

2010 Sustainable Transportation Report

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Sustainable Transportation 2010 Executive Summary

The Washington State Department of Transportation (WSDOT) is using new technology and innovative methods in its effort to provide a more reliable, responsible and sustainable transportation system. WSDOT is taking steps to conserve fuel and energy, reduce carbon emissions and vehicles miles traveled, and protect our natural environment while keeping people, goods and the economy moving.

At WSDOT, we define a sustainable transportation system as one that preserves the environment; is durable and takes into account how we build and the materials we use. It is a system that is managed and operated using policies and strategies that meet society's present needs without compromising the ability of future generations to meet their own needs. We consider sustainability in all that we do. Our practices make good environmental sense and good economic sense for Washington.

Moving Washington with improved operations, green ideas

While WSDOT is mandated by law on several fronts to make updates and work with partners on operational changes, the agency has met this legal challenge enthusiastically, innovatively and resourcefully. In fact, WSDOT has been practicing sustainable transportation techniques in much of our work for many years. WSDOT uses integrated vegetation management—which uses more natural means and less herbicide to keep roadside overgrowth down. We have established a practice of building environmentally-friendly and life-saving roundabouts that save taxpayers money. We are funding and promoting commute trip reduction programs and newer ventures such as efforts to electrify Interstate-5 with its West Coast Green Highway partners and building smarter highways traffic components that cut down on collisions, emissions and congestion.

Meeting required mandates—reducing resources, conserving energy, saving money, building community and enhancing environment

WSDOT knows it has a long road ahead. Our statewide, integrated climate change response strategy program to prepare and adapt our infrastructure to an inevitable changing climate is a must. Looking into and supporting low-carbon, energy efficient and greener means to run our fleet and facilities are also mandated, but we look to encourage businesses and drivers to do the same.

WSDOT's promise is to forge ahead with meeting requirements and proceed in a manner that is responsible to our taxpayers and mindful of limited resources. WSDOT will do right by the environment by doing right by the communities, economy and the bottom line at the same time.

Reporting progress, seeking responsible, sustainable results

This report gives an update on the sustainable transportation directives WSDOT is working to fulfill and the agency's current efforts to provide a more sustainable transportation system. As directed by the Governor's Executive Order 09-05¹ WSDOT and its partners took a close look at statewide vehicle miles traveled (VMT); tools used to count and track VMTs; potential ways to reduce these VMT numbers; and at current benchmarks to see if the VMT levels should and

¹ Governor's Executive Order 09-05 Washington's Leadership on Climate Change (See Appendix A, pages A-1 to A-4)

could be adjusted to still meet overall greenhouse gas (GHG) emission reduction targets. WSDOT also examined how VMT reduction strategies will affect different populations such as small businesses and low-income, rural populations.

Innovative public-private partnerships, West Coast progress

WSDOT is working closely with the Department of Ecology to see if a low-carbon fuel standard could work in Washington State. WSDOT is also partnering with the Departments of Commerce and Ecology on the West Coast Green Highway Initiative, a project that leverages public and private partnership to build support infrastructure and resources for electric and other low-carbon fueled vehicles and uses other highway technology and commuter tools to reduce emissions, energy usage and ease commutes.

Providing job access; reducing agency energy bottom line

WSDOT strives to bridge the gap for low-income, rural and other people with special transportation needs so they can continue to work, look for work and access vital services. Making sure there is a connection between affordable housing and integrated transportation services is key to maintaining independence; this valuable connection can be seen in multiple WSDOT-supported program success stories.

Tracking and reporting the energy used in WSDOT facilities is vital to learning where to reduce energy consumption and costs. WSDOT reports on its current facilities use and will be tracking required building energy usage to get closer to meeting EPA's Energy Star standards and to more responsible energy use.

All low- or no-carbon fleet holds challenges; future rewards

WSDOT is moving forward to purchase vehicles through the state contract that reduces emissions and meets the new mile per gallon fuel economy requirements. Current challenges include limited market availability of biofuels and contract availability of hybrid and electric vehicles. Using higher blends of biofuel in cold weather conditions in parts of Washington State jeopardizes winter operations because of fuel gelling and limited shelf-life.

Preparing for and adapting to the effects of climate change can save infrastructure

For an agency accountable for the safe and efficient movement of goods and people, WSDOT must take a close look at environmental changes that could affect maintenance and operations of the transportation system. In this regard, WSDOT must investigate and make plans to prevent any potential risks to roads, bridges, ferry terminals and other facilities caused by changes in climate. WSDOT must adapt future planning, design and construction methods to meet these changes head-on. WSDOT's efforts on the statewide, integrated program will help meet this need.

Greenhouse gas emission inventory provides next steps; grant applications must include greenhouse gas reduction and tracking strategies

Taking inventory of the agency's greenhouse gas levels helps WSDOT look at logical and viable solutions to reducing emissions. Based on the 2009 GHG emissions inventory WSDOT will focus on the Washington State Ferries, fleet management, facilities, and employee commute and business travel strategies to reduce GHG emissions.

As grantor for transportation-related state and federal money, WSDOT has the responsibility to make sure those receiving competitive capital funds for infrastructure and economic development projects have adopted policies to reduce greenhouse gas emissions. WSDOT has woven language into grant applications to ensure GHG emission reduction policies are in place, written into contracts and that the reduction strategies are tracked.

Evolving operations meet evolving requirements

Washington's roads, rails and waterways are lifelines to our economy and communities. To continue moving people, information and goods safely and efficiently, WSDOT is leading efforts to evolve our state's transportation system—and evolve it in a way that is fiscally smart, socially responsible and environmentally correct. The potential rewards are great, from job growth and greater energy independence to stronger communities and a healthier environment.

Executive Order 09-05 - Washington's Leadership on Climate Change

The Governor's Executive Order 09-05 directs WSDOT to lead a collaborative process to analyze statewide VMT, to develop strategies to reduce transportation sector GHG emissions and report to the Governor by December 31, 2010 on findings and recommendations from the above work. The order directs WSDOT to continue this work with the four largest regional transportation planning organizations in the state to assist in integrating transportation alternatives that will reduce emissions and reduce vehicle miles traveled in regional transportation plans.

WSDOT is also directed to consult with the Departments of Ecology and Commerce to assess low-carbon fuel standards, determine if they would best meet Washington's GHG emission reduction targets and seek federal funds to implement project for the electrification of the West Coast interstate highway. All of WSDOT's efforts directed by Executive Order 09-05 are discussed in detail below.

Low-carbon fuel standards—current efforts to assess standards, risks (Executive Order 09-05 Section 1(f))

Executive Order 09-05 Section 1(f) directs the Department of Ecology to assess how a low-carbon fuel standard (LCFS), such as the standard already adopted in California, might help the state of Washington achieve its greenhouse gas reduction targets. Ecology was directed to consult with Washington State Departments of Transportation and Commerce in the assessment.

WSDOT provided industry outreach; fuel, miles traveled forecast, impact data

WSDOT provided input throughout the 14-month project. WSDOT's principal contribution was focused on: (1) helping the project team with transportation industry outreach; (2) advising the project team on critical vehicle miles traveled assumptions, the state's vehicle fleet composition, fuel price forecasts, expected plug-in hybrid and all-electric vehicle adoption rates; and (3) the unique impacts a LCFS might have on Washington State Ferry operations, potentially the state's largest biofuel end-user. Preliminary results found that one expected economic impact of a LCFS would be a two to three percent retail fuel price increase.

Ecology's team assessing statewide economic, environmental impacts

The Department of Ecology project team recommended how a LCFS might best fit Washington state economic and environmental conditions and suggested a 24-month implementation schedule. The team also recommended increased biofuel and alternative fuel production and distribution incentives.

Ecology could begin developing and proposing administrative rules regulating the carbon content of fuels in 2011, with final rules to take effect in 2013.

Vehicle miles traveled analysis Section 2(a) report – Executive Summary (Executive Order 09-05 Section 2(a))

WSDOT provided the Department of Ecology with an executive summary of the work we accomplished under the direction of Governor Gregoire’s Executive Order 09-05 section 2a. The report’s executive summary is below. The entire report can be found in the appendix.

Executive Summary

This report summarizes the recent work of the Washington State Department of Transportation (WSDOT) to analyze vehicle miles traveled (VMT) in the state and to develop strategies to reduce greenhouse gas (GHG) emissions from the transportation sector.

On May 21, 2009, Governor Gregoire signed Executive Order 09-05: Washington’s Leadership on Climate Change. Section 2(a) of the Executive Order directed WSDOT to

- Estimate current and future statewide levels of VMT,
- Evaluate potential changes to the VMT benchmarks established in RCW 47.01.440 as appropriate to address low- or no-emission vehicles, and
- Develop additional strategies to reduce GHG emissions from the transportation sector.

WSDOT worked collaboratively with an Executive Order Working Group to complete this work. Members of the group included representatives from the Departments of Ecology and Commerce, the state’s four largest regional transportation planning organizations, local government, environmental organizations and businesses. The group contributed to the work by providing input into the analysis process and discussing its findings, and reviewing draft documents. However, the findings, conclusions, and recommendations presented in this report are those of WSDOT.

What is WSDOT’s current estimate of statewide levels of vehicle miles traveled?

WSDOT estimates that the annual statewide VMT in 2009 was 56 billion or 8,400 VMT per capita (including both light and heavy duty vehicles). This estimate comes from the Highway Performance Monitoring System (HPMS). WSDOT uses this established and consistent methodology for tracking and reporting VMT at the state level.

