each division:

- **Public Transportation and Rail Division**

The Public Transportation and Commute Options (PTCO) office has responsibility for administering the CTR law, funding and administering the Performance Grant Program, funding vanpool vans, and overseeing park-and-ride facilities.

- **Strategic Planning and Programming Division**

The Central Puget Sound Urban Planning Office (UPO) has responsibility for TDM, HOV and transit corridor and system planning in the central Puget Sound region, construction mitigation planning and implementation, and TDM construction mitigation funding.

- **Engineering and Regional Operations Division**

The Urban Corridors Office is responsible for the planning, design, and construction of major corridor projects with responsibility for applying least-cost planning methods. The UPO is responsible for TDM planning in all central Puget Sound region corridors.. Each region has planning staff, and a portion of an FTE's responsibility relates to TDM and CTR functions.

- **Ferries Division**

The ferry system operates one passenger-only route and manages car and vanpool registration and priority loading and coordination with public transit systems.



## **SECTION III: TDM IN OTHER STATES**

On the basis of our research of state departments of transportation nationwide, we have determined that very few states are directly funding or administering TDM programs at the state DOT level. It is difficult to ascertain with certainty, though, as transportation officials in other states may not use the term “transportation demand management” when implementing a specific program. We have found no other state DOT, with the exception of New Jersey, that has a specific program for TDM planning, funding, and implementation.

Our research targeted peer states that, like Washington, have at least one major metropolitan region that serves as a chokepoint for traffic congestion. For each target state, we examined the DOT website and, where possible, the transportation strategic plan. We also investigated case studies from the FHWA study entitled “Mitigating Traffic Congestion—The Role of Demand-Side Strategies” to determine where state-level involvement might be occurring.

In addition to New Jersey, the Portland, Oregon, metropolitan region also offers an example that might be instructive to transportation officials in Washington. While Portland-area TDM efforts were not initiated by the Oregon Department of Transportation (ODOT), its TDM programs, like New Jersey’s, offer potential parallels to WSDOT in that both use government-driven efforts to utilize demand management over a relatively large geographic area, and both use more than one form of demand management to meet their ends.

### **New Jersey**

The state of New Jersey created its “Commute Alternatives” program to provide non-SOV options for New Jersey commuters. Commute Alternatives has a number of components, including rideshare matching, vanpooling, a park-and-ride program, and “Smart Moves for Business”. Smart Moves is a program that offers a tax credit to employers to help offset their expenses in providing incentives to employees who do not drive alone to work. The New Jersey Department of Transportation provides funding for Commute Alternatives and jointly administers these programs with eight local TMAs.<sup>9</sup>

### **Oregon – Portland Metro**

Metro, the governing body for the three-county Portland metropolitan region, has created and implemented a TDM program that aims to serve the needs of commuters region wide. The Regional Travel Options (RTO) program is a partnership between Metro and other local agencies and business organizations. While ODOT is one of many entities that has a representative on the programs’ oversight committee, it does not provide any funding for the RTO.

---

<sup>9</sup> See <http://www.state.nj.us/transportation/publicat/Facts/demand.shtm> for more information on New Jersey’s TDM efforts.

The RTO program is designed to:

- manage the traffic flow and increase the lifespan of the current transportation network
- increase the capacity of the current system
- promote transit-oriented development.

The RTO aims to provide commuters with transportation alternatives that include carpooling, vanpooling, bicycling, walking, telecommuting, and utilizing public transportation. RTO and Metro have funded numerous TDM programs, including the SMART/Wilsonville Walking Program, the Swan Island TMA Vanpool Program, Portland CarpoolMatchNW, and the Gresham TMA Bike Program.<sup>10</sup>

## **Other States**

As we indicated above, other than Washington and New Jersey, state DOTs tend to not be involved in TDM funding or implementation. One exception is Colorado, where CDOT and the Regional Transportation District are jointly involved in the \$1.67 billion T-Rex highway expansion and light rail project in the I-25 corridor. CDOT is undertaking TDM construction mitigation measures. On the basis of our research, we determined that the following states do not have major programmatic TDM activity at the DOT level: California, Connecticut, Florida, Georgia, Illinois, Maryland, Massachusetts, Michigan, New York, Ohio, Pennsylvania, Texas, and Virginia.

