Official Response to the Performance Audit of the State Highway System
From Department of Transportation and Office of Financial Management
October 4, 2007

This document was prepared in response to the audit report delivered to the Washington State Department of Transportation (WSDOT) on September 27, 2007. We have provided a coordinated response from both WSDOT and the Office of Financial Management (OFM) for each issue. Our intent is that this organization will make it easier to copy and paste our response after the appropriate issue and recommendation section in the report.

Issue 1: ***WSDOT does not focus on congestion as a primary goal.***
Recommendation 1: ***WSDOT should commit to congestion management and reduction as a primary goal.***

WSDOT Response: Congestion reduction is critical, and one of many important priorities that are WSDOT's responsibility. The Governor and WSDOT, with the support of the Legislature and Transportation Commission, have chosen to focus first on the safety, preservation, and maintenance of the state's transportation system. This "fix it first" mandate is critical, as it ensures the continued and long-term use of the 7,000 centerline miles of state highways upon which we depend. These priorities are not unique to Washington they reflect the priorities of many states nationally and governments internationally.

The 16-year financial plan includes 388 projects specifically related to the revenue packages passed by the 2003 and 2005 Legislatures. These legislatively mandated projects, worth more than $14.9 billion, are targeted to safety, preservation and congestion relief.

OFM Response: Addressing congestion is of great importance to the Governor, the Legislature, WSDOT, and the citizens of our state. Yet safety, preservation, and maintenance must remain our highest priorities. We must continue to protect travelers and the investments we have made. Economic vitality and environmental protection also must remain high priorities.

We need to improve how we communicate about what is being done to address congestion in each of the following categories: 1) adding system capacity, 2) managing demand, and 3) improving operating efficiencies. Unfortunately, we currently do not have the budgeting or reporting systems in place to organize data in this manner.

For example, the following are programs that address congestion, yet are not formally categorized as "congestion relief."

- **Capacity Improvements –** The 2003 and 2005 Legislatures respectively passed nickel and nine-and-one-half cent revenue increases to support the largest capacity improvement program in Washington State history.
- **HOVs** – As of 2006, 205 miles of the more than 300-mile central Puget Sound HOV system have already been opened to traffic, 44 miles are currently being designed, and 58 miles are under construction. Over $1.1 billion has been spent on the core HOV system to date.
- **Incident Response** – There are 55 incident response vehicles on the freeways to assist drivers promptly and keep traffic flowing when there is an incident. The number of incidents to which WSDOT has responded increased from 17,479 in 2002 to 59,276 in 2006. In the 2007-09 biennium, $9.5 million is committed to this program.
- **Park and Ride Lots** – There are 294 park-and-ride lots statewide with more than 35,000 parking stalls.

- **Traffic Management Centers** – WSDOT maintains seven Traffic Management Centers throughout the state. The cost to operate these centers in 2007-09 is about $5.5 million. These systems provide real-time travel information to the media and keep the variable message signs updated with current traffic conditions and incidents.
- **Real-Time Traffic Information** – The real-time commute trip information provided by more than 475 traffic cameras and other equipment has become an expected part of every daily newscast to help travelers determine their commute time. Based on a survey cited in the audit, 11 percent of commuters change or postpone their trips based on real-time traffic information.
- **Variable Message Boards** – Of the 169 variable message boards statewide, 80 are permanently located in the Puget Sound area. These boards have become an important tool for managing traveler expectations and for providing sufficient notice to drivers to use alternative routes. They are estimated to have a current value of $25 million.
- **Ramp Metering** – Ramp meters are a proven means of smoothing and increasing traffic throughput. Since 1981, the department has increased its use of ramp meters in the Puget Sound area from 22 to 135. The long-range estimated need for King, Snohomish and Pierce Counties is approximately 140 additional ramp meters at a cost of $180 million.
- **Commute Trip Reduction** – More than 1,100 worksites participate in the CTR program. CTR has reduced 14,200 vehicle trips each weekday morning and has reduced travel delay by an estimated 11.6 percent. The audit recommends doubling this program annually. The appropriation for the current biennium is $5.6 million.
- **Van Pools** – Every work day, approximately 1,389 vans operate in the Puget Sound area, with more than 1,650 vans statewide. Washington has the largest van pool program in the nation.
- **Urban Partnership Agreement –** The U.S. Department of Transportation recently awarded $138 million to WSDOT, King County, and the Puget Sound Regional Council in an Urban Partnership Agreement to reduce congestion in the SR-520 corridor with an innovative combination of transit, technology, telecommuting, and variable tolling. WSDOT will continue to work with the Governor's Office and the Legislature on implementing the Urban Partnership proposals in the 2008 and 2009 legislative sessions.

These are just a few examples of the size and type of investments made to address congestion relief, yet budget and reporting systems are not in place to easily summarize and communicate this kind of information.

<u>Action Steps and Timeframe</u>

- OFM will convene a budget instructions workgroup in the fall of 2007 to evaluate, among other things, how we budget and report on congestion relief. This effort will be completed by June 2008.
- The 2007 Legislature mandated OFM to report on the progress being made on five policy goals in a newly required attainment report. Congestion will be addressed under the mobility policy goal. OFM will convene an attainment report workgroup in the fall of 2007 to address which congestion measures should be included in this report. The first report will be submitted to the Legislature in December 2007.