Findings

HPMS is an appropriate tool to monitor VMT statewide.

HPMS may also be an appropriate tool for monitoring VMT at the local and regional levels.

Recommendation

WSDOT recommends the use of HPMS as the appropriate tool to monitor statewide VMT. WSDOT should continue the discussion with the Regional Transportation Planning Organizations (RTPOs) to determine the most appropriate tool for monitoring VMT at the local and regional levels in 2011.

What is WSDOT's current estimate of future statewide levels of vehicle miles traveled?

The statutory VMT benchmarks in RCW 47.01.440 used a baseline of 75 billion VMT for 2020. This baseline for 2020 was established by the February 2008 VMT forecast and serves as the basis for the VMT per capita reductions benchmarks in 2020, 2035, and 2050.

Based on a new methodology developed specifically for forecasting VMT, the June 2010 forecast projects total statewide VMT in 2020 to be 66 billion. WSDOT will update the VMT forecast annually each June.

Findings

The June 2010 VMT forecasting model uses a new methodology that more accurately forecasts VMT.

The June 2010 VMT forecast for 2020 is 66 billion, 12 percent lower than the 75 billion VMT baseline set by the February 2008 model.

Basing reduction percentages on a forecast is problematic because the forecasts are adjusted annually and create unnecessary confusion.

Regional transportation planning organizations forecast VMT using very different methodologies than the state. Some regional organizations do not use models and do not have the capability to forecast VMT.

VMT forecast models are most accurate in predicting VMT in the near-term (within two to four years) and less accurate beyond four years.

Recommendation

WSDOT recommends that the legislature use historical, measured VMT (e.g 2000, 2005, 2010 levels), rather than forecasted VMT to set the VMT baseline.

Do the VMT benchmarks need to be changed to address low- or no-emission vehicles?

If very low-emission or no-emission vehicles become a large share of the vehicle fleet, or low carbon fuels become more prevalent, there may be less need to reduce VMT to reduce GHG emissions from the transportation sector. The Department of Ecology, with assistance from WSDOT, assessed the practicality of low carbon fuels and the feasibility of a low carbon fuel standard for Washington. WSDOT, Ecology, and Commerce examined the market penetration of alternative vehicles and fuels to complement WSDOT's VMT benchmark analysis.

Findings

Ecology's research showed that projected vehicle technology and fuel changes will occur relatively slowly.

The rate at which significant vehicle and fuel technology advances and regulatory changes are likely to happen over the next 40 years is highly uncertain.

Recommendation

WSDOT recommends that the VMT benchmarks not be changed at this time to address low- or no-emission vehicles. In the coming years, the VMT benchmarks may need to be reassessed for numerous reasons. Some potential reasons for further assessment in the future may include more rapid market penetration of low-or no-emission vehicles than expected, better VMT estimates and data, advancements in technology, and/or the implementation of regional or national policies to reduce GHG emissions.

What additional strategies are available to reduce emissions from the transportation sector?

In 2008, the Climate Action Team’s Transportation Implementation Working Group and the Land Use and Climate Change Advisory Committee identified a number of transportation and land use strategies to reduce GHG emissions from the transportation sector. Building on this work, WSDOT reviewed national research that identified additional strategies and evaluated their effectiveness in reducing emissions. WSDOT then applied this information in a scenario analysis to evaluate the possible reductions from different combinations of strategies.

Findings

Greenhouse gas reduction strategies from the transportation sector fit into four broad categories:

- Operating the system more efficiently
- Advancing vehicle technology
- Improving fuels
- Reducing VMT

WSDOT’s analysis suggests that there is no “silver bullet” and major contributions from each of the strategies will be needed to reduce GHG emissions.

Many of the identified transportation sector strategies would require changes in policy, funding, and authority.

The state cannot significantly reduce emissions from the transportation sector without collaborative and comprehensive actions by private citizens, businesses, and regional and local governments.

WSDOT’s analysis suggests that implementing combinations of aggressive transportation emission reduction strategies can achieve roughly a ten percent reduction in total statewide GHG emissions compared to the 2050 baseline. Implementing many of these strategies would require changes in policy, funding, and authority, and also assumes ambitious improvements in vehicles and fuels. WSDOT did not assess the political or financial feasibility of implementing the strategies.

Recommendations

WSDOT recommends that the state consider the most viable ways to reduce statewide GHG emissions across all sectors. In 2011, WSDOT will continue to work with the four largest RTPOs identified in the Executive Order as part of the Section 2(b) work, which will further inform practical approaches for reducing GHG emissions at the regional level.

What are the next steps?

Section 2(b) of Executive Order 09-05 directs WSDOT to take the next steps to apply the information developed for this report and work with the Puget Sound Regional Council, Spokane Regional Transportation Council, Southwest Washington Regional Transportation Council, and Thurston Regional Planning Council to “cooperatively develop and adopt regional transportation plans that will, when implemented, provide people with additional transportation alternatives and choices, reduce GHG and achieve the statutory benchmarks to reduce annual per capita vehicle miles traveled in those counties with populations greater than 245,000.”

By December 2011, WSDOT is instructed to report on which RTPOs have developed, or are developing, plans with GHG strategies; which strategies appear to have the greatest potential to achieve the benchmarks; and what policy or funding issues need to be resolved to ensure implementation.

West Coast Green Highway Initiative—multi-faceted program promoting alternative fuels, sustainable infrastructure (Executive Order 09-05 Section 3)

Executive Order 09-05 Section 3 directs the Office of the Governor to work with WSDOT, as an affected state agency, in developing the West Coast Green Highway Initiative.

WSDOT, along with the Oregon and California Departments of Transportation, the British Columbia Ministry of Transportation, and private partners, are collaborating on the West Coast Green Highway (WCGH) Initiative. This multi-faceted initiative supports the adoption of alternative fuels, sustainable infrastructure, and in particular, newly available electric and electric-hybrid vehicles traveling along the I-5 corridor from the Mexican border through southwest Canada (BC 99). The WCGH will be one of WSDOT’s most visible efforts highlighting the agency’s work in moving forward to reduce the state’s greenhouse gas (GHG) emissions without inhibiting the state’s need for economic vitality and moving people and goods.

Presidential support; International interest; West Coast actions

President Obama has established a national goal to have one million electric vehicles (EV) in use by 2015. WSDOT and its partners will be deploying several independent and combined programs to encourage the use of alternative fuels, improve mobility, offer travelers new transportation options and lessen effects of congestion. For example, British Columbia is promoting use of hydrogen fuel vehicles to reduce tailpipe GHG emissions. Oregon is continuing with its solar highway initiative, reducing the use of fossil fuels to light and power sections of I-5. Washington State will leverage WSDOT’s nationally recognized commute trip reduction programs, new idling-reducing smarter highways program and lower emission alternative fuel testing programs.

I-5 becomes an ‘electric highway’; manufacturers use WA as EV test market

WSDOT stepped up its plans to accommodate the wider adoption of electric vehicles after several car manufacturers announced that Washington would become a key test market for their new electric vehicles. One of WSDOT’s most visible projects as part of the WCGH initiative

will be the creation of the ‘electric highway’—developing the necessary infrastructure along I-5 to allow easier recharging for next-generation electric vehicles. At present, most charging stations are located within major urban centers that are connected by I-5—Portland, Tacoma, Seattle, and Vancouver, B.C.—but there are very few charging stations in between, making longer-distance travel in electric vehicles problematic. To help overcome this challenge, WSDOT and the state Department of Commerce were awarded a \$1.3 million grant from the federal stimulus program to install ‘fast charge’ electric vehicle supply equipment on I-5 between Oregon and British Columbia. The long-term goal is to have these charging stations, which can charge vehicles in under 30 minutes, positioned every 40 to 60 miles on the interstate between urban centers to keep travelers on the go between charging stations. WSDOT has developed a project with two stages to help transform I-5 into the ‘electric highway.’

Stage I—Install two initial I-5 charging stations; investigate additional locations

WSDOT selected two safety rest areas, Gee Creek north of Vancouver, WA, and Custer south of Blaine, WA, to install level 2 chargers in early 2011—level 2 chargers can charge vehicles in four to eight hours. Following the launch of level 2 charging stations, WSDOT will investigate locations for installing level 3 ‘fast charge’ stations.

Stage II—Install I-5 fast charge stations and U.S. 2

Stage II of the ‘electric highway’ project will involve deploying level 3 fast charging stations along I-5 and U.S. 2. WSDOT plans to select a vendor by spring 2011 to install a total of seven to ten level 3 fast charging stations by fall 2011.

Summary of WSDOT's efforts based on RCW 47.01.440

How we measure VMT; measurement tools effectiveness (RCW 47.01.440 (2e)²)

Requirement

RCW 47.01.440 (2) states that WSDOT shall, by July 1, 2008, establish and convene a collaborative process to develop a set of tools and best practices to assist state, regional, and local entities in making progress towards the benchmarks established in subsection (1) of this section. The collaborative process must provide an opportunity for public review and comment and must:

(e) Provide for the development of measurement tools that can, with a high level of confidence, measure annual progress toward the benchmarks at the local, regional, and state levels, measure the effects of strategies implemented to reduce vehicle miles traveled and adequately distinguish between common travel purposes, such as moving freight or commuting to work, and measure trends of vehicle miles traveled per capita on a five-year basis.