---

<sup>10</sup> More detailed information is available on Metro's TDM efforts at <http://www.metro-region.org/article.cfm?articleid=454>.

## SECTION IV: KEY FINDINGS FROM STAKEHOLDER INTERVIEWS

One way in which we sought to answer the questions WSDOT has posed regarding transportation demand management was to speak directly with key stakeholders involved in or affected by TDM measures. Working closely with WSDOT advisors and staff we identified a dozen stakeholder categories. Those categories are as follows:

- legislative staff
- WSDOT staff
- Transportation Commission
- transit agencies
- local jurisdictions
- TDM organizations
- metropolitan planning organizations
- transportation management associations
- private businesses
- visionaries, skeptics, academics
- environmental organizations
- federal government/national perspective.

Within those twelve categories, we targeted over 20 key informants to interview. We gathered information through in-person and telephone interviews during the period of January through April 2005 from these stakeholders<sup>11</sup>. During the course of each interview we sought to determine the following:

- how they defined TDM
- WSDOT's and the state's strategic interest in TDM
- what kinds of programs work best and offer the most promise for the future
- what organizations are currently or should be involved in TDM
- the role WSDOT should play in TDM and where those functions should reside.

A description of our findings from these stakeholder interviews follows.

### Defining TDM

*Most interviewees favored a broad definition of TDM.*

Most of those interviewed favored an expansive view of TDM, similar to that used in the recent FHWA report entitled "Mitigating Traffic Congestion—The Role of Demand-Side

---

<sup>11</sup> See Appendix A for a complete list of organizations and individuals and Appendix B for the Interview Guide.

Strategies,” viewing TDM as an umbrella covering many components of the transportation system: incentives, disincentives, and choices for individuals to use as SOV alternatives. A few interviewees defined TDM more narrowly, as only constituting measures that change demand behavior on the existing road and transit mix. For example, using existing vanpools more efficiently, teleworking, or pricing existing facilities on a variable basis would fit, while providing new transit routes or HOT lanes would not.

A few respondents highlighted measures such as incident response and ramp metering, typically categorized under transportation systems management (TSM), as examples of TDM. Without splitting hairs, it might be useful to think of TSM – the effort to maximize the capacity of existing road space without influencing individuals’ intent to use the road – as the precursor and partner of TDM. One theme that emerged from a variety of stakeholders is that the TDM term and acronym was deficient for transportation professionals and as a means of conveying a comprehensive set of components to the general public. One recent inventory of TDM measures came up with the heading Transportation Demand Strategies (TDS), which was not viewed as an improvement by any of the respondents commenting upon it. Several interviewees expressed interest in a branding campaign, similar to that for recycling, that would convey the appropriate message and gain widespread recognition and acceptance.

### **WSDOT’s Strategic Interest in TDM**

*TDM can increase road system capacity relatively quickly, at low cost, with high political acceptability and low environmental impact.*

Most stakeholders within and outside of the Department defined WSDOT’s mission as moving people and goods. The strains on the state’s roadway system occur primarily in areas of high population concentration and economic growth, where congestion occurs, especially during peak travel periods. In practical terms, the most serious congestion problems exist in the central Puget Sound, where over half the state’s population and primary employment centers are located. In this area it is increasingly costly, and politically and environmentally difficult, to expand road lanes. Faced with fewer federal and state funds, a backlog of maintenance/replacement demands, and opposition to roadway expansion and new highway construction in the metropolitan area, most respondents quickly identified that **it is in WSDOT’s strategic interest to employ TDM measures to increase existing system capacity during congested times and to minimize the need to build new roadway lanes.**

### **Programs That Work Now and Could in the Future**

*Vanpools, U-Pass, electronic fare cards, and roadway pricing all play roles in TDM.*

