Sustainability in Transportation: State Frameworks for Change

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Beyond Clean Cars and Fuels: Transportation and Land-Use Planning in a Carbon-Constrained World
VMT reduction panel presentation at New Partners for Smart Growth Conference
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Washington's Transportation Sustainability/Smart growth Framework

- Growth Management Act—1990
  - Cities and counties designate and protect resource and critical areas
  - Most cities and counties adopt comprehensive land use plans and development regulations to accomplish 14 planning goals
  - Concurrency of infrastructure with development
  - Regional Transportation Planning Organizations
  - Regional coordination
- Metropolitan Planning Organizations
- State Transportation Planning responding to both state and federal requirements
- State climate change and sustainability initiatives

Climate change is serving as a focus and impetus to take smart growth and the land use/transportation connection seriously –it is pushing past a tipping point 20 years in the making

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The Wicked Problem of Climate Change

Scholars long ago characterized a public-policy problem with the kinds of features presented by climate change as a "wicked problem" that defies resolution because of the enormous interdependencies, uncertainties, circularities, and conflicting stakeholders implicated by any effort to develop a solution. Sometimes described as "social messes," classic wicked problems include AIDS, healthcare, and Terrorism.

Climate change, however, has been fairly described as a "super wicked problem" because of its even further exacerbating features. These features include the fact that time is not costless, so the longer it takes to address the problem, the harder it will be to do so. As greenhouse gas emissions continue to increase, exponentially larger, and potentially more economically disruptive, emissions reductions will be necessary in the future to bring atmospheric concentrations down to desired levels. Future technological advances, therefore, would likewise have to be able to achieve those exponentially greater reductions to make up for lost time. The climate change that happens in the interim may itself cause sufficient economic disruption, for instance, by slowing growth rates, so as to make it much harder to accomplish the necessary technological innovation.

Richard Lazarus, Cornell Law Review 2009

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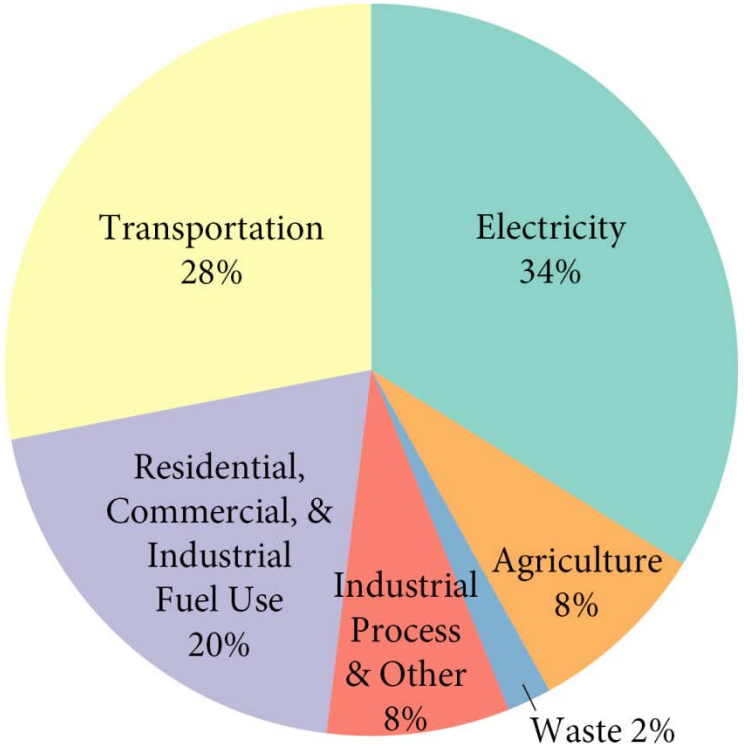
The transportation-climate change connection