Approach

This section begins to address the requirements of RCW 47.01.440 Sec. (2)(e) by making progress toward establishing a consistent and reliable measurement method to track VMT reduction levels at the state and regional levels, and beginning development of a framework for monitoring the performance of strategies to reduce VMT.

How we measure statewide vehicle miles traveled

We measure VMT at the state level using the Highway Performance Monitoring System, or HPMS. HPMS is a nationally recognized database used to coordinate, synchronize and report statewide highway performance and conditions. All states are required to report HPMS data to the Federal Highway Administration (FHWA) on a regular basis. FHWA is responsible for using the data to monitor the condition of the nation's roadways, identify deficiencies and determine how highway funds should be distributed. FHWA also exercises quality oversight on HPMS data collection.

Regional VMT measurement—two alternatives considered; HPMS currently the preferred approach

WSDOT evaluated existing tools to estimate VMT and concluded HPMS is the appropriate tool for estimating statewide VMT. It includes information at the regional and local level because it estimates VMT for county roads and city streets. However, regional and local estimates are based on a less comprehensive set of data collection points. As a result, WSDOT is continuing conversations with local and regional transportation professionals to determine the merits and options for estimating at the local and regional levels.

² RCW 47.01.440 Adoption of statewide goals to reduce annual per capita vehicle miles traveled by 2050 — Department's duties — Reports to the legislature (See Appendix B, pages B-9 to B-11).

HPMS has clear advantages as the preferred VMT measurement tool

Using HPMS data for monitoring regional VMT offers a number of advantages. HPMS has been in place for decades and has been improved and upgraded over time and will continue to be refined to improve data collection. HPMS strengths over regional modeled VMT include:

- **Expansive transportation system coverage**—100 percent of all WSDOT roadways are covered by the HPMS, as well as 100 percent of all roads functionally classified as principal arterials, including locally-owned roadways. Other arterials and locally-owned roadways are included in the system via sampling but are soon expected to be fully covered as well.
- **HPMS soon to cover even more roadways**—FHWA now requires states to extend the HPMS data collection network to include 100 percent coverage of all urban and rural functionally classified roads eligible for federal aid by June 2011. This will mean full coverage of state-owned and all principal arterials, and full coverage of minor arterials and major and urban collectors. Because they are not part of our federal aid system, roads functionally classified as local or rural minor collectors will not need to be covered under the new federal requirements.
- **Consistent, reliable reporting**—HPMS provides a consistent reporting system that is extensively relied upon by local, regional, and statewide transportation jurisdictions.
- **Freight data collection opportunities**—HPMS can provide truck classification to determine percentage of freight-related roadway volumes. While providing truck classification data is not part of the VMT measurement and reporting requirement at this time, it could be helpful to track this information for estimating freight-related GHG emissions since state GHG emission goals do not exclude freight vehicles.
- **HPMS sample data validated annually**—HPMS data is scrutinized on an annual basis and the reasons and basis for any significant changes are documented.
- **Widespread data collection in urban areas**—Urban areas of the state generate 67 percent of the state's VMT, with 46 percent of statewide VMT generated by the Seattle/Tacoma/Everett area. HPMS has widespread coverage in our major urban areas.
- **Regular traffic counts completed**—HPMS facility traffic counts are obtained on a regular and rotational basis. Counts for higher volume roads are collected at least once every three years and lower volume roads may be collected once every six years. HPMS VMT reporting is guided by FHWA's traffic monitoring guide. In accordance with this guide, actual traffic count data on principal arterials, including the state highway system, and specific HPMS road sample segments is collected every three years. This is the national standard for reporting VMT. A growth factor is applied for the years in which an actual count is not conducted and is routinely checked with planning organizations to ensure that the right growth assumptions are used.

Regional travel demand model less suited for VMT measurement

WSDOT also looked into using regional travel demand models to monitor regional VMT. Travel demand models are widely used by metropolitan planning organizations (MPO) for transportation planning as required by federal transportation legislation. Among their more

common uses are to identification of existing roadway operational deficiencies, forecasting traffic volumes and analyzing the transportation network and land use scenarios.

Some characteristics of travel demand models, and how they are employed across the state, make them less suited for VMT measurement as compared to the HPMS. For example, regional travel demand models are only used in a limited number of regions across the state, and in those regions that use travel demand models, a wide variety of methods are used to develop and calibrate the models. These models may be updated relatively infrequently, making it difficult to keep annual regional VMT monitoring estimates current.

Recommendations

The recommendation is that WSDOT should use HPMS to measure VMT at the statewide level. HPMS provides an established, consistent methodology for tracking and reporting vehicle miles traveled at the state level. HPMS is able to estimate and monitor statewide VMT through traffic data collected at more than 4,400 state highway and 3,170 non-state roadway locations. HPMS also has the ability to track VMT by mode so separate freight and passenger-car VMT data could be made available. HPMS' consistency and features make it the current best choice for monitoring statewide VMT. HPMS can be used to track regional VMT as well.

WSDOT is continuing conversations with local and regional transportation professionals to determine the merits and options for estimating at the local and regional levels. VMT will be reported every year, but a full assessment of the trends in VMT per capita will be conducted every five years as indicated in RCW 47.01.440 (2e).

Next steps

WSDOT will continue to collect, summarize and report statewide VMT data through HPMS throughout the year. WSDOT will continue to work with regional transportation planning organizations (RTPOs) and MPOs during 2011 as part of the Executive Order 09-05 part 2b process, and will assess measurement tools and techniques throughout the benchmark measuring process and evaluate new measurement methods or approaches where appropriate.

Gauging effectiveness, monitoring vehicle miles traveled reduction strategy performance (RCW 47.01.440 Section 2 (e))

In addition to measuring annual progress toward the benchmarks at the local, regional, and state levels, WSDOT has been directed to measure the effects of strategies implemented to reduce vehicle miles traveled. To better measure how our VMT reduction strategies are working, WSDOT will need to know how and why VMT is changing and how these changes relate to, either directly or as a partial result of, VMT reduction strategies implemented. WSDOT must also look into ways to better enable state and regional entities to change or adjust approaches midstream when a VMT reduction approach is not meeting target or when new data is found that may improve results. Monitoring the performance of the strategy and all the moving pieces and parts can be complicated and costly, but it is a critical element to help us stay on the right track and deliver results.

Partner technical group assembled to assess performance monitoring

WSDOT assembled an ad hoc VMT reduction strategy technical work group in early 2010, consisting primarily of technical staff from WSDOT and the four major RTPOs in the state. This technical work group met several times in the first half of 2010 to consider how VMT reduction strategy effectiveness could be estimated and monitored.

Findings

Following are some of the ideas and issues generated by the VMT reduction strategy technical work group:

- Project sponsors could be required to propose, deliver and report on a VMT monitoring plan to be considered for state transportation-related grants;
- Project sponsors/implementers could be required to have resources and funding to periodically assess how their strategies are working by collecting data, conducting surveys and other performance measurement efforts to assess VMT reduction attributed to their strategies; and,
- State, regional, and local governments could be provided with tools and funding resources from federal, state and/or local government agencies for increased data collection so project implementers can conduct better performance monitoring of the strategies we implement now, as well as the strategies we may implement in the future.

WSDOT is seeking funding to conduct additional analysis to develop a framework to monitor VMT reduction strategy performance over time. In the current research proposal under consideration for funding, the initial framework would be developed through a multi-agency research project involving WSDOT, the Puget Sound Regional Council, King County, and the City of Seattle.

Recommendations

The recommended next step for measuring the impact of strategies on reducing VMT is to engage in a multi-agency process that will:

- identify existing transportation performance monitoring programs that might serve as good models for a performance monitoring program for evaluating the impacts of strategies on VMT;
- recommend whether it makes sense to have a coordinated state, regional, and/or local performance monitoring program that focuses specifically on strategies intended to reduce VMT for climate change mitigation;
- if a program such as this makes sense, identify potential roles, as well as constraints (financial, organizational, etc.); and
- identify next steps to further program implementation.

Evaluate vehicle miles traveled benchmark progress; recommend appropriate adjustments to meet greenhouse gas reduction goals (RCW 47.01.440 (2f))

Requirement

RCW 47.01.440 (2) states by July 1, 2008, establish and convene a collaborative process to develop a set of tools and best practices to assist state, regional, and local entities in making progress towards the benchmarks established in subsection (1) of this section. The collaborative process must provide an opportunity for public review and comment and must:

(f) Establish a process for the department to periodically evaluate progress toward the vehicle miles traveled benchmarks, measure achieved and projected emissions reductions, and recommend whether the benchmarks should be adjusted to meet the state's overall goals for the reduction of greenhouse gas emissions.

Approach

Previous sections described how the requirements of RCW 47.01.440 Sec. (2e) are being addressed to measure and monitor VMT and the effects of strategies implemented to reduce VMT, and trends in VMT/capita on a five-year basis. This section is related to RCW 47.01.440 Sec. (2e) but focuses on addressing the related requirements of RCW 47.01.440 Sec. (2f) by establishing a process to periodically evaluate progress toward the VMT benchmarks, measure achieved and projected emission reductions and to recommend benchmark adjustments as appropriate.