Vanpooling and carpooling were universally seen as effective and appropriate TDM approaches, as they represent characteristics of flexibility, convenience, personal choice, low cost of entry, and low system-wide capital cost. CTR employer-based programs that utilize van

and carpools and can also add incentives of priority parking locations, cash-back payments, and tax breaks on transit passes. They can, and do, include a FlexPass/U-Pass, which prepays and subsidizes transit passes, reduces intermittent parking costs, and offers guaranteed rides home. Pricing parking in conjunction with offering reduced rate transit or vanpools was seen, by private and public sector interviewees alike, as working well in the Seattle CBD, but it is less politically tenable in suburban and spatially distributed areas (like the state office complexes in the Olympia area). Transit service, especially that serving corridors of highways of state significance, was generally seen as a plus, but some were critical of the cost of fixed-route transit. Several suggested that there need to be incentives and state funding for local transit agencies to align routes to reduce congestion on state highways. Many interviewees understood the relationship of transportation and land use and saw merit in the fledgling TOD efforts and the introduction of Location Efficient Mortgage instruments as a way of concentrating residents in proximity to activity/employment centers and transit options.

Looking ahead, pricing of highway lanes, and the introduction of value pricing and the technology to support both, was increasingly accepted as the likely and desirable future. Respondents were quick to point out that under a “pricing” future, TDM information and marketing and provision of alternatives would remain necessary so that users would know about and have SOV alternatives. New electronic farecards would also make transit use more convenient and seamless. Pricing and tolling, on the far distant political horizon only a few years ago, are now viewed as acceptable ways to regulate the timing of and extent of congestion/road usage and to raise revenue for capital facilities. Respondents felt it was important that commuters knew how collected funds would be used. Some believed funds should primarily go to TDM strategies and the provision of alternatives to SOV use, while others felt that funds should pay for construction of new and upgraded highways.

## **Organizations That Should Be Involved in TDM**

*TDM should be implemented by multiple players at different jurisdictional levels.*

There was general consensus that TDM is not the province of any one agency, but rather that TDM measures could be led by state policy and funding, yet implemented at many levels – state, regional and local – and by public, non-profit, and private organizations. Several cited the CTR Performance Grant model – in which the state funds result in removing SOV trips from highways – as a positive model. Many respondents cited the absence of a regional implementing agency for Puget Sound, saying that the PSRC and Regional Transportation Investment District (RTID) each had serious deficiencies as implementers of comprehensive programs.

## **WSDOT’s TDM Role**

*The general consensus was that WSDOT should be primarily a funder, policy maker, and coordinator—not a provider—of TDM services.*

Aspects of the I-405 Corridor project were often mentioned as a potential model for TDM planning and implementation, including the following:

- 1 percent of funds were earmarked for TDM.
- TDM and capital measures are integrated and scheduled over time.
- The corridor is defined to include a broad geographic area.
- TDM was adopted as part of the EIS as a matter of record.
- Multiple jurisdictions are party to the agreement and have implementation roles

Several respondents suggested that WSDOT set aside up to 1 percent of highway project budgets for TDM. Others suggested linking parking pricing, transit service and transit friendly land uses to the investment of state funds in major corridor projects such as SR 520 or the Alaska Way Viaduct. WSDOT could fund TMAs or other regional or sub-regional entities to provide vanpools (which it already does), but also to manage parking and implement other TDM measures. It could also fund transit operators to provide corridor-specific service to reduce peak hour congestion. WSDOT could lead a broad and consistent statewide marketing campaign for TDM, which would be reinforced by local transit agencies, TMAs and governments.

Most interviewees were not familiar with the organization of the Department; those that were suggested that TDM be integrated with WSDOT's main line of business (highways) and its operations and not be consigned solely to planning or public transit divisions. Others believed that TDM had played a more prominent role at the policy level over the past two decades and was currently de-emphasized in favor of capital projects. At least one preferred that decisions about the mix of roadway uses be left to the regional administrators.