Issue 2: ***WSDOT must continue to use a combination of all available tools to effectively mitigate congestion.***

Recommendation 2: ***We recommend WSDOT continue to use all tools at its disposal to mitigate the growth in traffic congestion recognizing the relative contributions each tool can make, its benefits, and associated costs with a focus on generating maximum congestion relief.***

WSDOT Response: We appreciate the audit's acknowledgment that WSDOT has been diligent and successful in using demand management and other tools to improve traffic conditions. We agree that numerous tools are required. WSDOT's use of such tools are documented in the response to Recommendation #1. The recently-released 2007 Urban Mobility Report by the Texas Transportation Institute suggests a series of congestion relief strategies and tools, all of which are closely aligned with WSDOT's current initiatives, strategies and projects.

OFM Response: We agree that WSDOT must continue to use all available tools to effectively mitigate congestion. To remain a national leader in this area, WSDOT will need to continue bringing creative approaches to the Governor and Legislature for their consideration. One example being explored by DOT is Active Traffic Management which may improve throughput and reduce incidents through innovative concepts, such as "speed harmonization." This includes such things as installing overhead gantries across the highway at close intervals to allow drivers in each lane to be warned of upcoming roadway conditions and speed changes. It also includes consideration of variable speed limits, lane closures, and the use of shoulders if feasible.

Action Steps and Timeframe

- WSDOT will evaluate the costs and benefits of active traffic management including "speed harmonization" and report to the Governor and the Legislature during the 2008 legislative session.
- The SR-167 HOT lane pilot will open in the spring of 2008. WSDOT will report on the effectiveness of the HOT lane pilot project on a semi-annual basis beginning in the fall of 2008.
- WSDOT will continue to convene local and state entities regularly to exchange information and share ideas about tolling policies, practices, and strategic initiatives. These ideas will be presented to the Governor and the Legislature by June 2008.
- As part of the Urban Partnership project, various tolling options will be evaluated and submitted to the Governor and Legislature for consideration in the 2008 legislative session.

Issue 3: ***A legacy of outdated design practices from previous eras degrades the effective capacity of the freeway network.***

Recommendation 3: ***WSDOT should reduce weaving and other traffic conflicts across the Puget Sound freeway network focusing on:***

- ***improving interchange design,***
- ***eliminating some left-hand exits,***
- ***reconfiguring key interchanges/freeway segments that experience significant weaving, merging, and safety hazards,***
- ***adding reversible lanes where practical, and***
- ***using collector/distributor configurations wherever practical.***

WSDOT Response: We agree that modern design standards more effectively accommodate safe and efficient traffic movement in congested areas. In today's highway projects, WSDOT uses design practices that offer more effective ramp and interchange configurations yielding greater throughput.

In the 1960s design of I-5 through downtown Seattle, many design deviations occurred largely because of the geological and physical constraints engineers encountered when constructing I-5. For example, the retaining walls on the east side of I-5 are literally holding up Capitol and Beacon Hills, and have tightly spaced 120-foot deep cylinder pilings below the walls. On the west side of I-5, high density developments, including basements of high rise buildings, pose barriers. Please consider the following items pertaining to the recommendations.

- **Interchange Design** – Existing interchange designs, dating to the 1950s and 1960s, were developed to meet capacity and design expectations of the 1980s. Current use greatly exceeds what was anticipated. WSDOT has worked with the Legislature to discuss alternatives. Improvements to interchange design must consider local expectations, funding, and available land for construction. As the audit states, physical constraints significantly limit solutions.
- **Left-hand Exits** – For left-hand exits to be eliminated, directional ramps with right-hand exits would likely need to be constructed. The I-5 southbound exit to the SR-520 bridge is one of these left-hand ramps. The benefits/costs of these types of ramp relocations have to be evaluated to determine if there are any feasible alternatives.
- **Interchanges/Freeway Segments** – The Washington Transportation Plan, and the soon-to-be published Highway System Plan update, place great emphasis on addressing bottlenecks and chokepoints. A major traffic modeling effort was completed to identify these locations. Strategies have been developed to address these problems, but many remain unfunded.
- **Reversible Lanes** – It is not clear whether additional reversible lanes could be added north or south of downtown Seattle. Further assessment, including identifying benefits and costs, is needed.
- **Collector/Distributor Configurations** – The decision to add collector/distributor lanes must consider that high-rise buildings and other development are within feet of the freeway through much of downtown Seattle. It would carry substantial right-of-way costs to create room for a collector/distributor corridor.

OFM Response: WSDOT constructs to the design standards of the day. It would be cost-prohibitive to bring all outdated facilities up to current standards. The Central Puget Sound area is particularly problematic as noted in the WSDOT response, yet some opportunities for design and construction improvements may be available. Given the constraints on the current 16-year plan, additional funding would most likely be required.

Action Steps and Timeframe

- WSDOT will work with House and Senate Transportation Committee members during the 2008 legislative session to evaluate options that might be available to increase the effective capacity of the freeway network through downtown Seattle and the greater Puget Sound region.

Issue 4: ***WSDOT's lack of focus on general purpose capacity in the last 20 years has resulted in a shortfall in lane miles relative to population growth and traffic demand.***
Recommendation 4: ***We recommend WSDOT accelerate design and construction of new lanes and additional capacity to address the previous 20 year deficit.***

WSDOT Response: The disparity between the growth rates of lane miles and the growth rates of population and economic growth has not been caused by a lack of focus on congestion, but a lack of funding. Like many other parts of the country, the primary cause for "not keeping up with growth"

has been a lack of resources. Funding has not been identified to accelerate the design and construction of enough capacity to address the previous 20-year deficit.