Process for measuring statewide VMT levels to track and meet required benchmark performance measures

WSDOT will continue to collect, summarize and report statewide VMT data through the Highway Performance Monitoring System (HPMS) throughout the year. We will provide data and ongoing VMT analysis, and any notable changes, to our partners such as the Department of Ecology and Department of Commerce, as we track progress made on VMT reduction efforts or shifts in existing VMT levels. VMT data from the previous year is available and reported out each July. If regional VMT data is also measured/monitored using HPMS data, WSDOT can also provide and report out on VMT data at the regional level at this time. VMT will be monitored and reported annually, but WSDOT will conduct a full assessment of trends in VMT/capita every five years as indicated in RCW 47.01.440 (2e).

Process for measuring achieved, projected emissions reductions; recommend appropriate adjustments to meet state's overall goals GHG emission reduction

When reporting VMT/capita trends every five years, WSDOT will also report trends in emissions reduction and given this trend projected emissions reductions to recommend whether the benchmarks should be adjusted to meet the state's overall goals for GHG emissions reduction.

Recommendations

The recommendation is for WSDOT to report statewide VMT to our partners each July (or consistent with HPMS reporting requirements). If regional VMT data is also measured/monitored using HPMS data, WSDOT can also provide and report out on VMT at the regional level at this time. WSDOT will conduct a full assessment of trends in VMT/capita every five years and report out to our partners (such as the Departments of Ecology and Commerce).

Next steps

WSDOT will continue to determine the most appropriate and consistent way to measure and monitor VMT at regional and local levels.

Sustainability and access; providing services to help people live more independently (RCW 47.01.440 (2h))

Requirement

RCW 47.01.440 (2) states that WSDOT shall, by July 1, 2008, establish and convene a collaborative process to develop a set of tools and best practices to assist state, regional, and local entities in making progress towards the benchmarks established in subsection (1) of this section. The collaborative process must provide an opportunity for public review and comment and must:

(h) Examine access to public transportation for people living in areas with affordable housing to and from employment centers, and make recommendations for steps necessary to ensure that areas with affordable housing are served by adequate levels of public transportation.

Approach

WSDOT's Public Transportation Division is committed to providing everyone, regardless of income, age or abilities, access to jobs and their community. This document addresses the requirements of RCW 47.01.440 Sec. (2)(h) by acknowledging WSDOT's coordinated transportation team and their efforts in providing access for low-income and other special needs individuals to employment centers.

As part of the requirements, WSDOT's transportation strategy and commitment to their customers, WSDOT's approach is to provide grants for coordinated transportation that get people to their jobs all across the state. WSDOT's coordinated transportation effort ensures equal access to transportation for special needs populations (people with disabilities, low-income households and the elderly) cross Washington State, even in rural areas and areas underserved by public transportation. WSDOT also works closely with Indian Tribes on a government-to-government basis to encourage their participation these programs.

As part of this approach, the WSDOT team also examines how our customers living near affordable housing get to and from work and makes recommendations on creating, improving or enhancing service so our customers can continue to work or look for work.

Findings

The Coordinated Transportation Team within the Public Transportation Division is responsible for ensuring equal transportation access for special needs populations across Washington State. With this responsibility comes the consideration that special needs populations are often without individual transportation resources and must rely on public transportation to access the basics such as employment, medical appointments and shopping. Compounding this concern is the fact that the availability of transit does not always meet up with the location of affordable housing creating additional barriers for just getting to work or accessing basic services. This often overlooked link generates a growing disparity for those that cannot afford the increasing costs of affordable housing and transportation.

To address these needs, WSDOT's coordinated transportation team addresses employment-related transportation needs of low-income and other special needs individuals and works with our transportation planning partners to identify critical gaps in service. This includes WSDOT working with its transportation planning and other partners to develop federally-required Human Service Transportation Plans (HSTP). These plans analyze affordable housing locations and destinations where special needs individuals are traveling, and help to bridge the information gap about where to site facilities to provide the best access for basic services and public assistance. WSDOT then works to identify these needs and fund accepted projects through grant programs, such as the consolidated grant program.

The Consolidated Grant Program goes beyond the legislative intent embodied in RCW 47.01.440 Sec. (2)(h) in providing transportation for low income populations by providing transportation for other special needs groups including the elderly, people with disabilities and rural populations. Individuals may often belong to several special needs categories. For example, an elderly individual may also be disabled or low income. As the population of Washington State ages, more and more individuals may begin to rely on special needs transportation for their daily well-being and maintaining independence.

Removing barriers to prosperity, independence—five special needs job access program success stories

Special needs grants funds address the unique transportation challenges faced by welfare recipients, people with low-incomes and other special needs populations who are seeking to obtain and maintain employment. Grant funds sustain programs that support low-income individuals by providing transportation from affordable housing locations to employment centers, often during late-nights and weekends—times associated with entry-level jobs and when conventional transit services are reduced or absent. Grant-funded programs provide transportation with the ability for multiple employment-related stops including dropping off and picking up children at daycare.

The following are examples of successful grant programs that provide job access to employment centers for low-income populations.

Olympic Community Action Program: Job Lift

Job Lift is a partnership program with Olympic Community Action Program and Clallam Transit that provides transportation to low-income individuals living in Olympic Peninsula's rural western areas. Using only three vanpools, Job Lift is able to accommodate up to 45 trips per day to help low-income individuals commute to work, look for jobs, attend job training and take children to daycare. The Job Lift program leverages Clallam Transit resources to conduct vanpool driver training and certification. Job Lift provides low-income families with basic yet vital job transportation needs.

Pierce County: Beyond the Borders

Beyond the Borders connects seniors, persons with disabilities and low-income rural Pierce County residents with critical links to transportation providers to access vital employment centers and social services. The link brings them access to a broad network of transportation providers including Pierce Transit, King County Metro Transit, Sound Transit, and Intercity Transit.

Pierce County: Road to Independence

The Road to Independence program offers a six-month driver training course where low-income individuals learn customer service skills and earn a Class B Commercial Drivers License. Many individuals now have successful driving careers in transit, trucking, courier or other related occupations. In addition, these trained drivers provide transportation services to other low-income individuals who need access job sites or other employment related activities who have limited transportation options—sometimes this program is the only means of transportation for program participants and is the only program of its kind providing this type of transportation service. The program removes a significant barrier for low-income individuals developing steady employment by assisting them with reliable transportation and on-the-job training.

Skagit County: Weekend Service

Skagit Transit provides weekend transportation service to low income individuals who rely on public transportation during evenings and weekends to access employment. Transit times most necessary for low income individuals to access employment are often the first cuts to transit service during economic hardships. Skagit Transit provides this lifeline service to low-income individuals, connecting affordable housing in rural areas to urbanized employment centers in Skagit County.

Intercity Transit: Village Vans

Village Van drivers are recruited from employment support programs including the WorkFirst Community Jobs work-training program, the South Puget Sound Community College Customized Job Skills Training Course, the Senior Community Service Employment Programs at WorkSource. Individual community job seekers may enroll as well. They receive professional driving training, valuable work experience, continual skill development and job search coaching while working toward permanent employment. The Village Van drivers demonstrate initiative and motivation while serving as role models for their passengers as someone taking advantage of opportunities for professional development. More than 90 percent successfully find jobs while in the program.

Recommendations

WSDOT recommends maintaining Human Service Transportation Plans and building on their success as an integrated tool for addressing sustainability and access. Currently these plans represent the only way to address the gaps in special needs transportation. Updating and referring to these plans is a crucial element in working towards increased integration of transportation and special needs populations.

WSDOT also recommends incorporating Housing Plans from the Washington State Department of Commerce with existing Human Service Transportation Plans. This additional coordination will better align the state with federal livability initiatives and can potentially inform the Public Transportation Consolidated Grant Program.

Next Steps

WSDOT's coordinated transportation team will continue to advocate for and provide grants that support transportation access for special needs populations such as people with low-incomes, those living in rural areas, seniors, and individuals with disabilities. Incorporating the entire definition of special needs into livability frameworks and transportation plans expands the discussion of sustainability for all Washington residents.

WSDOT will also engage the Washington State Department of Commerce to discuss areas that overlap between the Human Service Transportation Plans and Housing Plans.

Vehicle miles traveled reduction strategy economic assessment; potential affects (RCW 47.01.110 (4))

Requirement

RCW 47.01.440 was adopted in state law in 2008. This law set statewide goals to reduce annual per capita vehicle miles traveled by 2050. In addition, the law directs WSDOT to report on the anticipated impacts of the vehicle mile traveled (VMT) goals established in RCW 47.01.440 on small business employment retention, low income residents, distressed rural counties, agricultural employers and employees, and counties with large tribal or public land base.

Approach

In an attempt to address the above areas of interest, with very limited funds, WSDOT conducted a research project with the Evans School at the University of Washington. The depth of research on the above topic was limited in scope and constrained primarily to a literature review. The review included identifying and assessing current reports, studies and academic literature about potential VMT reduction strategies and their economic impact on five geographic areas, populations and business groups as specified in the law. A summary of the report's findings follow. The full research study is found in Appendix H: Impacts of VMT Reduction Strategies on Selected Areas and Groups.

The literature review garnered very little information on the economic impacts of VMT reduction generally, and even less on specific demographics or geographic areas. What literature

there is has paid most attention to the travel behavior of low income households, which own fewer cars, travel less, and share rides more. The review found one pioneering ride sharing program for farm workers in rural areas. No studies or reports were found on VMT reduction strategy impacts in distressed rural counties, counties with majority public or tribal land ownership, or small businesses whose employees cross county lines.