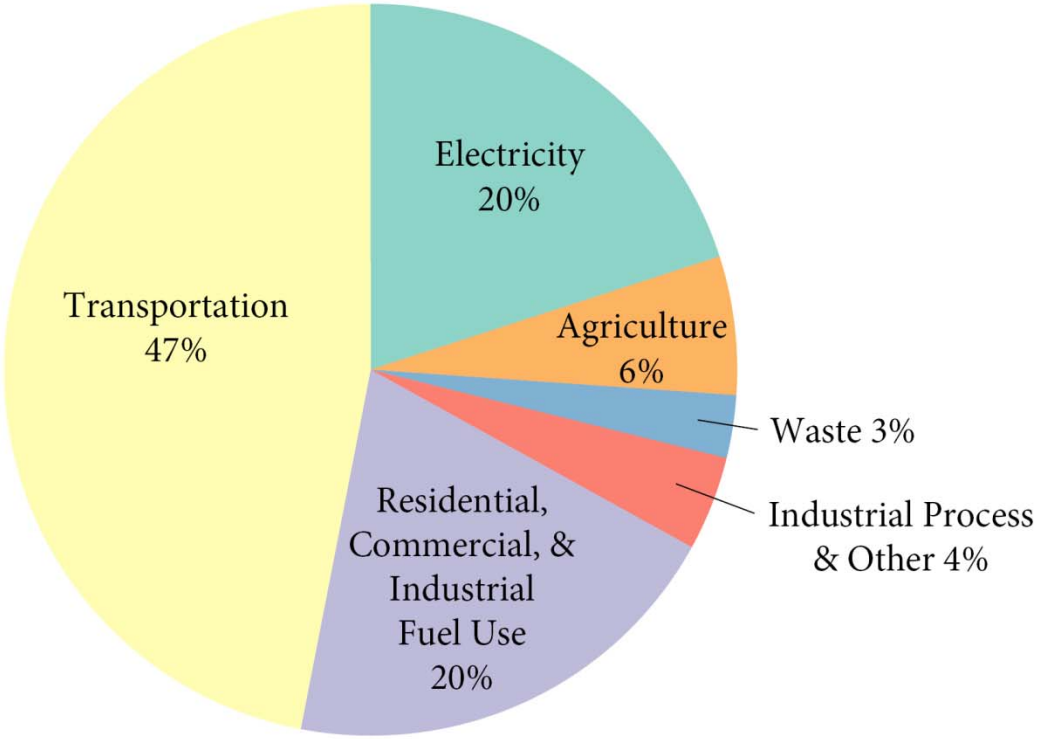
- The roads and waterways we operate as an agency combined with the state's airports are responsible for almost 50% of greenhouse gas emissions produced in our state.
- WSDOT’s job is to keep people and goods moving by operating and improving our transportation system safely and efficiently—we also have a responsibility to relieve congestion, preserve our infrastructure and to be good environmental stewards.
- That means doing what we can to reduce the effects our operations have on our state’s environment, economy and quality of life.

U.S. Greenhouse Gas Emissions



Source: Washington State Department of Ecology, 2005

Washington Greenhouse Gas Emissions



Source: Washington State Department of Ecology, 2005

Past Legislative Actions

State's greenhouse gas emission reduction limits

1990 levels by 2020
25% below 1990 levels by 2035
50% below 1990 levels by 2050
State's baseline = 94.6 million metric tons CO2 equivalent

RCW 47.01.440 sets per capita VMT benchmarks

18% by 2020
30% by 2035
50% by 2050
Baseline = 75 billion VMT 1990 levels by 2020
(excluding vehicles over 10,000 lbs)

Pursuing more sustainable transportation

Basing our efforts on science—we have established reduction targets for greenhouse gas emissions and vehicle miles traveled and are using or developing credible methodologies to measure our progress. Measuring and reporting results focuses multifaceted efforts on a shared bottom line.

Taking a balanced approach—we are offering a menu of choices to help engage a diverse array of people and industries in the effort to achieve our goals.

Applying a strategic approach—because there is no one-size-fits all solution, we are using scalable options that provide communities and industries flexibility to deliver measurable results.

