

# APPENDIX D. BRIEFING PAPER: ODOT'S EFFORTS ON CLIMATE CHANGE

Working Draft

## INTRODUCTION

Climate Change mitigation encompasses activities devised to reduce the emission of greenhouse gases and thereby limit associated climate change. Climate change adaptation includes actions that would be implemented to respond to the effects of climate change. In its recent background document on climate change and transportation, the Federal Highway Administration listed the 4 primary climate change mitigation strategies to reduce greenhouse gas emissions from transportation. They are: (1) vehicle technology, (2) low carbon fuels, (3) vehicle miles traveled, and (4) systems efficiencies. The first two strategies are not directly affected by most ODOT activities. The second two mitigation strategies however, can be directly affected by ODOT and along with adaptation strategies characterize the efforts discussed in this document.

The purpose of this paper is to provide a quick topical listing of ODOT's current climate change efforts to brief both internal parties (managers and staff groups) and external constituents (legislators, various stakeholders, those involved in transportation funding discussions, and others with sufficient background and understanding of ODOT to quickly grasp the summary's context). Following this Introduction, the paper is organized into three major subgroups of climate change efforts:

- those **INTERNAL AND EXTERNAL EFFORTS** which are **PROCESS-RELATED**,
- those which are about ODOT's **INTERNAL OPERATIONS EFFORTS**,
- and those which are about the **EXTERNAL TRANSPORTATION SYSTEM EFFORTS**.

Following the 3 sections in the body of the paper are two Appendices that list **POLICY MANDATES RELATED TO INTERNAL OPERATIONS** and **POLICY MANDATES RELATED TO THE TRANSPORTATION SYSTEM**.

## INTERNAL AND EXTERNAL PROCESS-RELATED EFFORTS

- ODOT has a Sustainability Program Manager, who reports to ODOT's Chief of Staff and interacts regularly with ODOT's Director, the Governor's Sustainability Advisor, and the Oregon Sustainability Board. Climate Change is one of many topics within the scope of ODOT's Sustainability Program which assists staff in carefully managing activities and assets so that the agency can sustain access to essential goods and services, economic opportunities, transportation choices, livable communities and healthy natural resources for all Oregonians.
- ODOT has a Sustainability Council, comprised of mid- to senior-level managers representing a variety of functional and geographic backgrounds. The Council provides high-level direction, approves and monitors sustainability work items, and recommends policy and practice changes to ODOT's Director.
- ODOT has a Climate Change Executive Group comprised of senior executive staff, the purpose of which is to provide overall direction within ODOT regarding the interrelationship of greenhouse gas production, global climate change and the planning and operation of Oregon's transportation systems. This group will provide a forum for discussion as to the work and activities of other internal committees and the impacts it has on the agency and their responsibilities.
- ODOT has a Climate Change Technical Advisory Committee the purpose of which is to develop an understanding of the implications of climate change initiatives to the agency and its work. Their purpose also includes providing credible technical advice regarding the interrelationship of greenhouse

- gas production, global climate change and the planning and operation of Oregon's transportation systems, as well as the potential impacts of climate change on transportation infrastructure.
- The 2006 Oregon Transportation Plan (OTP) lays the policy foundation for addressing climate change. The OTP has seven broad goals, one of which is focused on sustainability. The sustainability goal has policy statements relating to environmental responsibility, energy, and creation of communities. Specific strategies are listed under each policy, some of which relate directly to climate change. In addition, climate change is discussed as one of the major challenges for the state's transportation systems.
  - ODOT representatives participate in a number of key groups:
    - Governor's Climate Change Integration Group (CCIG) – through completion of Group's final report to the Governor, provided staff support, gave transportation and ODOT perspective, and reviewed report drafts.
    - Western Climate Initiative (WCI) – attend meetings and provide input.
    - Department of Environmental Quality Mandatory Greenhouse Gas Reporting Rulemaking – give transportation and ODOT perspective, member of the mobile source subcommittee.
    - The Governor's Transportation Committees including the Vision Committee and the Environmental Working Group – attend meetings and provide input.
    - The Global Warming Commission (GWC) - attend meetings and provide input.
    - The Transportation and Land Use Committee (T&LUC) of the GWC– provide staff support, attend meetings, and provide input.
    - The Modeling Subcommittee of the T&LUC – provide staff support, attend meetings, and have individuals that participate as full technical members.
    - The Big Look Task Force – attend meetings and provide input.
  - ODOT is a member of the Oregon Natural Step Network, the Columbia Willamette Clean Cities Coalition, and will be a major sponsor of the Oregon Environmental Council 2008 Forum for Business and Environment.