The research found three basic ways to reduce VMT:

- **Shift modes** from the private car to transit, walking, or biking
- **Increase vehicle occupancy** in private cars and vanpools
- **Travel less** through telecommuting, combining trips, reducing the number of discretionary vehicle trips, and employing tools such as a compressed work week, pricing, and more compact land development that enhances transit, biking, and walking.

The report states that most of these VMT reduction strategies can be practically implemented in whole or part in metropolitan areas, where the largest populations and broadest sets of alternatives to single occupancy vehicle (SOV) dependence exist.

The metropolitan/non-metropolitan divide is a distinguishing characteristic in estimating the economic impacts of VMT reduction in most of the five areas and groups examined in the report. Residents in the urban growth portions of metropolitan areas have the potential for more SOV alternatives. Residents in more rural, sparsely populated areas have fewer options for reducing VMT, although trip chaining, telecommuting, working compressed work schedules, and driving less remain options in remote areas as well.

The literature consistently identifies pricing—through some combination of VMT charges, carbon or fuel tax, and tolls or other fees—as a proven way to reduce VMT. The study utilized pricing as the mechanism uniformly applied to each of the five groups and areas. The report assumed a VMT charge ranging between \$0.05 and \$0.25 per mile for single occupant (SOV) driving. Pricing was selected because "cost" can be used as a surrogate for any other type of financial "disincentive to drive" program that might be adopted by the state. The increase in the cost of driving is assumed to result in a decrease in the willingness to drive, hence a decrease in total VMT driven, as individuals adjust their lives to maximize their travel and quality of life benefits within the constraints of their limited personal budget.

The report, of necessity, made generalizations about the groups and areas. It was not possible to note the circumstances of each individual living in a distressed county, crossing a county line to work in a small business, or living in a low income household in a study at this scale. Generally speaking, low income households own fewer cars and drive alone less, yet many low income individuals do drive alone and may not have transit or ridesharing options. Residents in a distressed rural county may need to commute 50 miles to a lumber mill or live and work just a short walk away in a small town. On the whole, people with lower incomes, living in dispersed, car-dependent areas will be burdened by VMT reduction requirements if they are implemented. But some sub-groups might also experience positive impacts if new options such as van-sharing or increased HOV service were provided.

Small business which rely on hiring and retaining workers who cross county lines to reach their place of employment

The report estimates that 227,000 workers cross county lines to reach employment in a Washington state business of fewer than 20 employees (or revenue under \$3 million). Of this number, over half reside and work in the three contiguous central Puget Sound counties—Snohomish, King, and Pierce—and hence have potential access to transit and ride sharing alternatives to SOV driving. Therefore, most small businesses in metropolitan areas would likely see few negative impacts from VMT reduction, and some located in urban centers could even experience cost savings by providing transit benefits as opposed to parking to employees. For small businesses located in non-metropolitan markets or in subareas of metropolitan markets that do not have reasonable transit or rideshare alternatives, disincentives to driving would impose a burden on their employees. Were the state or county to impose a VMT charge of from \$0.05 to \$0.25 per mile, the average work round trip could cost an additional \$2.10 to \$10.50 per day. The low end would likely have little or no impact on small businesses, but the high end might lead to a loss of employees or requests for higher pay to offset an additional cost of up to \$52 a week for the SOV work trip.

Low-income residents

Of necessity, VMT for low income households tends to be lower than the general population. They own fewer cars, drive less, and share rides more than the general driving population. For those able to get around in shared vehicles and public transportation, a VMT charge would have few negative impacts. But for the majority of low income households, a VMT charge would have a negative and disproportionate effect. A VMT fee of \$0.05 to \$0.25 per mile would increase the daily work trip cost from an estimated \$.140 to \$7.00 per day for urban area low-income residents and from \$2.80 to \$14.00 per day for rural area low-income residents.

Agricultural employers and their employees, especially migrant farm workers

Migrant farm workers represent a subset of low income households travelling seasonally to work fields and harvest crops. A VMT charge on SOV driving would negatively affect this group. Travel is often in shared, older vehicles.

Distressed rural counties

Half of Washington’s counties are deemed “distressed” on the basis of a state definition of having three years of an unemployment rate of 120 percent or greater of the state rate. All but one of these counties is rural, with a population of less than 100 people per square mile. The report assumed that rural commute lengths are double the national average of 28 miles round trip. A VMT charge of \$0.05-\$0.25 per mile would impose a cost of \$2.80 to \$14.00 per day. Residents of rural distressed counties would be negatively affected, as many must travel long distances to work, shopping, and school and have few or no alternatives to the SOV. VMT charges would impose a weekly cost ranging from \$14 to \$70.

Counties that have more than 50 percent of their land base in public or tribal lands

More than half the land base of eleven Washington counties is in public ownership. Some of those counties are primarily rural and have lower per capita VMT, such as the 8,852 in Chelan

County. Others are primarily rural but contain major Interstate highway(s) and therefore have higher per capita VMT, such as Kittitas County. Further complicating matters is that a few of these counties have substantial urbanized land areas, such as Snohomish County, while others such as Clallam County do not. For those counties or portions of counties that are rural, the impacts of required VMT reduction for SOV travel would likely be similar to those for residents of rural distressed counties. In a small number of cases urban area strategies could be employed within portions of these counties.

Findings

The report finds and concludes that the five areas and groups studied are not homogenous. Within categories, significant differences exist. For this reason, there is no single strategy that will reduce VMT for each area or group. Rather, a variety of strategies are available—singly and in combination—at different levels of government and for different groups and individuals to employ to reach the state’s VMT reduction benchmarks.

Pricing would likely be effective, but it would disproportionately burden and affect the five groups and areas of interest in this report. It is also politically difficult to implement. A per mile VMT charge or toll would adversely affect lower income populations in general, with particularly negative impacts if applied to rural area residents and workers and employees who must travel long distances to and from work and do not have access to alternative transit or ridesharing programs.

It is possible, however, to implement strategies to serve specific groups such as many farm workers who work in rural areas and are generally low income. The farm workers’ vanpool program offers such a model.

VMT strategies of shifting modes, increasing vehicle occupancy, and driving less are more viable in urban areas because population and employment density enables more transportation choices. Most of the state’s population resides in just seven of 39 counties. These metropolitan areas are where the infrastructure, population density, and land-use patterns permit the most VMT reduction alternatives and hold the most possibility for land-use changes of compact, transit-oriented development, where walking and transit become increasingly viable alternatives to the driving alone.

RCW 47.01.440 does not require all areas and groups to meet VMT reduction goals at the same rate or at all, so it is entirely feasible to consider exempting vulnerable populations from SOV VMT reduction benchmarks. In addition, impacts to vulnerable populations can be mitigated in many cases, for example, through the provision of additional travel options.

Recommendations

If the Legislature wants more information on the potential impacts to the groups discussed above, a significant amount of funds will be necessary to do the level of analysis needed to provide a firm conclusion with data to support it. In addition, it will be important to have a clearer understanding of potential VMT reduction strategies and scale of implementation of those strategies that may impact various groups in the state.

Next steps

In 2011, WSDOT will be working with the four major regional transportation planning organizations to cooperatively develop and adopt regional transportation plans that will provide people with additional transportation alternatives and choices to reduce emissions and achieve the statutory requirement to reduce annual per capita vehicle miles traveled as directed in Executive Order 09-05. This collaborative effort will allow an opportunity and provide a framework to address the potential economic impacts of VMT reduction strategies to the above addressed areas at a regional and holistic point.

Overall agency sustainable transportation effort status updates

Many of WSDOT’s sustainable transportation efforts are directed by statute from 2008 and 2009. Below is a status update on the progress made toward that mandated work.

Capital facilities sustainability requirements update (RCW 19.27A.190³)

Requirement

RCW 19.27A.190.1 states that each qualifying agency shall by July 1, 2010 create energy benchmarks for each reporting public facility(RPF) and report to General Administration (GA) the national energy performance rating (NEPR) for each of these qualifying sites.

A reporting public facility, or RPF, is: (a) a building or structure, or a group of buildings or structures at a single site, owned by a qualifying public agency, that exceed ten thousand square feet of conditioned space; or (b) buildings, structures, or spaces leased by a qualifying public agency that exceeds 10,000 square feet of conditioned space, where the qualifying public agency purchases energy directly from the investor- or consumer-owned utility.

NEPR is a US Environmental Protection Agency rating system that uses a one (1) to 100 scale to give relative meaning to energy use. Facilities rating high on the scale are considered to be better energy performers (lower energy use) than those with low ratings (higher energy use). A rating of fifty (50) is defined as an industry average. RCW 19.27A.190.8(a) requires energy audits for those scoring below 50 or not eligible for NEPR as directed by GA. In 2016, the RCW requires implementation of cost-effective energy conservation measures identified by the audits conducted in previous required years.

Approach

WSDOT has already completed and uploaded data for the 196 qualifying facilities into EPA’s Energy Star Portfolio Manager. Under direction of GA, WSDOT’s qualifying facilities excluded building less than 1,000 square feet.

WSDOT reporting public facilities by program

Capital Facilities	149
Space and Lease Management	7
Ferry Division	16

<i>Total number of facilities subject to audit</i>	<i>196</i>
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³ RCW 19.27A.190 Qualifying public agency duties — Energy benchmark — Performance rating — Reports. (See Appendix B, pages B-1 to B-3).

Findings

Of WSDOT’s 196 reporting public facilities, tracked via EPA’s Energy Star Portfolio Manager, the following national energy performance rating breakout occurs:

- Four (4) facilities have a national energy performance rating less than 50
- 13 facilities have a national energy performance rating greater than 50
- 179 facilities are not eligible to receive a national energy performance rating through the Portfolio Manager. These facilities will require a review by GA.