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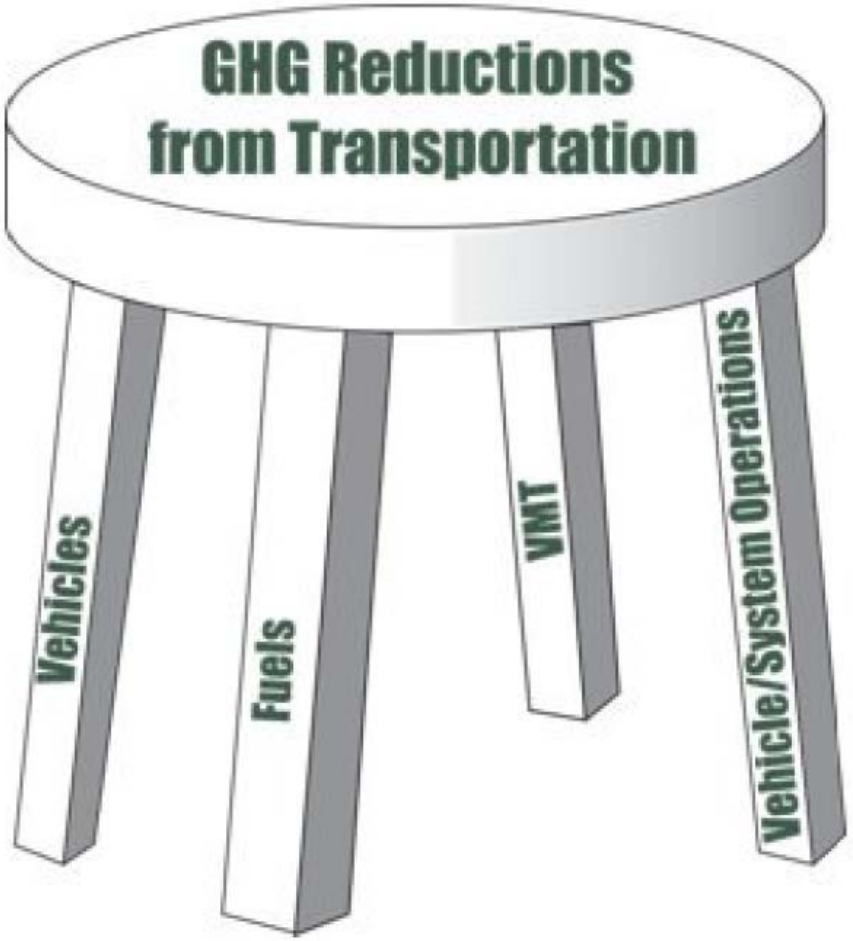
Multiple Strategy Approach to Reducing Transportation GHGs



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Governor's Executive Order 09-05

2. The Secretary of The Department of Transportation:

(a)In consultation with the Departments of Ecology and Commerce, and in collaboration with local governments, business, and environmental representatives, estimate current and future state-wide levels of vehicle miles traveled, 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 emissions from the transportation sector. Findings and recommendations from this work shall be reported to the Governor by December 31, 2010.

(b) Work with 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 greenhouse gases and achieve the statutory benchmarks to reduce annual per capita VMT in those counties with populations greater than 245,000. By December 1, 2011, the Department will report to the Governor on which regional transportation planning organizations have developed, or are developing plans with greenhouse gas 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.

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Working with local and regional partners

- Formed working group and technical group to examine VMT and GHG reduction strategies to implement the Governor's Executive Order
- Participating with one medium size MPO and FHWA to develop a transportation/GHG modeling tool to evaluate transportation system and GHG reduction strategies
- Participated with state Commerce Department in a review of modeling tools for use by local and regional planning agencies (*Washington State Department of Commerce Assessment of Greenhouse Gas Analysis Tools Final Report, December 2009*)
- Working with MPOs in the development of Metropolitan Transportation Plans incorporating greenhouse gas reduction strategies

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Some of the VMT reduction strategies being looked at for EO 09-05

Pricing
- CBD/Activity Center on-street parking
- Tax/higher tax on free private parking
- Residential parking permits
- Cordon Pricing
- Congestion Pricing
- Intercity Tolls
- PAYD Insurance
- VMT fee
- Carbon Pricing (VMT impact)

Land Use and Smart Growth Strategies/Nonmotorized Strategies
- Combined Land Use
- Combined Pedestrian
- Combined Bicycle

Public Transportation Strategies
- Transit Fare Measures
- Transit Frequency/LOS/Extent
- Urban Transit Expansion
- Intercity Passenger Rail
- High-Speed Passenger Rail

HOV/Carpool/Vanpool/Commute Strategies
- HOV Lanes
- Car-Sharing
- Employer-Based Commute Strategies

Regulatory Strategies
- Nonmotorized Zone
- Urban Parking Restrictions

Multimodal Freight Strategies
- Rail Capacity Improvements
- Marine System Improvements

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Creating a sustainable transportation system; reducing transportation's effect on climate change—

We are concentrating internal efforts to build a more sustainable transportation system in more than a dozen areas—from reducing transportation sector greenhouse gases through better fuels and technology to using smarter asphalt mixtures, changing statewide policies and adapting design plans for future climate change.