#### **INTERNAL OPERATIONS EFFORTS**

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- ODOT undertakes annual reporting of its own greenhouse gas emissions to the Department of Administrative Services (DAS) and the Governor's Office:
  - ODOT actively participated in the State of Oregon Greenhouse Gas Tracking interagency team (along with the Department of Environmental Quality, the Oregon Department of Energy, the Oregon University System, and the Department of Administrative Services) to develop the methodology for agencies to track their own emissions.
  - Three sources are included: building energy use, fleet fuel use, and solid waste generation.
  - Internal processes are being updated to enable more accurate and efficient data tracking and reporting.
- ODOT's Facilities Section is a leader in state government:
  - All new major facilities throughout the State are built to Leadership in Energy and Environmental Design (LEED) green building Silver standards at a minimum.
  - The Request for Proposals for the Transportation Building renovation targets LEED Gold as the desired level. This is justified by a cost-benefit study which showed that when lifecycle impacts are considered, a high performance environmentally friendly renovation of the Transportation Building would save about \$90 million over 20 years (compared to a market-rate renovation).
  - ODOT is actively working to meet the Governor's energy goals through conservation measures and initiatives such as lighting switch-outs.
- ODOT's Fleet Section is a leader in state government:

- In fiscal year 2007, 13% of the diesel fuels ODOT purchased were B20 biodiesel. In October 2007, the amount had increased to 22%, and ODOT is on track to meet the Governor's goal of 25% by July 2010.
- Prioritizing hybrids and more efficient sedans over SUV's.
- Switching out truck and message board lights to LED's to save energy and limit truck idling.
- Beginning a project to convert an older Toyota Prius to a plug-in electric vehicle, aiming for 100 mpg.
- Testing idle reduction technology on some of its heavy equipment.
- ODOT strives to reduce energy consumption by its highway lighting systems:
  - ODOT's Region 1 annual electric bill was over \$1.2 million of which 50% came from signals and flashers. Region 1 has retrofitted 95% of its signals and flashers with power-saving LEDs resulting in energy consumption reductions equivalent to the annual power needed for over 140 Oregon homes. This has saved ODOT \$110,000 per year on its electric bill.
- ODOT encourages alternative employee commute practices:
  - ODOT and/or DAS provide free transit passes to employees who work more than half time and more than 6 months a year at Region 1 headquarters in Portland and all employees who work within the Salem Capitol Mall area.
  - Employees who work outside Region 1 headquarters or the Capitol Mall but within mass transit districts have the ability to purchase transit passes on a pre-tax basis via payroll deduction.
  - ODOT encourages participation in the Bike Commute Challenge, a competition between businesses to increase bicycle use.
  - ODOT Policy PER 18 (Telecommuting) endorses telecommuting as a work option for selected employees; the policy states that "when appropriately applied, such practice can benefit both the Department and the employee in improved employee performance, enhanced employee morale, reduced commuting miles, and reduced air pollution and traffic congestion." ODOT's Virtual Private Network allows employees access to their files and email from home and other remote locations.
  - ODOT employs technology solutions such as video conferencing, tele-conferencing, and web casts (I-link) to allow employees to participate remotely in meetings and conferences and avoid excessive travel.
  - Inside ODOT articles promote ways to save fuel and other resources during work-related travel and employee commutes.
- Conservation and Alternative Resource Teams (CART) are small "green teams" of interested employees at major ODOT offices who help educate employees about work-related conservation efforts such as recycling, energy saving and commuting options. CART members have their supervisor's approval to spend a few hours a month on CART activities.