# **APPENDIX A: INTERVIEWED INDIVIDUALS AND ORGANIZATIONS**

## **House Transportation Committee**

Gene Baxstrom, Senior Analyst

Beth Redfield, Senior Research Analyst

## **Transportation Commission**

Richard Ford, Commissioner

Aubrey Davis, Former Commissioner

## **WSDOT**

Paula Hammond, Chief of Staff

Craig Stone, I-405 Project Manager

Judy Giniger, Director Public Transportation and Rail

Charles Prestrud, Urban Planning Office

Jean Mabry, TDM Resource Center

## **Transit Providers**

Mike Harbour, General Manager Inter-City Transit

Dick Hayes, General Manager Kitsap Transit

## **Local Jurisdictions**

Jemae Hoffman, City of Seattle

David Allen, City of Seattle

## **TDM Organizations**

Steve Gerritson, Executive Director Commuter Challenge

Peter Dewey, University of Washington U-Pass Office

## **Regional MPOs**

Matt Kitchen, PSRC

Lindy Johnson, PSRC

## **Transportation Management Associations**

Dave Gehring, Executive Director Manufacturing Industry Council

**Business**

John Hansen, Leasing Manager Equity Properties

Ted Horobiowski, Avista Corp.

**Visionaries, Skeptics, Academics**

John Niles, Discovery Institute

Scott Rutherford, Chair, Civil Engineering, University of Washington

**Environmental Community**

TJ Johnson, Climate Solutions

Peter Hurley, Transportation Choices Coalition

**National Perspective**

Wayne Berman, Federal Highway Administration

Phil Winters, Center for Urban Transportation Research, University of South Florida



## **APPENDIX B – TDM INTERVIEW GUIDE**

These questions are intended to serve as a guide during the interviews of key informants. They cover the principle areas we'd like to probe during in-person interviews with individuals representing categories of stakeholders, including policy makers; state, regional and local government officials; transit and vanpool operators; private and non-profit enterprises; visionaries; and environmental organizations. The purpose of these interviews is to explore current and future directions and options related to TDM in a manner that enables discussion and insight about conceptual and formative topics that cannot be easily captured in other survey methods.

### **Questions for Nonprofit and Public Sector Key Informants**

#### **Introduction:**

As you may know, I'm working with a research team at the Evans School of Public Affairs at the University of Washington. We are taking a look at TDM efforts within the state of Washington to see what is currently going on at the local, regional, and state level. We're also going to be looking at what role, if any WSDOT should be playing in TDM implementation. We're interviewing a number of people around the state that we believe can provide valuable insight on the future of TDM and WSDOT's role in that future.

#### 1. TDM Definition

There is no universally agreed upon definition for TDM. What do you think should be included in the definition of TDM? Should TDM focus specifically on providing incentives to get people to stop driving alone? Or should it include provision of transportation alternatives that allow for more efficient use of the transportation infrastructure, such as HOV lanes, Park and Rides, vanpools, and mass transit?

#### 2. Transportation Demand Management can take several approaches to reducing congestion.

One approach is to offer incentives to not drive alone, like free parking for vanpools or subsidized passes for transit. Another approach is to offer disincentives to driving alone such as parking fees or fees for using the roadway in congested periods. Another approach is to offer new alternatives to the SOV driver, like new modes of transit service, new transit routes, or restricted carpool lanes. Another approach is to provide information about transportation options, either through traditional marketing media or through individualized contact and support. Which approach or combination of approaches have the most promise? To what extent should one be emphasized over the other? What should WSDOT pursue?

#### 3. What is Washington's (not government, geography) strategic interest in TDM? What element of Washington's TDM strategic interest belongs to the state? To WSDOT specifically? To local or regional jurisdictions? To nonprofit and private organizations?

4. What types of TDM programs do you think offer the most promise? Do you have opinions on any of the following:
  - A. U-Pass
  - B. Flex-pass
  - C. Vanpool
  - D. Telecommute
  - E. One less car program
  - F. TOD
  - G. Location Efficient Mortgages
  - H. Transportation modes other than driving: bus, rail, bike, walking.
  - I. Tolls and other pricing mechanisms
  - J. CTR
  - K. CTR performance grants
  - L. Other
  
5. What organizations are currently involved in TDM programs that have promise? Are TDM programs run by a partnership of organizations? Which entities should be involved? Either as funders or operators?
  