Highlights include—

• **West Coast Green Highway initiative—**we are partnering with the Dept. of Commerce, other states, private sector, utilities, and other public agencies to advance electric vehicle and alternative fueling infrastructure along Interstate 5, making the possibility of fleets of electric or alternative fueled vehicles a reality.

• **Preparing, adapting to climate change**—We are moving forward to prepare and adapt to an already changing climate by taking a WSDOT-owned facility inventory to keep them safeguarded against a changing climate and revising planning and design policies.

• **Lessen transportation-related energy use**—We taking a close look at our energy policies to identify energy concerns from the transportation sector. From land use and consumption trends to fuel use/types and highway operation and construction issues. We are working to develop strategies to lessen the transportation-related energy consumption and reduce fossil fuel dependency.

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Creating a sustainable transportation system; reducing transportation's effect on climate change—

Day-to-day, boots on-the-ground work includes—

•**Reducing, reusing and recycling road and other operational materials**;

• **Continuing ferry biodiesel testing**

• **Completing** trials by our materials lab mean we are approved to use lower temperature asphalt mixtures when appropriate – this **means less energy use and emissions when putting down new roadway**; team is also **testing more sustainable cement mixtures**;

• **Continuing** to encourage in-house and external carbon-less commuting **c**hoices – our commute trip reduction program remains one of the nation's top.

•**Operating and expanding** smarter highways technologies to improve travel efficiencies and cut down on stop-and-go traffic

• **Installing** more efficient traffic lights and solar-powered traffic systems;

• **Setting greenhouse gas emission limits** on projects; participating in research projects;

• **Reducing resources and supplies** in-house like paper, energy and water

• **Being smart about public outreach—**looking for ways to make the most out of limited resources but provide meaningful, appropriate outreach. This includes upping use of electronic media and online resources like WSDOT's Web site and interactive tools like our e-mail lists, we are looking for ways to reach out to our public in a way that allows them to *see themselves in our work*, whether they are a daily bus commuter, long-haul trucker, environmental activist or business owner.

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DOT Adaptation to Climate Change

Global and regional climate is already changing, and changes are expected to continue and accelerate in the coming decades.

Sea levels are expected to rise.

Build to withstand hot summers, wind and other severe storm events including flooding

Awareness of adaptation needs will result in short-term retrofit actions and better long-term decisions

- freight and Passenger Rail lines run near water in many areas
- bridge heights may not be adequate
- bridges may be scoured from flood events
- roadways may be prone to repeat flooding
- future infrastructure -- is it in the right place?

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Future DOT Issues and Challenges

Climate change is storm water, wetlands, endangered species, air quality, conformity, NEPA and historic preservation for the 21st century

- Transportation community needs to understand the issue and its own relationship to the causes and cures
- Culture needs to get past disbelief, resistance, defensive herd response, and to establish credibility with positive action

VMT vs. GHG emission reductions--public debate over VMT, land use strategies will be technically, emotionally and politically complex