196 WSDOT Reporting Public Facilities by National Energy Performance Rating (NEPR)					
Number of RPFs	NEPR Result	Action Yes/No	Action Due Date	Est. Cost (w/ESCO)	Status
4	< 50	YES	July 1, 2011	\$3,000	<i>In Progress/On Schedule</i>
13	> 50	NO	n/a	n/a	Complete
149	Undetermined	Pending GA Review	July 1, 2012	Undetermined	Pending/ Unfunded - GA to determine by July 1, 2011

WSDOT found several challenges in meeting current requirements to benchmark energy consumption and to track performance ratings in WSDOT facilities per RCW 19.27A.190.1 (a)(b)(c). The challenges include:

- Missing historic energy consumption data—WSDOT does not have complete energy consumption data or other required information by site and building which is needed to help benchmark current usage and track energy reduction efforts.
- Current EPA energy tracking tool not in use at WSDOT—EPA’s Energy Star Portfolio Manager is used to track energy consumption and to measure a facilities’ national energy performance rating. This program and the tools used to capture data to upload into the system have not historically been used by WSDOT.
- Non capital facilities managed buildings are more difficult to track—not all WSDOT offices and facilities are managed by WSDOT’s capital facilities office. Multiple programs would need to coordinate efforts to collect and report required data taking up additional resources to do so.
- Lack of resources and staff—competing needs and non-compatible data collection methods require more time than estimated to collect, report and validate data.

WSDOT found several challenges in meeting current energy audit requirements and implementing energy conservation measures per RCW 19.27A.190.8 (a),12. The challenges include:

- **No funding for audits or conservation**—While the energy consumption data and other required information has a July 1, 2011 deadline, WSDOT does not have funding for the audits in the current ’09-11 biennium. WSDOT also does not have set funding for required audits due in July 2012 or 2013 or to begin cost-effective conservation measures. Funding would potentially affect 2013-15 and 2015-17 biennium decision packages.

- **Most WSDOT sites are not NEPR eligible; will affect 2011-13 budget**—A majority of WSDOT’s sites are not eligible to receive NEPRs due to the agency’s unique buildings and business needs, and will require independent GA review by July 1, 2011. Sites determined to need audits per GA will affect the 11-13 biennium budget.

Recommendation

WSDOT recommends getting clarification from GA on reporting public facility benchmark status to move on to next steps. WSDOT also recommends securing funds for requirements due July 2011 first and then securing funding for future required audits and actions.

Next steps

WSDOT has not yet begun the energy audits or upgrades but they are drafting timelines and budgets to accomplish the required July 1, 2011 audits as stated in RCW 19.27A.190.8(a) . Current allocations do not include funds, resources or staffing to accomplish this work.

Public fleet use of alternative fuels and electricity (RCW 43.19.648⁴)

Requirement

RCW 43.19.684 mandates that to the extent determined practicable by the Department of Commerce, by June 2013, state agencies must have at least 40 percent of their fuel usage come from electricity or biofuel; By June 2015, state agencies must be at 100 percent biodiesel or electric.

Note: RCW 43.19.642 put into statute in 2006 required state agencies must use a minimum of 20 percent biodiesel by 2009.

Approach

WSDOT continues to make progress in increasing its biodiesel use. As at September 30, 2010, WSDOT’s use was approximately 11 percent compared to the total volume of diesel purchased statewide. WSDOT anticipates increasing to about 15 percent statewide by June 2011.

Thru September 30, 2010			
	Diesel Gallons	B100 Gallons	Percent by Volume
Westside	997,632	174,099	17.45%
Eastside	750,487	14,165	1.89%
<i>Totals</i>	<i>1,748,118</i>	<i>188,264</i>	<i>10.77%</i>

⁴ RCW 43.19.648 Publicly owned vehicles, vessels, and construction equipment — Fuel usage — Tires. (See Appendix B, pages B-4 to B-5).

Findings—Multiple challenges meeting current requirements

The department faces multiple challenges to meet current requirements for using alternative fuel and electricity in the WSDOT fleet. These challenges are summarized below:

Biofuel

- **Limited availability in Eastern Washington**—As of May 2010, current contract vendors are able to supply only up to a 10 percent blend of biodiesel in limited areas. This has been an ongoing challenge that is the responsibility of GA to resolve. GA hopes to have a new fuel contract in place by April 2011.
- **Colder temperatures create product issues that could disrupt winter operations**—Cold weather causes biodiesel to gel. This continues to be a challenge and one that the industry is attempting to resolve. Until that happens, we cannot jeopardize winter operations in cold climate areas by using higher concentrations of biodiesel. This has been conveyed on numerous occasions to both GA and Department of Commerce.
- **Biodiesel has a limited shelf life**—This is a concern since WSDOT has generators and smaller fuel sites which can sit idle for long periods of time.
- **Federal Biodiesel Tax Credit expiration greatly limits WSDOT's purchasing power**—This tax credit provided biodiesel blenders a \$1 per gallon federal tax credit. The expired tax credit represents a \$400,000 loss, which may limit the amount of biodiesel WSDOT can afford to purchase.

Electric

- **Electric vehicles are available, on a very limited basis through state contract.** The US Department of Energy (DOE) has given indications that for the 2010 Energy Policy Act (EPAct) reporting period hybrids will count for credit when purchasing alternative fuel vehicles mandated by EPAct.

Next steps

WSDOT will continue to replace vehicles per current legislative requirements and contract availability; giving consideration to the best-fuel efficient vehicles for the job specifications. WSDOT plans to purchase electric vehicles when available.

Statewide integrated climate change response strategy; preparing for and adapting to the affects of climate change (RCW 43.21M.010⁵)

Requirement

RCW 43.21M.010 directs WSDOT to work with the Department of Ecology and other state agencies to develop an integrated climate change response strategy for Washington State. The

⁵ RCW 43.21M.010 Development of strategy — Central clearinghouse — Collaboration. (See Appendix B, page B-6).

work currently underway to comply with the law also considers the direction state agencies received in Executive Order 09-05, sections 4 and 5.

The Departments of Agriculture, Ecology, Fish and Wildlife, Health, Natural Resources, Transportation, and the University of Washington will lead technical advisory groups to examine climate change impacts and identify preparation and adaptation strategies as well as additional research needs. The technical advisory groups are structured around four areas and will address a wide range of key issues that citizens, governments, and businesses will face in a changing climate. Many of these changes were characterized recently by the Climate Impacts Group at the University of Washington in the *Washington Climate Change Impacts Assessment*⁶. This report will be one of the foundations upon which the strategy is built. Here is a quick summary of each technical advisory group formed:

- **Built environment, infrastructure and communities**—This group will focus on strategies most relevant and vital to our state’s communities and the services provided to those communities by transportation, energy, water, waste, and information infrastructure.
- **Human health and security**—This group will focus on strategies to address health and safety effects associated with poor air quality, thermal stress, extreme weather events, and adequacy of core public health surveillance and response infrastructure.
- **Ecosystems, species, habitats**—This group will address impacts on, and adaptation strategies for, species, ecosystems and habitats both at a fine scale (individual species and habitats) and a broad, or coarse, scale, which considers whole ecosystems or ecological systems across Washington.
- **Natural resources, working lands and waters**—This group will address the impacts of climate change and adaptation strategies related to the state’s natural resources, working lands, and waters, including forestry (forest growth, species, forest fires), agriculture (species changes, crop changes, and pests) and water quality and resources.

Approach

The effects of climate change are altering the environment. Changes such as rising water and flood levels and varied weather patterns may put the transportation system at risk in ways WSDOT and the public are just beginning to understand. As an agency responsible for the efficient and safe movement of people and goods, WSDOT must prepare for and adapt to the effects a changing climate may have on our transportation infrastructure.

The statewide integrated climate change response strategy will create an initial, integrated approach that brings together the resources of various agencies. As part of this effort, WSDOT and partner agencies will seek to communicate risks to the public and local agencies to improve preparedness; present science-based projections of threats; and where possible, leverage existing tools and emergency resources.

⁶ The Climate Impacts Group 2009. *The Washington Climate Change Impacts Assessment*. M. McGuire Eisner, J. Littell, and L. Whitely Binder (eds). Center for Science in the Earth System, Joint Institute for the Study of the Atmosphere and Oceans, University of Washington, Seattle, Washington. Webpage: <http://cses.washington.edu/cig/res/ia/waccia.shtml>; accessed December 29, 2010.

WSDOT has focused its engagement on the overall steering committee, developed to coordinate the statewide integrated climate change response, and on the built environment, infrastructure and communities technical advisory group. WSDOT's asset management perspective is unique among state agencies, and allows WSDOT staff to bring in a variety of concerns from local government, port, rail, utility, and other transportation asset stakeholders.

WSDOT's current efforts to support statewide response strategy development include:

- Providing leadership—WSDOT's Deputy State Design Engineer is a steering committee member and working group co-chair
- Contributing staff resources to ensure productive dialogue, logistics, note-taking, scheduling and brainstorming products for group discussion
- Coordinating with Ecology, Commerce and other agency leads to track group efforts and engage the public

Next steps

WSDOT will continue to participate in the steering committee and sub groups. Currently the technical advisory groups are pulling together recommendations for the steering group. Next summer, the steering group will prepare and circulate an initial strategy draft for public and agency review. The group will make edits to the strategy in the fall and will deliver for legislature review December 2011.