6. If you had to name three of the most important TDM programs in the state of Washington, what would they be? Who should be involved in running those programs to make them most effective?
  
7. Are there TDM strategies that ought to be pursued but are not? What are they? Why are they not pursued? Who should implement these strategies/programs? What should WSDOT's role be?
  
8. Who plans TDM now? And who should?
  
9. What are the strengths in the current TDM planning, funding and implementation structures? emphasis on partnerships? decentralization? flexibility?
  
10. Are there gaps, duplication, or lack of clarity in the current TDM planning, funding, or implementation? How could they be fixed?

11. What role should WSDOT play in TDM?
  - A. Operating TDM programs. (For example, operating a vanpool program, or the CTR program.)
  - B. Funding local and regional organizations that operate TDM programs. (For example, providing funds to local transit agencies to operate vanpool programs.)
  - C. Establishing regulations that require private firms to implement TDM programs. (For example, requiring employers to develop TDM programs, like vanpooling.)  
(added by Ed)
  - D. Leadership and persuasion to encourage others to engage in activities supportive of the state's strategic interest in TDM.
  - E. Research to develop knowledge and technology to make TDM more cost-effective.
  - F. Providing information and marketing TDM programs
  - G. Planning (and either leaving the implementation and funding to others, or funding while others to do the implementation)
  - H. Evaluation
  - I. A combination of operating, funding, regulating, and persuading/leading.
  
12. Given WSDOT's multiple responsibilities (highways, ferries, etc.), what should the relative importance of TDM in the agency be? Substantial investment? Moderate investment? Limited investment? No investment?
  
13. What should WSDOT's role be in...
  - A. TDM planning?
  - B. TDM funding?
  - C. TDM policy development?
  - D. CTR implementation?
  
14. Managing the state's transportation system is in a constant state of evolution. Given that, where do you think TDM, and transportation planning more broadly, in Washington state is heading?
  
15. Where would you like TDM to be in Washington state in 10 years? How will WSDOT's role change? Will WSDOT's strategic interest in TDM change?

### **Additional Questions for Private Sector Key Informants**

1. What kinds of transportation or commute programs does your company currently offer?
2. What motivated you to implement these programs? Is it because your employees asked for these programs? Are you doing it because you are legally required to? Other reason?
3. What types of programs do you think your employees would be most likely to participate in?
  - a. Flex-pass
  - b. Vanpool
  - c. Telecommuting
  - d. Flextime
  - e. Accessible transportation modes other than driving: bus, rail, bike, walking

## APPENDIX C – TDM LIAISON INTERVIEWS

### TDM Liaisons Interviews

As part of our ongoing effort to gather information about TDM efforts within WSDOT, we conducted interviews with the TDM liaisons in the local WSDOT regional offices. The interview questions focused on TDM efforts within WSDOT, specifically how WSDOT organizes its efforts to plan for and implement TDM.

Several questions regarding TDM were sent to the six TDM liaisons through the state. We received responses from representatives from the Southwest Region, South Central Region, Washington State Ferries, and Olympic Region.

Key results from our interview included the following:

- There is no standard procedure for how TDM is integrated into projects throughout the state. This may be largely due to the fact that the inclusion of TDM measures is still up to the discretion of the design engineer in charge of the project.
- Providing a standard procedure (such as requiring that TDM be considered in each project) could provide for better integration into all projects
- TDM needs more support from top management in Olympia

### Interview Questions and Answers

1. *What is TDM?*

- a. *There is no universally agreed upon definition of TDM. How would you define it?*

The TDM liaisons stated that TDM includes strategies to control the demand side of transportation in an effort to maximize the efficient use of the transportation system. The definition of TDM is largely dependent on the goals and mission of what someone is involved with, hence the wide variation in definitions. Worksite employers connect it to CTR specifics, while planners may see TDM definition as more wide reaching.

2. *What aspects of TDM are currently part of your job (e.g., vanpools, etc)?*

The most common aspect of TDM that was part of the liaisons' jobs was to administer the internal CTR program for the regional offices. Other TDM roles include helping to manage external aspects such as bike/pedestrian coordination, vanpools, and monitoring and evaluating the usage of state-owned park-and-ride lots. TDM liaisons also provide expertise to regional and local planners in conducting long-range planning studies.