As the audit acknowledges, the high cost of construction, geographic, commercial, regulatory, public sentiment, and environmental circumstances are all factors that have contributed to the shortfall of construction of new lane miles. In addition, state and regional policy makers have not indicated that solving congestion will be addressed only through freeway expansion.

WSDOT has focused its available funds on key capacity projects, such as adding HOV lanes (see OFM's response to #1). For example, I-5 has received significant investment during the last two decades. WSDOT has nearly completed the core HOV lanes on I-5 through King County, is in the process of completing the core HOV lanes in Snohomish County, and has been funded to complete the system in Pierce County to SR-16.

OFM Response: WSDOT cannot be held accountable for the under-funding of the transportation system. Thirteen years passed between the 1990 gas tax increase and the 2003 nickel gas tax increase. During that 13-year period, inflation increased by 31 percent, our population grew by 25 percent, and vehicle miles traveled (VMT) increased by 25 percent. The 5.0 cent gas tax in 2003 was bolstered by the subsequent legislative adoption of an additional 9.5 cent gas tax in 2005. These two legislative acts combined provided $ 14.9 billion in funding. In 2005, the voters rejected an initiative to repeal most of these increases.

Action Steps and Timeframe
This recommendation is beyond the control of WSDOT.

Issue 5: ***Multimodal planning in the Puget Sound region is not focused on cost-effective congestion reduction.***
Recommendation 5: ***We recommend WSDOT compare congestion-related goals, objectives, and benchmarks to all highway and transit-related investments.***

WSDOT Response: We agree that linkage between congestion-related goals, objectives, and benchmarks to all highway and transit-related investments is a desirable practice. Although WSDOT considers these linkages in the project selection process and collaborates with transit agencies, the Auditor correctly notes that WSDOT has little or no control over transit appropriations. It is not in our purview to comment on transit.

WSDOT agrees that having multimodal analysis for project selection would help focus legislative and regional decisions on congestion impacts. In corridor studies where congestion solutions are initially developed, WSDOT routinely evaluates multimodal improvement options. Only the most viable and cost-effective improvement options are recommended for implementation. For example, the I-405 corridor study in 2002 led to successful funding of several major mobility improvement projects in the corridor.

Through benefit-cost and environmental impact analysis and consensus building, the study proposed a comprehensive corridor improvement program that included freeway widening, new high-capacity transit, added arterial capacity, and other improvements that address multi-modal transportation needs throughout the length of the I-405 corridor. When completed, these projects are expected to significantly reduce congestion.

Corridor studies and environmental impact studies (EIS) commonly include consideration of multimodal options. A corridor route study or an EIS generally considers a range of alternatives from doing nothing to increasing investments in high-capacity transit and other transportation demand management strategies to adding capacity. Many of these studies take years to complete, involve extensive public involvement, and include multiple transportation interests.

In addition, WSDOT works with the major transit agencies in the region and PSRC to develop the highway system so that it is conducive to efficient transit operations. For example, HOV lanes increase travel time reliability for transit buses, vanpools, and carpools.

OFM Response: The U.S. Department of Transportation and other transportation experts recognize the complexity of this kind of analysis; however, it is worth pursuing.

Action Steps and Timeframe

- OFM will work with WSDOT to seek emerging and new multi-modal investment trade-off methodologies. The assessment will be completed for consideration in the next biennial budget.

Issue 6: ***WSDOT has not emphasized congestion reduction in its decision making process.***
Recommendation 6: ***We recommend WSDOT elevate congestion reduction benefits in all decision-making processes.***

WSDOT Response: This recommendation closely aligns with Recommendations #1 and #5. As previously stated, WSDOT uses congestion as a major weighting factor in calculating project benefits. In prioritizing highway projects, WSDOT relies on cost-benefit analysis. In this analysis, delay and accident reduction accounts for about 64 percent of the benefits. The remaining 36 percent includes such factors as community support, environmental impacts, relationship to other travel modes, and land use impacts.

OFM Response: As noted in the audit, the department does a cost-benefit analysis on improvement projects that weigh congestion relief at 64 percent of the benefit calculation. However, current budget practice does not enable the department to submit its budget to the Governor or Legislature based on congestion relief as a stand-alone budget category.

Action Steps and Timeframe
Please see Action Steps under Recommendation #1.

Issue 7: ***Project programming does not reflect clear linkages to planning and prioritization.***
Recommendation 7: ***We recommend WSDOT better link project planning, prioritization and programming to reflect congestion reduction goals.***

WSDOT Response: We agree and have been working on improving this connection between planning and implementation of congestion relief projects. Our soon-to-be released Highway System Plan demonstrates key improvements in strengthening these linkages.

Most projects in the 16-year plan are already committed to. Future projects will be selected using a new approach. In the 2007-2026 version of the Highway System Plan, WSDOT has revised its needs criteria for congestion to emphasize the maximum throughput of a corridor as the key

performance objective. A corridor's forecasted operational speed for 2030 has to fall below 70 percent of the posted speed before it will be considered as a mobility and improvement need. WSDOT also identified bottleneck and chokepoint locations to focus scarce revenues toward reducing congestion and improving throughput.