Ecology hosts the website for the active groups and the meeting materials are posted on www.ecy.gov/climaterchange/2010TAG.htm

Miles-per-gallon requirement for purchased vehicles (RCW 43.41.130⁷)

Requirement

RCW 43.41.130 states starting June 2010, passenger vehicles purchased must get an average fuel economy of 40 miles per gallon (mpg), SUV and passenger vans must average 27 mpg. General Administration (GA) is responsible for ensuring vehicle availability and acquiring and administering these vehicles through mandatory state contracts.

Approach

WSDOT is required to purchase passenger motor vehicles through the GA mandatory contract. After June 15, 2010 all light-duty and smaller sport-utility vehicles purchased will meet the required standard.

⁷ RCW 43.41.130 Passenger motor vehicles owned or operated by state agencies — Duty to establish policies as to acquisition, operation, authorized use — Strategies to reduce fuel consumption and vehicle emissions — Implementation of fuel economy standards — Reports — Definitions. (See Appendix B, pages B-7 to B-8).

Findings

It will take years to transition the entire fleet to better fuel-economy models. WSDOT is moving forward to purchase passenger vehicles through the state contract that meet the new mpg fuel economy requirements. Due to funding and WSDOT's vehicle replacement and life utilization criteria, it will take several years to replace all WSDOT's passenger vehicles that do not currently meet the fuel economy requirements.

Next steps

WSDOT will continue to replace vehicles per current legislative requirements and contract availability; giving consideration to the best-fuel efficient vehicles for the job specifications. WSDOT plans to purchase electric vehicles when available.

Greenhouse gas emissions inventory (RCW 70.235.050 Section 2⁸)

Requirement

All state agencies are required to reduce and report greenhouse gas (GHG) emissions. WSDOT reported emissions for calendar years 2005, 2008, and 2009 to Ecology in June 2010 as required in RCW 70.235.050. Agency emissions for these years are shown in Exhibit #1, and Exhibit #2 shows 2009 emissions.

The statute requires agency reductions to be measured against 2005 emissions. Ecology recognizes that some categories of data are not available for 2005; the baseline does not include employee business travel, employee commuting, or fugitive emissions.

Approach

WSDOT's emissions were calculated using the Ecology-provided tool.

Emissions for 2005 do not include employee commuting, commercial air travel, or fugitive emissions. For 2008, fugitive emissions are not included. The 2009 emissions total includes all categories.

Emissions from utility use for all three years are currently based on estimated utility use derived from utility cost information and an average statewide utility rate provided by Ecology.

Findings

The first graph below shows WSDOT's GHG emissions for 2005, 2008, and 2009. The pie chart breaks out WSDOT 2009 emissions by source.

⁸ RCW 70.235.050 Greenhouse gas emission limits for state agencies — Timeline — Reports — Strategy — Point of accountability employee for energy and climate change initiatives. (See Appendix B, pages B-12 to B-13).

EXHIBIT #1

WSDOT GHG Emissions

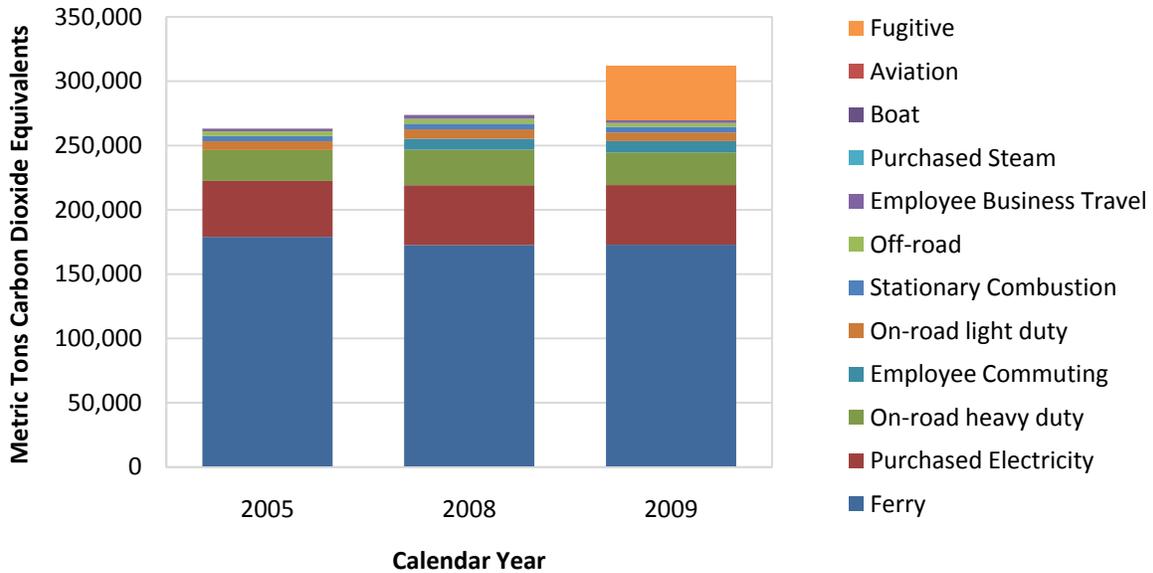
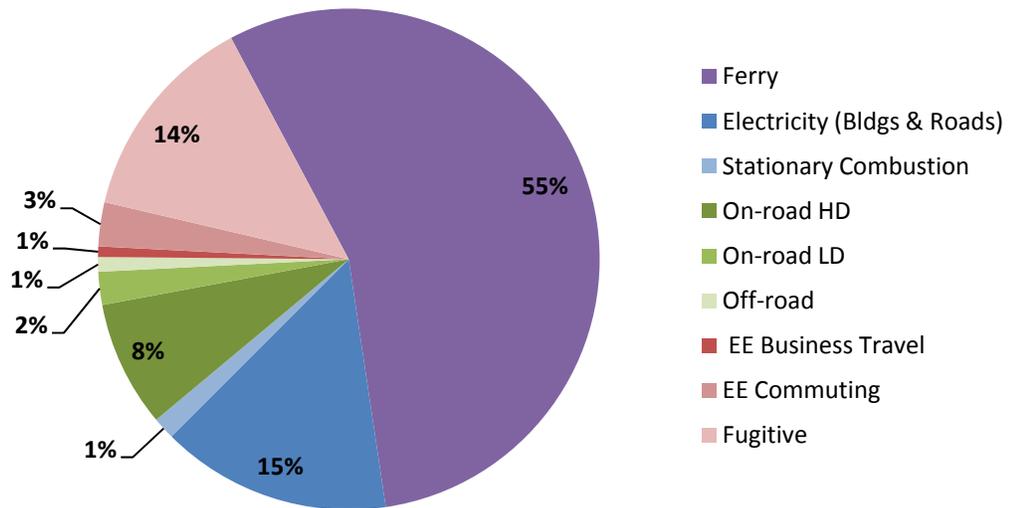


EXHIBIT #2

WSDOT 2009 GHG Emissions



Data status

With about five thousand utility accounts statewide, utility data collection and analysis is the most complicated part of WSDOT’s inventory preparation. To assist in compiling data, WSDOT

is implementing a utility data management software system. About half of WSDOT's utility use is available electronically, the remainder must be gathered by regional offices and hand entered.

Ecology approved submitting results based on estimated use to meet the June 30 deadline, with the understanding that the inventory will be updated when results based on actual use are available. Because of the extensive effort that would be needed to gather the data, WSDOT has decided to not update 2005 utility emissions. For 2008 and 2009 calendar years, data entry continues and updated inventories will be submitted with the 2010 inventory.

Fugitive emissions were estimated for 2009 using the tool provided by Ecology, which bases emissions on the number of refrigeration units, HVAC units, and fire suppression systems. Although this was the best available approach at the time, this method likely substantially overestimates fugitive emissions. To improve fugitive emission reporting accuracy, WSDOT is working to require service providers to report refrigerant quantities at the time of service. Likewise, for the fire suppression systems on the ferry vessels (WSDOT's only non water-based suppression systems), a more precise accounting approach is being developed.

Next steps

WSDOT is continuing to develop its new utility data management system and collect utility data to update the 2008 and 2009 inventories. In early 2011, data collection for the 2010 inventory will begin.

In addition to reporting emissions, WSDOT is working to develop an emissions reduction plan. The plan will be submitted to Ecology in June 2011.

Agency greenhouse gas reduction strategy (RCW 70.235.050 Section 3)

Requirement

RCW 70.235.050 (3) requires each state agency to submit to the department of Ecology by June 30, 2011, a strategy to meet the GHG reduction limits established in RCW 70.235.050.1. The strategy must address employee travel activities, teleconferencing alternatives, and include existing and proposed actions, a timeline for reductions, and recommendations for budgetary and other incentives to reduce emissions, especially from employee business travel.

Approach

In October 2010, WSDOT's Sustainable Transportation Coordination Team, a director level committee of five, met to discuss the components of this task. The group identified areas of involvement based on WSDOT's 2009 GHG emissions inventory provided to the Department of Ecology on June 30, 2010. The agency will focus on strategies for the Washington State Ferries, fleet management, facilities, and employee commute and business travel. WSDOT will work aggressively throughout the next six months to craft an agency strategy to reduce its emissions.