3. *Is TDM integrated into transportation projects that you work on? If so, how?*

It appears that there is no standard procedure for integrating TDM into transportation related projects throughout the State. In some regions, such as the South Central Region, inclusion of TDM can be haphazard and at the will of the project engineer in charge of the project. In other regions, such as the Southwest Region, the TDM liaison reviews design projects as well as various regional plans in the area to assure that TDM measure are addressed. A key theme that the liaisons all spoke about was the need for more integration of TDM into transportation projects in their regions.

*4. Are there ways that TDM could be better integrated into projects? If so, how?*

A key point addressed by several TDM liaisons was for project engineers to be required to work with the TDM liaisons prior to the PS&E process. Also, training for project engineers on TDM measures as well as applying the principles of context sensitive design could provide for better integration of TDM into transportation projects, especially for younger, less experienced designers and engineers. Finally, additional funding for TDM efforts, including additional TDM employees, would be very helpful. One way to provide additional funding would be to allow partnership funding, increasing funding and cross agency support at the same time.

*5. How does the TDM part of your job fit into the DOT's regional structure?*

TDM resides within each region's planning office. No consideration is given to TDM as a strategy, hence the poor integration results with transportation projects. There is a feeling that Olympia's head offices do not support funding or provide support for policy and program refinement for TDM efforts. External TDM efforts carried out by the regional liaisons must be funded by outside sources, such as grants.

*6. What would enable you to be more effective in carrying out TDM?*

An overall theme from these interviews included the need for stronger management support for TDM efforts. This could include funding for more employees, top managers directing engineers to contact TDM liaisons prior to PS&E efforts, more concise TDM policy providing for integration of TDM practices, or additional resources, etc. Liaisons felt that TDM is in a continually temporary position, lacking the needed resources, funding, and permanency to effectively integrate into the state's transportation projects.

## **APPENDIX D: DEFINITIONS OF TDM – FROM LEADERS IN THE FIELD**

### **Victoria Transport Policy Institute**

[www.vtppi.org](http://www.vtppi.org)

TDM is a general term for strategies that result in more efficient use of transportation resources. TDM refers to various strategies that change travel behavior (how, when, and where people travel) in order to increase transport system efficiency and achieve specific objectives such as reduced traffic congestion, road and parking cost savings, increased safety, improved mobility for non-drivers, energy conservation, and pollution emission reductions.

### **National TDM and Telework Clearinghouse, University of South Florida**

<http://www.nctr.usf.edu/clearinghouse/about.htm>

Transportation demand management (TDM) reduces traffic congestion and pollution by influencing changes in travel behavior. Rather than building or widening roads or improving signal timing, TDM increases the passenger capacity of the transportation system by reducing the number of vehicles on the roadway during peak travel times. This is accomplished through a variety of strategies aimed at influencing mode choice, frequency of trips, trip length, and route traveled. Convenience, cost, and timing of alternative modes of travel are among the issues addressed in a TDM program.

### **Philip L. Winters - TDM Program Director, University of Southern Florida, and Chair, TRB Committee on Transportation Demand Management**

<http://gulliver.trb.org/publications/millennium/00123.pdf>

TDM is the all-inclusive term given to ... measures to improve the efficiency of transportation systems. (from paper prepared for TRB's TDM Committee)

### **Commute Solutions, Let's Ride Glossary**

[www.commuterolutions.org](http://www.commuterolutions.org)

Strategies and programs that result in more efficient use of transportation. In general terms, TDM means reducing the number of single-occupancy-vehicles on the roads, thereby reducing the demand placed on the transportation system. (from *Let's Ride Glossary*)

### **Florida Center for Community Design and Research, USF**

[www.ficus.usf.edu](http://www.ficus.usf.edu)

Transportation strategies that seek to reduce peak-hour travel demands on the road system by encouraging car and van pooling, flexible work hours, the use of bicycles and mass transit, and parking controls.