## EXTERNAL TRANSPORTATION SYSTEM EFFORTS

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### *Land Use and Planning*

- ODOT provides financial and technical support to local governments and Metropolitan Planning Organizations in the development of plans under the Transportation Planning Rule (TPR) and Statewide Planning Goal 12. Oregon's TPR requires reduced reliance on Single Occupant Vehicles (SOV) and local actions encouraging the development and use of reasonable alternatives such as transit and ridesharing. Statewide Planning Goal 12 requires that transportation systems, to the fullest extent possible, should be planned to use existing facilities and rights-of-way provided that such use is not inconsistent with the environmental, energy, land-use, economic or social policies of the state.

- The Oregon Highway Plan (establishes long-range policies and investment strategies for the State Highway System) written in 1999 and amended as recently as January 2006, includes goals, policies, and actions associated with Land Use and Transportation Policies, Travel Alternatives, and Environmental Resources among others. Climate change is addressed through the associated goals and policies about Access Management, Transportation Demand Management (TDM), and actions that protect Air Quality.
- The Transportation and Growth Management (TGM) Program supports community efforts to expand transportation choices for people. By linking land use and transportation planning, TGM works in partnership with local governments to create vibrant, livable places in which people can walk, bike, take transit or drive where they want to go.
- ODOT's Transportation Planning Analysis Unit is developing the GreenSTEP model, a sketch-book planning tool to estimate greenhouse gas emissions from the surface portions of the transportation sector and to assist in determining how the transportation sector can meet the statewide emissions targets in future years.
- ODOT is a key participant in the Oregon Modeling Steering Committee (OMSC) formed to improve the state-of-the-practice and promote state-of-the-art land use-transportation modeling in the state of Oregon and serve as a consensus forum and support group to coordinate the land use-transportation modeling efforts of federal, state, regional and local agencies. The OMSC serves as a technical resource and peer reviewer of land use and transportation planning tools developed for greenhouse gas emission analysis.

### **Multi-Modal System**

- ODOT's Public Transit Division assists communities with the development of alternative transportation options, including rideshare programs, park and ride lots, telecommuting programs, and information and incentive programs to encourage the use of alternatives to driving alone:
  - In 2005 ODOT worked with local jurisdictions to conduct individualized marketing pilot projects in Portland, Salem/Keizer, Eugene, and Bend. The program called TravelSmart uses innovative individualized marketing to encourage environmentally-friendly ways to travel.
  - In February 2006 ODOT, Metro, TriMet, City of Vancouver and other public and private partners launched the Drive Less/Save More Campaign in February 2006. The Drive Less/Save More Campaign seeks to reduce single-person car trips by promoting travel options like public transit, car pooling, biking and walking and encouraging drivers to trip chain or combine multiple errands into single trips.
  - ODOT Region 2 sponsors the Commuter Solutions Group in Lane County
  - ODOT is a key sponsoring agency for the Central Oregon Commute Options program, including the Central Oregon Rideshare & Transportation Demand management Program.
  - ODOT Regions dedicate a portion of their Statewide Transportation Improvement Program requests for funding capital investments in transit.
  - In 2004 ODOT Public Transit Division used flexible federal funds to initiate a small program to assist urban transit providers to replace older mass transit vehicles. The program started with \$1 million annually and has been increased to \$2 million annually, replacing roughly eight large buses each year.
  - ODOT encourages public transit providers to use alternative fuels where possible. Some providers are increasing the amount of biofuels they use, as well as experimenting with improved engines and hybrid options in their fleets.
  - ODOT Public Transit Division has used increases in federal funds for rural and intercity bus service to fund new or expanded service in Welches, Sandy, Yamhill County, Curry County, Linn County, Hood River, The Dalles, Columbia County and other areas of Oregon.