WSDOT also implemented a tiered approach for addressing improvement needs to achieve the greatest reduction of delay at the least cost. The approach separates strategies into three investment tiers (operations strategies, modest cost projects and high cost projects) to be implemented incrementally over the life of the 20-year plan to maximize every dollar invested.

Currently funded projects are the result of planning studies (deficiency analysis, engineering analysis, and solution identification) and cost-benefit analysis. Many come directly from corridor planning studies that have been done throughout the last two decades. Others come from broader planning efforts such as development of the Washington Transportation Plan, the Highway System Plan, the Metropolitan Transportation Plan, and local comprehensive plans. Planning identifies the greatest need based on system performance criteria. Projects that have the highest benefit/cost ratio are submitted to the Legislature for consideration.

OFM Response: The idea expressed in this section of the audit that "*congestion is a choice rather than a condition"* does not fully consider the myriad of pressing demands upon scarce transportation resources. Solely addressing congestion relief at the expense of safety, for example, would not be in the state's or citizens' best interest.

Action Steps and Timeframe

- The Highway System Plan will be completed by the spring of 2008.

Issue 8: ***WSDOT is not managing congestion through a system of measurable performance objectives.***
Recommendation 8: ***We recommend WSDOT (or a new regional transportation entity) manage traffic congestion through a system of measurable performance objectives.***

WSDOT Response: WSDOT agrees with the concept of measurable performance objectives and has already fully embraced and implemented a performance management culture. The agency continuously seeks to improve and enhance its ongoing congestion measurement and analysis that tracks results for stated objectives. The agency publishes an annual congestion report that uses real-time data gathered from loop detectors to analyze system performance on critical corridors in the Puget Sound region.

However, WSDOT disagrees that it is not managing congestion through a system of measurable performance objectives. In the congestion report, the Highway Systems Plan, and in many other publications and presentations, WSDOT clearly states and emphasizes its key congestion management objectives: **maximize system throughput and enhance reliability.** These are quantifiable objectives that are tracked and measured. Results are summarized and published annually (also see response to #7 on using these objectives to identify transportation needs). WSDOT's congestion measurement efforts and reports are nationally recognized, as are its strategies to achieve these stated objectives.

For example, the most recent Urban Mobility Report (September 2007), published by the nationally recognized Texas Transportation Institute, specifically names WSDOT as a leader in the field of operation strategies (page 19). It goes on to say that WSDOT has improved its ability to control traffic flow to maximize safety and reliability. Stated performance objectives and comprehensive measurement efforts are at the heart of these and other congestion management strategies.

The Governor's Priorities of Government and the set of overarching state transportation policy goals adopted by the Legislature also provide closely aligned performance goals. For example, the newly adopted mobility goal specifically aims to **improve the predictable movement of goods and people *(reliability*)**. WSDOT works closely with the Governor, the Legislature, and the Office of Financial Management to track, measure, and evaluate results; implement strategies to achieve stated objectives; and further refine the agency's existing objective-driven management efforts.

OFM Response: We fully agree that effective performance measures should inform us about what works and what doesn't. However, many factors that contribute to congestion are beyond the control of WSDOT. Congestion factors include population and employment growth, fuel prices, number of vehicles owned and number of miles driven, the age of the driving population, housing prices, income levels, changing technologies, available transportation alternatives, and the investments made in transportation systems at all levels of government and by the private sector.

WSDOT uses multiple congestion measures to evaluate the condition of 37 urban commuter routes, as well as some arterials. Examples of the measures used are average travel time on a route during the peak travel period, duration of congestion, and percent of days the speed falls below 35 mph.

The collection of indicators informs us about the traffic condition of particular roads and highways, and drives discussion about where investments are most needed. Yet there are many other things that also should be considered – like land use, for example.

The audit states that WSDOT should collaborate with residents in communities throughout the state and the Legislature to determine what level of congestion will be "designated as a regional policy objective." Our state Growth Management Act requires communities to adopt level of service standards on our roads and highways. However, transportation facilities of "statewide significance," including all major highways, are exempt from this requirement. The Legislature has recognized the difficulty of controlling land use and its related impacts on state highways.

<u>Action Steps and Timeframe</u>

- The audit provides two examples of aggressive target-setting strategies for congestion reduction in Georgia and Texas. However, these states have not yet implemented these approaches. WSDOT will observe how these strategies are implemented and funded.
- To enhance measurement efforts, WSDOT will work to increase the level of analysis done on congestion before and after improvement projects. This effort will require additional funding.
- WSDOT will evaluate the implementation of a comprehensive highway performance measurement tracking and reporting system that captures active travel time data, as well as modeled data and other data sources to provide specific and timely congestion performance information. WSDOT will submit this as a decision package in the 2009-11 biennium.

- WSDOT will evaluate the recently awarded Urban Partnership Agreement project to determine which measurements will be needed to assess project effectiveness. This review will be completed by the summer of 2009.
- OFM will convene a workgroup in the fall of 2007 to develop baseline performance measures, including measures for congestion, which will be included in an annual attainment report. The measures will be used to evaluate progress in achieving the five transportation policy goals adopted by the Legislature in 2007. The congestion measures will be addressed under the mobility goal.