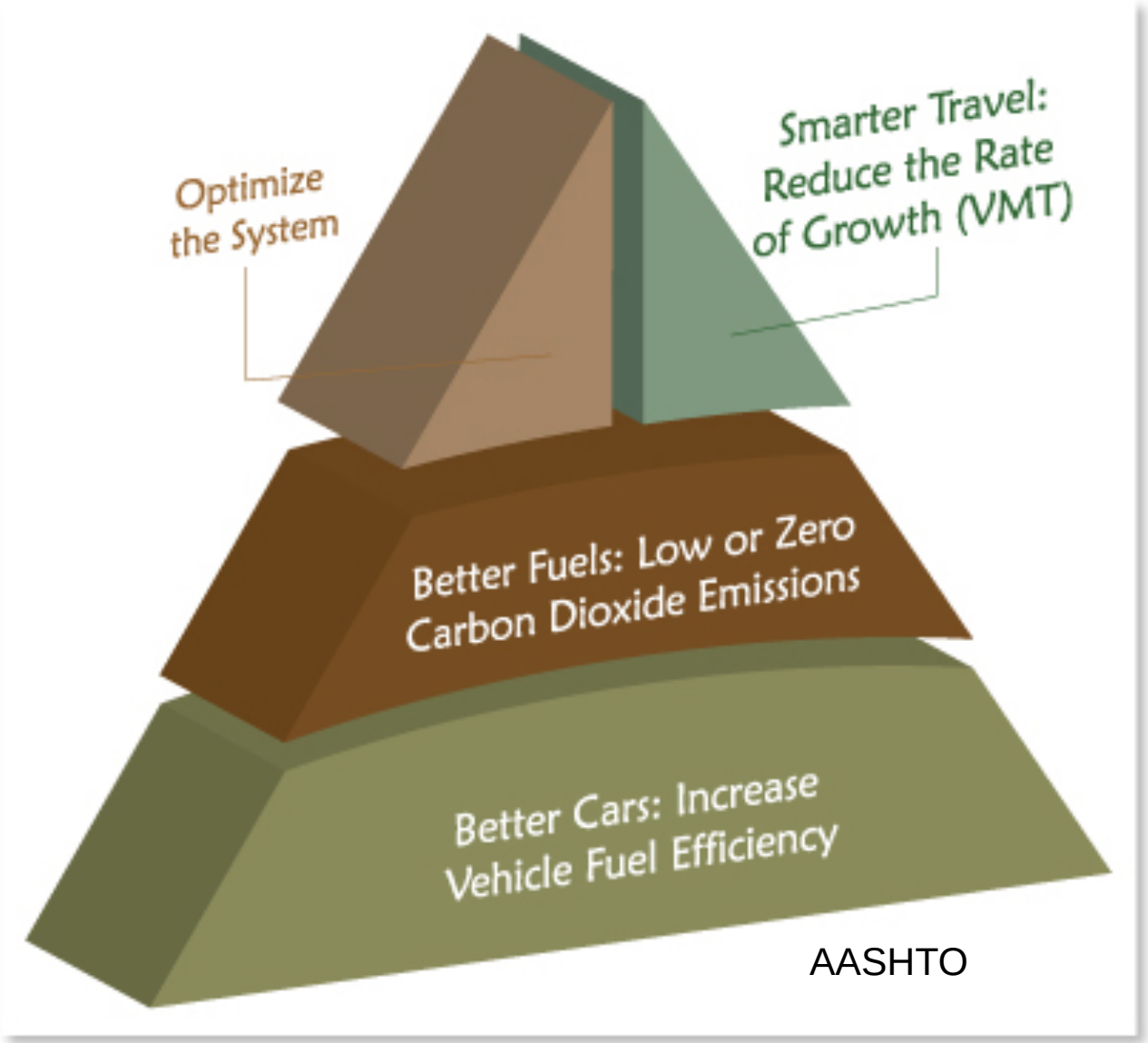
Future Issues and Challenges (cont.)

Addressing Climate Change meaningfully in transportation plans and projects, NEPA and state environmental documents

Developing balanced adaptation strategies in facility and system rehabilitation and development

While DOTs and Regional Transportation Planning Organizations are generally expected to reduce VMT and transportation GHG's, cities and counties make the land use decisions driving travel demand, local transit agencies provide the services needed for practical alternatives to automobile travel, and individuals make location and daily travel decisions

Reducing Transportation GHGs



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WSDOT's Big Picture—Moving Washington

Moving Washington is WSDOT's three-part strategy to address congestion. The three points of the strategy are to:

- add lanes where they are needed most
- operate our existing lanes as efficiently as possible
- give people more choices to improve their commute and reduce demand on our transportation system.

These strategies also support our efforts to reduce carbon emissions, improve air quality and address climate change by promoting alternatives to driving alone and creating more efficient operations.

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In Closing….

- Washington has an established framework for smart growth, integrating land use and transportation decisions, and reducing VMT and GHGs from transportation
- Climate change is creating the nexus for integrated land use, transportation, economic, and environmental planning to become a reality
- We are working with stakeholders to analyze:
  - Practically, how much VMT can be reduced, and should be reduced, with what benefits and costs
  - The extent to which changing land use and development patterns can realistically contribute to VMT reduction
  - The extent to which VMT reductions will contribute to GHG reductions
- To the extent that VMT and resultant GHG reductions fail to achieve established goals, other legs of the transportation “stool”, or other sectors of the economy will have to pick up the slack
- The discussion of VMT reduction strategies is both technically complex and passionate
- Transportation Funding in a reduced carbon footprint world where funding currently depends on the size of your shoe

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Questions?

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