- ODOT Transit Division and Rail Division have collaborated to improve and increase bus/rail connections. Service and schedules have been coordinated to connect additional Amtrak choices in Portland. Currently ODOT is testing productivity for weekend express bus/rail connections for Eugene and University of Oregon students.
- ODOT Transit Division and the Governor's Office are collaborating in the "Governor's Commute Challenge". A 2008 summer activity challenging State Capital Mall employees to reduce drive-alone trips and save greenhouse gas emissions.
- The ODOT Rail Division represents and advocates for customers of railroads, both passenger and freight, to ensure a safe, efficient and reliable rail transportation system. ODOT supports Amtrak rail service from Eugene to Portland, increasing to five trains and four Amtrak Thruway bus connections to trains per day.
- The ODOT Bicycle and Pedestrian Program provides direction to ODOT in establishing pedestrian and bicycle facilities on state highways and provides support to local governments, governmental and non-governmental organizations and private citizens, in planning, designing and constructing pedestrian and bicycle facilities.
  - The Transportation Enhancements program pays for millions of dollars of sidewalk and streetscape improvements, bicycle lanes, and multi-use pathways projects each year.
  - Safe Routes to School program will fund Oregon Schools and School Districts with over \$3 million for education and enforcement projects designed to encourage and enable easier and healthier ways for children to walk and bike to and from school safely, reducing the need to drive.
- The Congestion Mitigation and Air Quality (CMAQ) Improvement Program provides approximately \$14 million per year of funds across Oregon for Transportation Demand Management (TDM), Transit, and Bicycle/Pedestrian facilities projects
- *ConnectOregon* is a lottery bond based initiative to invest in air, rail, marine and transit infrastructure to ensure Oregon's multi-modal transportation system is strong, diverse, and efficient.
  - *ConnectOregon* I, approved in the 2005 legislative session, has 40 projects all of which are underway, many of which are complete. It was a significant success with even non-funded applicants praising the process. Associated projects included the Portland Streetcar Lowell Extension, the Lane Transit District Pioneer Parkway Bus Rapid Transit Project, the City of Bend Public Transit Operations and Maintenance Center, and the Community Connection of Northeast Oregon multimodal Transit Consolidation and Improvement Project.
  - A bill for *ConnectOregon* II was successful in the 2007 Legislature. The Oregon Transportation Commission has recently approved the selection of projects for *ConnectOregon* II. Selected projects for include a Columbia County Public Transit Facility, the Lane Transit District Veneta Transit Center, the Salem-Keizer Transit District Keizer Transit Center, the City of Bend Central Oregon Inter-modal Transit Center, the City of Prineville Multi-modal Railroad/Freight Depot, and the Union County Alicel Inter-modal Rail Logistics Center.
- ODOT is a key partner with other public agencies in financing transit expansions in the Portland Metro area:
  - ODOT allocated \$7 million of federal Surface Transportation Program funds and provided right-of-way at a significant below-market value to support the expansion of TriMet light rail along the I-205 corridor.
  - ODOT Financial Services is assisting with the sale of \$250 million of lottery backed bonds that will assist in capital construction of the TriMet light rail expansion and ODOT Public Transit is administering the distribution of \$20 million in lottery backed bonds for the purchase of streetcars to enable streetcar system expansion.

### ***Freight***

- ODOT Motor Carrier's Green Light program helps truckers save time and money and reduce emissions by "preclearing" trucks so they don't have to stop at Oregon weigh stations – saving an estimated 113,000 hours and \$13 million for truckers in 2006.
- TDD's Freight Mobility Section is conducting Oregon's first statewide freight planning effort, to ensure freight planning at local, statewide and regional levels reflects Oregon's sustainability as well as economic goals and strategies.
- In 2006, ODOT provided a \$3 million loan to the non-profit organization Cascade Sierra Solutions (CSS) to fund heavy-duty truck efficiency and idle reduction programs that reduce fuel consumption and greenhouse gas emissions. CSS operates in the States of Washington, Oregon and California with a primary focus on the Interstate 5 corridor. This loan was unprecedented and ODOT worked closely with FHWA to make the money available. The loan funds purchases of fuel-saving equipment like auxiliary power units which CSS then leases to small truck operators.
- ODOT participated in a 2005 Oregon Solutions project to promote truck stop electrification, and a number of truck plazas in Oregon have invested in electrified hookups. These are used to power refrigeration trucks and cab heat and air conditioning systems so that truck operators do not have to idle their diesel engines overnight.
- In light of the significant impact to the renewable energy sector and economic development in the state, ODOT accelerated decision-making processes to allow oversized vehicles on I-84 for shipping wind turbines.