Issue 9: ***A lack of traffic signal system coordination in the Puget Sound region contributes significantly to delays.***
Recommendation 9: ***WSDOT (or a new regional entity) should collaborate with the PSRC and other local jurisdictions to implement a traffic signal coordination program for major arterials in the Region.***

WSDOT Response: We agree that signal coordination is beneficial in reducing delay. WSDOT owns and operates more than 1,000 traffic signals on state roadways. Virtually all of WSDOT's signals are fully actuated traffic systems, meaning they use loop detectors to determine when the signal light changes to green. Actuated signals take into account fluctuations in traffic volumes. Every two years, WSDOT develops a signal re-timing and coordination plan. The plan is based on the number of signals in an area, where each signal is located (i.e. suburban and rural), the volume of vehicles that travel through each signal, and the available staffing resources.

The collaboration suggested in the audit report has been formally underway within the Puget Sound region for the past year, as well as formal agency-to-agency operating agreements for the past several years. PSRC took the lead in initiating the Regional Traffic Operations Committee (RTOC) whose focus is collaboration and coordination on regional traffic operations investments and practices. Traffic signal operations are the primary emphasis, along with intelligent transportation systems (e.g., ramp meters, loop detectors, cameras) and active traffic management.

WSDOT has other ongoing signal coordination efforts underway with multiple local and regional jurisdictions.

OFM Response: Although an additional $654,000 was provided in the 2007-09 Transportation Budget for signal coordination, we agree more needs to be done. The audit suggests that a modest level of signal coordination in the Puget Sound region should reduce delays by 15 to 20 percent. However, it is unclear what level of investment would be needed to reach this reduction.

<u>Action Steps and Timeframe</u>
- This is a high priority for the department. WSDOT will continue to collaborate with local jurisdictions throughout the Puget Sound region to integrate and operate traffic signals along interconnecting corridors. WSDOT will brief the Governor and the House and Senate Transportation Committees on the status of the Traffic Operations Committee's progress during the 2008 legislative session.

Issue 10: ***HOT lanes offer an untapped method to use available HOV.***

Recommendation 10: ***We recommend WSDOT deploy future HOT lane projects aggressively if the SR 167 pilot is successful.***

WSDOT Response: We support this suggestion, and WSDOT will likely propose additional HOT lane deployments if the SR-167 pilot project is successful pending direction from the Governor and the Legislature.

OFM Response: The transportation community will evaluate the effectiveness of the SR-167 HOT lane pilot project and determine whether to proceed with the conversion of other HOV lanes to HOT lanes. Preliminary estimates by the Department of Transportation for such conversion indicate a price range of $10 billion to $22 billion.

Action Steps and Timeframe

- WSDOT will report on the preliminary results from the HOT lane pilot project in the 2009 legislative session.
- WSDOT will examine several potential projects that could use system management strategies such as HOT lanes and speed harmonization. The assessment will be completed for consideration in the 2009-11 budget.

Issue 11: ***Current legislation limits expansion of HOT lanes and use of tolls.***
Recommendation 11: ***We recommend the Washington State Legislature implement new legislation to facilitate the expansion of road pricing should WSDOT's HOT lane pilot be successful.***

WSDOT Response: WSDOT defers to the Legislature on this recommendation.

OFM Response: The Legislature has made it clear that authorization to charge a toll on SR-167 is for a four-year pilot program. It also has made it clear that specific legislative authorization is needed to impose tolls. (Tolls may also be imposed by a majority vote of the people within the boundaries of an area authorized to impose tolls.)

The 2008 Legislature is expected to adopt a comprehensive tolling policy bill. We do not agree with the audit statement: "If this legislation slows down the implementation of HOT lanes, any congestion relief they can provide to the Puget Sound region will be deferred." In fact, we believe a steady and deliberative approach is exactly what is needed to determine the costs and benefits, including public acceptance, of this and other tolling initiatives.

Action Steps and Timeframe

- This recommendation is beyond the control of WSDOT.

Issue 12: ***No single entity in the Puget Sound region has the authority or resources to implement solutions to congestion-related issues.***
Recommendation 12: ***We recommend the Washington State Legislature should empower a single body – either WSDOT or a new regional transportation entity for the Puget Sound Region – to allow for a more integrated approach to planning for congestion reduction.***

WSDOT Response: WSDOT defers to the Legislature on this recommendation.

OFM Response: We believe this is outside the scope of the audit of WSDOT.

Action Steps and Timeframe

- This recommendation is beyond the control of WSDOT.

Issue 13: ***WSDOT is not expanding its successful Commuter Trip Reduction Program.***
Recommendation 13: ***We recommend WSDOT's Commuter Trip Reduction Program be expanded to include increased financial incentives, additional financial disincentives, and regional marketing.***

WSDOT Response: WSDOT agrees that the Commute Trip Reduction program is successful. It has recently implemented new legislation that offers financial incentives to entities that reduce single-occupancy vehicle trips.

The Legislature has recently invested in commute reduction strategies as follows:

- In 2003, it created the Vanpool Investment Program and the Trip Reduction Performance Program (TRPP) which encourages entrepreneurs, private companies, transit systems, cities, non-profit organizations, developers and property managers to provide services to employees that result in fewer vehicle trips arriving at worksites.
- The 2005-07 transportation budget includes $3.9 million to purchase 150 new vanpool vans,
- The 2007-2009 transportation budget includes $2.6 million for additional vanpool grants and $2.4 million to WSDOT to implement the new Growth and Transportation Efficiency Center program.