Capital funds and greenhouse gas policy (RCW 70.235.070⁹)

Requirement

RCW 70.235.070 states beginning in 2010, state agencies must consider whether the grantee receiving competitive capital funds for infrastructure and economic development projects has adopted policies to reduce greenhouse gas emissions. Agencies must also consider if the project is consistent with refrigerants.

Approach

The Office of Financial Management (OFM) reviewed state infrastructure funding programs and WSDOT's list of impacted programs identified included grants administered by four of our divisions: Highways and Local Programs, Public Transportation, Aviation and Rail.

Each division evaluated their programs and determined the appropriate approach for implementing legislation. After developing the approach, WSDOT provided OFM with each division's evaluation/concurrence process.

Findings

WSDOT found appropriate adjustments could be made to grant applications to factor in applicants' greenhouse gas and sustainability policies or practices during consideration for final project prioritization to reflect new greenhouse gas reduction requirements.

Recommendations

Each division within WSDOT affected by this requirement implemented its own set of recommendations based on the unique nature of its programs. The individual program evaluations are summarized below.

Highways and Local Programs

WSDOT reviewed the Pedestrian/Bicycle Safety and Safe Routes to School grants program and determined that it was appropriate with the grant's intent to factor in an applicant's greenhouse gas and sustainability policies or practices as a consideration for final project prioritization. This consideration would be factored in prior to submitting the final list of projects to the legislature for selection and funding.

Aviation

WSDOT requested airport sponsors applying for WSDOT Airport Aid funds to include any sustainability policies or ordinances in place to address greenhouse gas emissions in their completed application forms. Submission of such policies or ordinances was given consideration in the prioritization of Airport Aid grant funding.

⁹ RCW 70.235.070 Distribution of funds for infrastructure and capital development projects — Prerequisites (See Appendix B, page B-14).

Rail

WSDOT reviewed the Rail Assistance and the Freight Rail Investment Bank grant programs and made an application change to ask if the project would result in a vehicle miles traveled reduction as it pertains to RCW 70.235.070. Applicants receive an additional five points to their total score if answering ‘yes’ to the question.

Public Transportation

WSDOT developed a three-step approach to implementing the RCW requirement into the Regional Mobility Grant Program. To assist applicants on successfully complying with the new requirement, WSDOT: 1) Added new instruction/direction to the Regional Mobility Grant Application Guide; 2) Added three application questions to address GHG emissions; and 3) Established scoring criteria for each answered question regarding GHG policy implementation and effort. For more scoring details, please see Appendix G: Public Transportation Regional Mobility Grants new application steps. Agencies who have not adopted GHG policies that meet mandates by the application due date will not be considered for grant funding.

Next steps

WSDOT will continue to make appropriate adjustments to grant applications to factor in greenhouse gas and sustainability policies or practices as a consideration for grant funding.

Other sustainable transportation efforts and practices

Beyond our required sustainable transportation efforts WSDOT is continuing our effort to provide an efficient system that preserves our environment, is durable and take into account how we build and the materials we use. Our goal is to manage and operate the transportation system using policies and strategies that meet society’s present needs without compromising the ability of future generations to meet their own needs. These practices do not just make good environmental sense, they make good economic sense. Some of these efforts and practices are described below:

Materials

- WSDOT is eliminating “High VOC¹⁰” traffic marking paint from the next update to the materials specifications.
- The department has eliminated “coal tar sealants” from the specifications.
- As part of WSDOT’s investigation into warm mix asphalt (WMA) we have acquired a Hamburg Wheel Tracker Device and are testing mix designs for both traditional hot mix asphalt and for warm mix asphalt. WMA may result in lower energy consumption with fewer GHG.

System efficiencies

- On August 10th, WSDOT’s Northwest Region turned on the 97 “smart highways” signs on northbound I-5. These signs automatically respond to changing traffic conditions and give drivers real-time information. Overhead electronic signs will alert drivers to change

¹⁰ High VOC means refers to volatile organic compounds. These are organic chemical compounds which can affect the environment and human health.

lanes when an incident blocks traffic ahead or to adjust their speed as they approach slower-moving traffic. WSDOT anticipates that this will improve safety on I-5 by causing fewer collisions into traffic back-ups, and reduce some congestion caused by these secondary incidents.

Climate change risk assessment

- WSDOT was awarded a federal grant of \$189,500 to test-drive the Federal Highway Administration's *Conceptual Risk Assessment Model*. This will fund our continued work on assessment of WSDOT owned infrastructure. The project will help identify which assets (a) are most exposed to the threats from climate change and/or (b) are associated with the most serious potential consequences of those climate change threats.

Sustainability and freight

- WSDOT's Freight System Division (FSD) works with its federal, state, port, and non-profit clean air partners – the Puget Sound Clean Air Agency, the Department of Ecology, the Governor's office, and others to address transportation-related air quality through a variety of programs and operations. FSD provides partnership support for the Clean Truck Program aimed at reducing diesel emissions in and around the Puget Sound ports.

National leader in sustainable transportation

- WSDOT is seen as a national leader in sustainable transportation practices. This has been recognized by other state departments of transportation. Through the State Smart Transportation Initiative (SSTI) WSDOT will allow other DOTs to review our program as a model for developing their own programs.

Commute trip reduction

- Washington is recognized as a national leader in helping commuters get to work. The state's commute trip reduction (CTR) law was passed by the Legislature in 1991 with goals to improve air quality, reduce traffic congestion, and reduce fuel consumption through employer-based programs that encourage the use of alternatives to driving alone to work.
- CTR supports the state's emissions and energy goals while helping the economy
 - CTR reduced delay by 7.6 percent in the Central Puget Sound in 2009, saving each morning peak traveler \$59 a year in wasted fuel and lost time (\$99 million for the region).
 - CTR worksites reduced 62 million vehicles miles traveled (VMT) per year between 2007 and 2009, equivalent to 27,490 metric tons of greenhouse gases (or about 144 railcars' worth of coal).
 - The VMT reduced by CTR commuters resulted in an annual savings of three million gallons of gas – about \$7.8 million worth of fuel in 2009.
 - Meeting targets for trip and VMT reductions would save businesses millions of dollars in the costs of providing parking for their employees.

- CTR focuses on commuters to major employers and dense employment centers
 - The CTR program directs major employers in the urban growth areas of the state with the greatest levels of traffic congestion to implement strategies to reduce the rate of employees driving alone to work. Participating employers reduce parking expenses, can qualify for tax credits, and reduce their carbon footprint by supporting employees who choose to ride a bus, carpool, vanpool, compress their work week, etc. In 2009, approximately 530,000 employees at more than 1,000 worksites across nine counties had access to employer CTR programs.
 - The program engages another 235,000 commuters at thousands of additional worksites through a new focus called Growth and Transportation Efficiency Centers (GTECs). The ten centers take trip reduction to the next level by engaging small and medium employers, schools and neighborhoods in congested urban centers and encouraging commuters to choose more efficient transportation options. This new focus has shown remarkable results.

New approach to regional transportation and land use planning

In March 2010, Washington was one of five states selected by the National Governors Association Center for Best Practices for a policy academy on developing new ways to implement land use and transportation planning. The project will generate an action plan for integrating state policy goals with regional and local plans and actions and will be piloted by the Southwest Washington Regional Transportation Council during the scoping of their 2011 metropolitan transportation plan update.

Conclusion

WSDOT turning challenges into opportunities

WSDOT is turning change into opportunity by seeking sustainable solutions in everything they do while working to improve lives, transform the economy and preserve the environment. But WSDOT can't go it alone. WSDOT will continue collaborating with community groups, businesses, federal agencies, local governments and regional planning organizations. We will also continue engaging everyday citizens in learning more about the transportation system and giving them information so they can make transportation choices that best fit into their schedule and pocketbook.

Better planning, more choices for a changing climate

The climate is changing. Technology and science continue to advance. Demand for natural resources and cleaner energy continue to grow. Governor Gregoire and the Washington State Legislature are leading the way to a more sustainable transportation system and a greener economy in our state. Reducing greenhouse gas emissions supports both efforts. Because transportation is the single largest source of greenhouse gas emissions in our state WSDOT is pursuing multiple strategies to reduce these emissions, including:

- Operating the transportation system to maximize efficiency, improve traffic flow
- Lowering the carbon content of fuels
- Supporting improved vehicle technology
- Supporting efficient transportation options like carpooling; working from home; riding a bus, train, or bicycle; or shopping close to home and walking.

WSDOT is working with planning organizations to help them adopt a regional approach that fits the unique needs of their community and considers the relationship between land use, transportation and greenhouse gas emissions. This will help ensure that state and local government actions will be coordinated and effective. WSDOT is also working with transit agencies to integrate our plans to provide better service and access, share resources and reduce costs.

Moving Washington with more choices, efficient operations and strategically, responsibly adding road capacity

There's more to sustainable transportation than greenhouse gas emissions. We also promote a healthy economy by keeping workers and goods moving.

WSDOT's transportation strategy, *Moving Washington*, is a key part of this effort.

It focuses on three key strategies to reduce congestion:

- providing choices that help manage transportation demand
- operating the system we have efficiently
- strategically adding road capacity

In addition, we support the development of green transportation products and services to help our state compete for jobs and market share during the next century.

Building a more sustainable transportation system is good for the economy, communities and the environment. WSDOT is addressing traffic choke points on the busiest commute and trade routes, retrofitting concrete pavement to extend the life of our roadways and engineering new structures to use fewer raw materials. WSDOT is using technology to improve traffic flow, make the most of the existing transportation system and bring people more transportation choices.