### ***Optimizing the System***

- ODOT participated in the City of Portland's grant from the Climate Trust to improve signal coordination on 3 ODOT corridors in the Portland Metro area. The retiming was completed in 2005. It was estimated that the retiming would offset more than 33,000 metric tons of CO2 in the first year alone, with declining benefits after that. The grant paid for equipment to allow better signal coordination.
- ODOT's Region 1 has implemented adaptive ramp metering control systems. The ramp signals are optimized to keep the freeway traffic moving as well as possible depending on the level of congestion. This limits stopping and starting on the ramps and helps to reduce vehicular emissions and fuel consumption.
- Under the previous system the meters were pretimed and would stop vehicles on the ramps even when there was no congestion. Since 2004, ODOT has added a number of Intelligent Transportation System (ITS) technologies including cameras, variable message signs, highway advisory radio and weather stations to our inventory for operating the system. We have made improvements to our traveler information systems such as adding better information about public transportation options to TripCheck, delivering traveler information better formatted for wireless devices through our TripCheck Mobile system, and delivering traveler information to cable TV in several locations around the state. These technologies help optimize the use of the systems and ease peak demand.

### ***Innovative Pilot Projects***

- With direction from the legislatively mandated Road User Fee Task Force, ODOT developed an electronic mileage fee collection system that could support congestion pricing. This system, which would enable ODOT to disconnect its revenues from the consumption of fossil fuels, was tested in a year long study that ended in March 2007 and included a congestion pricing element.
- The Oregon Solar Highway Initiative – ODOT has initiated a project to demonstrate the viability of locating solar arrays along state highway rights of way. The first demonstration project is located at the interchange of I-5 and I-205 and will be operational before year's end. Funding for the project comes

through a public-private partnership with Portland General Electric (see [http://www.oregon.gov/ODOT/HWY/OIPP/docs/solar\\_factsheet.pdf](http://www.oregon.gov/ODOT/HWY/OIPP/docs/solar_factsheet.pdf) for details on the financing). ODOT will not own the array and is not responsible for operating or maintaining it. Instead ODOT will purchase the green power generated from the array at the same rate it would pay for grid energy – essentially getting caviar for the price of trout eggs. This is significant because unlike other state (General Fund) agencies, ODOT cannot purchase “green tags” or renewable energy certificates in order to secure green electricity, due to current interpretation of the constitutional limitations on the Highway Fund. ODOT can only get green energy by generating its own. This single installation will reduce annual carbon emissions by 38.9 metric tons of CO<sub>2</sub>e (carbon dioxide equivalent) compared to electricity purchased from the Pacific Northwest Regional Energy Grid. Future installations will include other ODOT properties, including roof tops, facility ground mounts, and right of way installations.

- ODOT Alternative Fuels Corridor - The Department is leading an effort to incubate the distribution of alternative fuels and/or solar powered charging stations for plug-in electric hybrid vehicles along the I-5 corridor to help increase the market demand for alternative fuel vehicles, by developing partnerships with the private sector and/or other public partners.
- ODOT’s Innovative Partnership Program is working with Portland General Electric and other partners on a demonstration project which will design standards for charging stations and develop a public awareness campaign to prepare for mass adoptions of plug-in cars over the next two to five years. For ODOT, the project is part of a larger effort that will investigate a variety of methods for funding, installing, and managing a network of charging stations.
- The Oregon Transportation Commission set aside \$8 million in Operations Program funding to be utilized in a competitive project selection process to identify innovative concepts for reducing congestion and/or improving freight mobility on the state highway system. The program will fund the projects that best demonstrate innovative system operations and management strategies and technologies and that have the highest potential for improving the state of the practice for transportation operations. Project funding recommendations from the selection committee will be presented to the OTC in October 2008 for approval.

### ***Highway Construction Projects***

- The Columbia River Crossing project in the Portland area, undertook an analysis of greenhouse gas impacts as part of the Draft Environmental Impact Statement alternatives analysis.
- Various aspects of ODOT’s innovative Context Sensitive and Sustainable Solutions (CS<sup>3</sup>) approach to the OTIA III bridge program support greenhouse gas reductions:
  - The OTIA III Access/Staging Performance Standard limits truck idling to five minutes, except in extreme cold weather or when needed for other reasons.
  - The OTIA III Materials Procurement and Use Performance Standard requires contractors to use ultra-low sulfur fuel, bio-diesel, or EPA-verified fuel additives in vehicles and equipment where possible and available, or a minimum of highway grade fuel where alternative fuels are not possible.