OFM Response: Issue #13 is closely related to a number of recommendations made in this section of the audit including: a) increasing the CTR incentive beyond the current maximum allowable bonus level of $460 to $1,000 for each additional commute trip reduced beyond targeted goals, b) doubling the size of the overall program, and c) implementing a regional "look before you leave" campaign to influence travel choices.

Certainly more can be done to work with private and public employers to decrease dependence upon single occupant vehicles. WSDOT's vision and leadership can help to further guide programs and projects in multiple jurisdictions, in both the public and private sectors. CTR is one of many efforts to accomplish this.

Action Steps and Timeframe

- The Commute Trip Reduction Board will report on the effectiveness of the new, recently funded CTR initiatives in a briefing to the Governor and Legislature by January 2009.

Issue 14: ***WSDOT's Commute Trip Reduction Program does not include an aggressive telecommute component.***
Recommendation 14: ***We recommend WSDOT implement a telecommute program focusing on telework incentives.***

WSDOT Response: WSDOT supports all efforts to improve the efficiency of the state highway system. Telework practices continue to expand at CTR worksites and many employers' CTR programs include a telework component. It is important to recognize that the decision to allow employees to telework is a business decision that the state cannot dictate to the private sector.

The Trip Reduction Performance Program is currently funding one employer-based telework project. Results for this two-year project will be available in 2009.

The audit references the Minnesota Department of Transportation as an example of a DOT that explores telecommuting strategies as part of its recently awarded Urban Partnership Agreement (UPA) grant. Please note that the Seattle region/WSDOT was also one of the five states that competed for and received an Urban Partnership Agreement grant for its proposal that includes a progressive telecommuting component. In addition, WSDOT was one of the first agencies in Washington State that implemented a formal telecommuting program for its employees.

OFM Response: The Internet has transformed where, when, and how we work and communicate. As the audit points out, future projections indicate that almost 20 percent of the workforce will engage in telework. Telecommuting not only helps reduce congestion by removing commuters from the road, but offers potential social benefits by allowing employees to balance their work and personal lives. Thus, expanding employee incentives and applying monetary payments similar to those currently provided to workers choosing non-SOV mode choices may not be necessary.

Action Steps and Timeframe

- WSDOT will continue to develop the telecommuting strategies identified in the Urban Partnership Agreement and evaluate the referenced CTR telework projects. WSDOT will brief the Governor and the Legislature by January 2009 on the status of these efforts.

Issue 15: ***WSDOT's real-time traffic information is not available for most arterials and some key freeways.***
Recommendation 15: ***We recommend WSDOT use available technology to expand coverage of real-time traffic information to all freeways and major arterials.***

WSDOT Response: We agree that technology is enhancing the opportunity for government entities to monitor traffic patterns and freeway/roadway conditions. WSDOT is currently exploring available technologies to expand traveler information as well as the role that the private sector may play in providing this information. WSDOT has focused on collecting traffic data for the primary purpose of system management, primarily ramp metering, with traveler information being the secondary benefit. Operational data require a higher level of infrastructure investment than collection of data focused solely on real-time traffic information. It is necessary to consider the entire approach to managing the system to determine which methods best apply to each facility.

WSDOT offers a comprehensive "Statewide Traveler Information" website at www.wsdot.wa.gov/traffic. It includes a map of travel conditions (flow map) and real-time travel times for key commute routes at www.wsdot.wa.gov/traffic/seattle/traveltimes/, and 95% reliable travel times for selected routes at www.wsdot.wa.gov/Traffic/Seattle/TravelTimes/reliability/. In addition, WSDOT operates 80 active, variable message signs (VMS) in the Puget Sound area and displays real travel times on some of these.

WSDOT has begun using Automated License Plate Recognition (ALPR) technology to collect real-time travel data on some arterial routes (e.g., SR-522). Traffic signals and closely spaced access points on these routes interrupt traffic flow, making it less favorable for other data collection technology.

WSDOT is actively working with its national partners and peers – both private and public – to identify and test cost-effective and reliable traffic data sources.

OFM Response: We agree that coordination between local, regional, and state governments to maximize traffic signalization on key arterials and freeways is a necessary and laudable objective.

Action Steps and Timeframe

- WSDOT will evaluate new technologies to collect traffic data throughout the 2007-09 biennium and make recommendations in its 2009-11 budget submittal.

Issue 16: ***Lack of funding limits many useful congestion-related operations projects.***
Recommendation 16: ***We recommend WSDOT work to fully fund operations programs that emphasize congestion management.***

WSDOT Response: WSDOT agrees that additional funding for high benefit/cost operational strategies would be beneficial. However, WSDOT operational programs have received incremental funding increases over the years. During the past ten years, for example, WSDOT has received an additional $33 million (from $21 million to $54 million) to strengthen operating enhancements such as minor widening of freeway ramps, incident response vehicles, ramp metering, signal timing, bicycle and pedestrian projects.

OFM Response: We agree.

Action Steps and Timeframe

- WSDOT is currently completing an assessment to evaluate the potential benefits of additional operational strategies such as active traffic management strategies and intelligent transportation system investments (e.g., the supporting hardware). This evaluation will be completed in time for the 2009-11 budget submittal.