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**APPENDIX 1: POLICY MANDATES RELATED TO INTERNAL OPERATIONS**

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ORS 276.900 states that “It is the policy of the State of Oregon that facilities to be constructed or purchased by authorized state agencies be designed, constructed, renovated and operated so as to minimize the use of nonrenewable energy resources and to serve as models of energy efficiency.”

A goal of 20% energy reduction by state agencies by 2010 (over a 2000 baseline) is mandated by Executive Order 06-02; energy savings are required to come from both new and existing buildings and other metered electricity use.

When siting state office locations, Executive Order 94-07 “Siting State Offices in Oregon’s Community Centers” requires preferential consideration be given to locations within central business districts and conveniently close to transit in communities that have transit service. Other areas of mixed use development that are highly accessible to the public, have a fully developed pedestrian circulation system, have high quality transit service (in those communities with transit service), and are designated as urban centers in the applicable comprehensive plan may also be given priority consideration.

OAR 330-130 prescribes procedures to minimize energy use in new and renovated facilities designed and constructed by state agencies; guidelines for implementing these procedures are given in the State Energy Efficient Design (SEED) Program Guidelines.

Governor Kulongoski has stated his desire for state agencies to purchase 100% of their energy from renewable sources by 2010.

Oregon’s Renewable Energy Action Plan (REAP) mandates the following use of biofuels: 10% of the gasoline used by state government’s fleet vehicles will be E-85 by 2010, increasing to 25% by 2025; 10% of the diesel used by state government’s fleet vehicles will be B-20 by July 2007, increasing to 25% by July 2010 and 100% 2025.

DAS Policy 125-6-010 “Sustainable Facilities Standards and Guidelines” requires:

- Building decisions must consider the full life of materials. The review must include life cycle assessment and life cycle cost factors.
- New state-owned buildings shall be designed to meet the point equivalent of a Leadership in Energy and Environmental Design (LEED™) Silver rating.
- Renovations of state-owned or build-to-suit leased buildings shall be designed to meet the point equivalent of a LEED™ Certified rating.

DAS Policy 107-009-0050 “Sustainable Acquisition and Disposal of Electronic Equipment” requires the use of Electronic Products and Acquisition Technology (EPEAT) environmental and energy criteria for the purchase of computer equipment such as desktops, computer laptops, computer monitors, and input or output devices.

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**APPENDIX 2: POLICY MANDATES RELATED TO THE TRANSPORTATION SYSTEM**

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OTP<sup>1</sup> Policy 1.1 – It is the policy of the State of Oregon to plan and develop a balanced, integrated transportation system with modal choices for the movement of people and goods.

OTP Policy 2.1 – It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long term benefit of people and goods movement.

OTP Policy 4.2 – It is the policy of the State of Oregon to support efforts to move to a diversified and cleaner energy supply, promote fuel efficiencies and prepare for possible fuel shortages.

OHP<sup>2</sup> Policy 4B – It is the policy of the State of Oregon to advance and support alternative passenger transportation systems where travel demand, land use, and other factors indicate the potential for successful and effective development of alternative passenger modes.

OHP Policy 4D – It is the policy of the State of Oregon to support the efficient use of the state transportation system through investment in transportation demand management strategies.

ORS 469.010 states that “It is the goal of Oregon to promote the efficient use of energy resources and to develop permanently sustainable energy resources” and includes the following policy: “energy-efficient modes of transportation for people and goods shall be encouraged, while energy-inefficient modes of transportation shall be discouraged.”

House Bill 3543 (The Climate Change Integration Act) created specific greenhouse gas emissions reduction goals for the state:

1. By 2010, arrest the growth of Oregon’s greenhouse gas emissions and begin to reduce them.
2. By 2020, achieve greenhouse gas levels that are 10 percent below 1990 levels.
3. By 2050, achieve greenhouse gas levels that are at least 75 percent below 1990 levels.

ORS 366.514 requires that wherever highways, roads, or streets are being constructed, reconstructed, or relocated, footpaths and bicycle trails will be built as part of these projects. The amount expended by ODOT shall never in any one fiscal year be less than one percent of the funds received from the Highway Fund.

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<sup>1</sup> Oregon Transportation Plan, 2006

<sup>2</sup> Oregon Highway Plan, 1999

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