Issue 17: ***WSDOT ramp metering coverage is not complete.***
Recommendation 17: ***We recommend WSDOT continue to improve its ramp metering system; expand it to other locations; and assess its ramp-control algorithms.***

WSDOT Response: WSDOT agrees that expanding the geographic coverage of the freeway ramp metering system is beneficial. The estimated long-range need for additional ramp metering on state-owned highways in King, Snohomish and Pierce counties is approximately 140 ramp meters at a cost of $180 million.

WSDOT will continue to assess its existing ramp metering system and balance between the problem of backing traffic onto local roads and keeping traffic running smoothly on the state system. WSDOT has extensive experience in ramp metering and is continuing to improve its operations.

There have been ramp meters in the Seattle area since 1981. The majority of ramp meters are located on the busiest highways in the Seattle area: I-5, SR-520, I-90, I-405 and SR-167. Typically, ramps are metered from 6 a.m. to 9 a.m. and from 3 p.m. to 7 p.m. These times may vary depending upon the level of traffic congestion.

WSDOT's ramp-control algorithm is the most advanced in the country, using historical traffic data as well as system-wide, real-time traffic data from the metered freeway and connecting ramps. We actively manage the system on a daily basis and perform a full review of each metered location every six months, adjusting system inputs where necessary.

OFM Response: OFM will work with WSDOT to understand any gaps in the system and what it would cost to close those gaps.

Action Steps and Timeframe

- WSDOT is converting its traffic management software, including exploring potential enhancements to the ramp metering algorithms. Expected to complete by next biennium.
- OFM will work with WSDOT during the summer of 2008 to identify system needs and complete an assessment for consideration in the 2009-11 budget.

Issue 18: ***WSDOT manual response to freeway operations decreases efficiency.***
Recommendation 18: ***We recommend WSDOT automate all freeway management tools.***

WSDOT Response: We disagree that an all-automated freeway management system will provide the benefits suggested. WSDOT uses a combination of automation and engineering judgment to support safe and effective operations. We believe the current practice of using operating engineers to actively monitor/manage the freeway operations systems is the best practice.

OFM Response: See WSDOT's response.

Action Steps and Timeframe

- WSDOT will complete the operating system conversion by May 2008. At that point, software enhancements will be easier to implement. Further system automation of some Traffic Management Center functions will be one deliverable of this conversion.
- OFM will ask the department to evaluate the integration of freeway management systems through the use of a single point of data entry for dissemination of traffic information.

Issue 19: ***WSP staffing issues hinder efficient incident response.***
Recommendation 19: ***We recommend WSDOT, in conjunction with the Washington State Patrol, improve its current incident response system through resolution of WSP staffing issues and an all agency after-action review process for every closure over 90 minutes.***

WSDOT Response: We agree that adequate staffing and continuous evaluation of incident response effectiveness is critical. Within the Northwest region, monthly meetings are held with WSP to review incidents lasting more than 90 minutes. In districts with fewer incidents, meetings are scheduled within seven days of major incidents. An effort is made to involve emergency response agencies beyond WSP where appropriate but this is an ongoing effort.

OFM Response: The Washington State Patrol has implemented a new marketing and recruitment initiative as of August 2006. It includes ways to educate the public about career opportunities with the Patrol and draw quality applicants to the agency. These efforts have resulted in a 106 percent increase in applications received, compared to the previous 12 months. This increase in applications allowed the agency to hire 134 trooper cadets for the December 2006, May 2007, and September 2007 classes.

These efforts to reduce trooper vacancies, coupled with the regional incentive pay for King County (ten percent), Snohomish County (seven percent) and Pierce County (three percent) should improve the Patrol's ability to retain experienced troopers in the urban core.

State Patrol district commanders review every 90-minute closure internally and if they believe there were any coordination problems that affected road clearance, they contact the Department of Transportation to conduct a fuller review with all involved parties, (e.g., tow companies).

Action Steps and Timeframe

- WSP and WSDOT are jointly working on attaining a specific target to reduce incidents lasting more than 90 minutes by five percent by December 2007.
- WSDOT will partner with WSP to further seek opportunities for the Patrol to expedite its investigations by using technology that has recently been funded, and encouraging quicker accident investigations. WSDOT and WSP will jointly report to the Governor and her leadership team in the Governor's 2008 accountability forums.

Issue 20: ***The State of Washington has not taken advantage of private sector funding options.***
Recommendation 20: ***We recommend the Washington State Legislature review whether new legislation is required for public/private partnerships for transportation infrastructure and implement any necessary changes.***

WSDOT Response: We do not believe that changes in the public/private partnership law are required to continue exploring toll-based or concession-based private financing options on a case-by-case basis. However, we defer to the Legislature on this issue.

OFM Response: We agree there may be opportunities to take advantage of private financing options. The main benefits of private financing include more upfront construction funding, longer debt repayment opportunities, and using market driven expertise. A car-only tunnel under Seattle is an example of a public-private partnership offered in the audit. However, it does not provide the financial analysis to demonstrate the benefit of public vs. private financing.

Action Steps and Timeframe

- WSDOT will continue to assess private financing structures for the most cost-effective alternative.

Issue 21: ***Persistent congestion problems on I-5 through downtown Seattle will require an assessment of all potential solutions.***
Recommendation 21: ***We recommend WSDOT and the region pursue potential enhancements to I-5 in downtown Seattle.***

WSDOT Response: WSDOT agrees that I-5 through Seattle has persistent congestion, and that creative solutions will be necessary. WSDOT is continuously looking for incremental improvements on I-5. For example, the ongoing pavement rehabilitation effort on I-5 through Seattle includes minor reconfigurations and operational efficiencies. Please also consider WSDOT's response to Recommendation #3.

OFM Response: The audit recognizes the severe congestion in the downtown Seattle area and recommends innovative non-traditional options. Although the audit recommendation of an underground car-only tunnel through the central business district is intriguing, adding capacity in the downtown area would be difficult given geographic constraints, the location of the Convention Center, environmental challenges, and prohibitive costs. Therefore, the other two methods of addressing congestion – operational efficiencies and demand management – must receive enhanced consideration.

Action Steps and Timeframe

- WSDOT will continue to assess improvements and operational efficiencies.

Issue 22: ***The Puget Sound region has an extensive HOV Network, but the policy for how it is operated has not been reviewed for some time.***
Recommendation 22: ***We recommend WSDOT complete the core HOV network, with an emphasis on the I-5 corridor to Tacoma; consider adjusting current policy where needed in order to meet existing performance standards; and critically examine expensive interchanges and direct ramp access before additional investments.***

WSDOT Response: We agree that active HOV lane management and operational policies are critical components of optimum performance. WSDOT's HOV policy is currently under review, and the agency is preparing an HOV Action Plan which analyzes modifications to operating policies. The plan will include an ongoing assessment of HOT lane opportunities. WSDOT also assesses and closely monitors HOV performance on an annual basis, and periodically evaluates the operations policy.

WSDOT agrees with the first two recommendations. WSDOT is working on completing I-5 HOV projects that will extend the system from SR-16 in Tacoma through King County to US-2 in Everett. Ten lane-miles of HOV on I-5 were extended from Federal Way to the King/Pierce County line this year. Completion of all of these HOV projects is a high priority:

- Another fifteen lane-miles of HOV opened on SR-16 in Pierce County, connecting Gig Harbor to the Fircrest area in Tacoma across the Tacoma Narrows Bridge. This section of HOV is planned to connect to I-5 by 2015.
- Work on HOV lanes on I-5 between SR 16 and the King/Pierce County line is scheduled to begin in 2009.
- HOV lanes on SR-167 were also extended south one mile to 15th NW this year, and are being extended east on SR-520 (open 2011) and north on I-5 (2008).
- Unfunded segments include: 1) a portion of the core HOV network on I-5 south from the SR-16 interchange area down to SR-512, 2) SR-16 east to Purdy, 3) SR-167 south to Puyallup, and 4) linkage of I-5 to I-405 across the SR-520 bridge.

In response to the second recommendation, the HOV Action Plan combined with on-going corridor planning work, will analyze modifications to operating policies. HOV policy will continue to seek the optimal balance between how fast vehicles travel in the lane and how many people are carried.

Through modeling analysis, WSDOT concluded that simply raising the HOV occupancy requirement (e.g., 2-3 person requirement) without policy or operational changes, such as converting to HOT lanes at the same time, would result in significantly underused HOV lanes and create more congestion on the adjacent general purpose (GP) lanes. WSDOT will likely revisit this issue after the demonstration of the SR-167 HOT lane pilot project.

WSDOT has also considered, but rejected, the idea of converting HOV lanes to GP lanes in the central Puget Sound region for a number of reasons:

- Historical data indicated that HOV volume per hour per lane has been growing at three to four times that of adjacent GP lanes.
- Converting HOV lanes to GP lanes now would make it much more difficult to implement (if not preclude) HOT lanes in the future.
- Bus Transit (especially express buses), as well as vanpools and carpools, rely heavily on HOVs to increase travel time reliability.
- WSDOT's recent HOV user survey shows nearly 20 percent of HOV users would revert back to SOV if HOV lanes were converted to GP lanes.
- If an HOV lane is converted to GP, drivers who now use other roads or modes may instead use the newly created GP because there will be initial capacity. However, that temporary capacity will likely fill quickly. The possible initial congestion reduction in the GP lanes may be offset by this increased volume in the converted lane.

In response to the third recommendation, direct access ramps on I-5 are not being built with state funding.

OFM Response: WSDOT is working to complete an HOV Action Plan for I-5 that describes where HOVs are working well and where failures are occurring. The plan will include actions that can be performed in the near term to address performance problems.

We appreciate the recognition given to the state for its leadership in implementing an extensive HOV system. We agree that completing this important corridor of HOV between Seattle and Tacoma is critical. In fact, connecting Pierce, King, and Snohomish counties along I-5 is one of the most important and highest funding priorities in the state. We have made significant headway in completing this HOV corridor. The HOV system through King County was completed in September 2007. WSDOT expects to complete construction of the HOV system between Seattle and Everett by the summer of 2008. HOV construction from the King County line to 38th Street in Tacoma is expected to be complete by 2012. Additional HOV lanes are planned from 38th Street to SR-512 in Tacoma but are currently unfunded.

<u>Action Steps and Timeframe</u>

- WSDOT's HOV Action Plan will be completed by December 2007.
- As indicated above, WSDOT will complete the funded I-5 HOV projects as identified on the 2007 project list adopted by the Legislature.