



Transportation Planning and Climate Change in the Central Puget Sound Region

Transportation and Climate Change: Time to Think, Plan, Mitigate, and Adapt

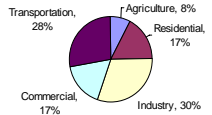
North Carolina State University, Center for Transportation and the Environment

December 3, 2008

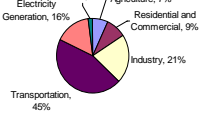
Washington State and Climate Change

US Greenhouse Gas Emissions by Sector, 2004



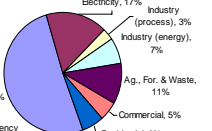
Source: Pew Center on Global Climate Change

Washington State Greenhouse Gas Emissions by Sector, 2004




Source: WA Dept. of Community, Trade and Economic Development

2002 Greenhouse Gas Emissions for the Puget Sound Region




Source: Puget Sound Clean Air Agency



Washington State and Climate Change

Relevant State Legislation:


- Executive Order 07-02: Washington Climate Change Challenge
 - *increase in clean energy jobs, reduce reliance on imported fuels, greenhouse gas emission reduction goals*
 - **To 1990 levels by 2020; 25% below 1990 levels by 2035; 50% below 1990 levels by 2050**



Washington State and Climate Change

Relevant State Legislation:


- SB 6001: adopts into law the Governor's emission reduction goals, sets performance standards for electric utilities



Washington State and Climate Change

Relevant State Legislation:


- E2SHB 2815 - Climate Change Framework/Green-Collar Jobs Act
 - Emissions monitoring and reporting system
 - Design a regional multisector market-based system
 - Clean energy jobs/Green Economy Jobs Growth Initiative
 - **Adopt statewide vehicle miles traveled reduction goals**
 - Using a benchmark of 75 billion total statewide VMT in 2020, less VMT from trucks:
 - By 2020, decrease by 18%
 - By 2035, decrease by 30%
 - By 2050, decrease by 50%



Washington State and Climate Change

Other Actions:


- HB 1303: directs the state to analyze vehicle electrification, sets goal for all state fleets to run on electricity or biofuel by 2015
- *Washington Clean Car Standards – adoption of California emissions standards beginning with 2009 model year*



Washington State and Climate Change

Other Actions:


- Agreement with British Columbia to reduce GHG emissions and collaborate on clean technologies
- Participation in the Western Regional Climate Action Initiative and the Climate Registry



Washington State and Climate Change

Other Actions:


- Initiative 937 – large utilities required to meet 15% of their annual load with renewable energy resources by 2020
- SB 6580: addresses mitigation of greenhouse gas emissions through land use and transportation planning processes under the Growth Management Act



Local Jurisdictions and Climate Change

King County


- Global Warming Action Plan: goal to reduce emissions by 80% below current levels by 2050
- Climate Preparedness Guidebook
- Renewable Energy Order – renewable energy and efficiency requirements
- GHG emissions included in State Environmental Policy Act reviews



Local Jurisdictions and Climate Change

Seattle

- Climate Action Plan
- Launched the US Mayors Climate Protection Agreement - 21 Puget Sound cities, 3 counties have joined
- Seattle Climate Partnership
- City Light Net Zero GHG Emissions Goal




Local Jurisdictions and Climate Change

Tacoma

- Green Ribbon Climate Action Task Force

Snohomish County

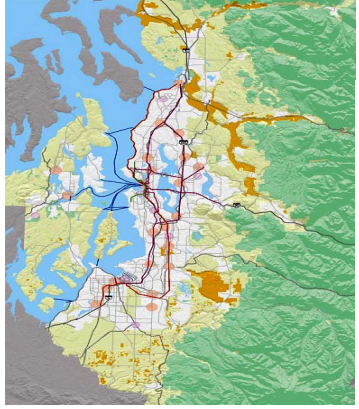
- Executive Order to address climate change




PSRC Region

Four Counties – King, Kitsap, Pierce, Snohomish

- Major cities include Seattle, Tacoma, Bellevue, Everett, Bremerton
- Approx. 55% of the state's population
- Located between the Cascade and Olympic mountain ranges, bisected by Puget Sound






PSRC and Climate Change

Who We Are:

- Metropolitan Planning Organization for the Central Puget Sound Region
 - 90 Member Agencies/Organizations: counties, cities/towns, ports, transit agencies, tribes, Washington State Department of Transportation, Washington State Transportation Commission



PSRC and Climate Change

Who We Are:


- Transportation, Growth Management, Economic Planning
 - VISION 2040 – regional growth, transportation and economic strategy
 - Destination 2030 – 30-year long-range metropolitan transportation plan
 - Prosperity Partnership – coalition of government, business, labor and community organizations to develop and implement a regional economic strategy



PSRC and Climate Change: VISION 2040

VISION 2040, the regional growth, transportation and economic strategy:


- Adopted April 2008
- Addresses anticipated growth by the year 2040: 1.7 million more people, 1.2 million more jobs
- Environmental Framework (new; includes climate change)
- Regional Growth Strategy – focus growth in urban centers and compact communities



PSRC and Climate Change: VISION 2040

VISION 2040, the regional growth, transportation and economic strategy:


- Multicounty Planning Policies - environment, economy, development patterns, transportation, public services, housing
 - Climate change addressed throughout
 - Goal: The region will reduce its overall production of harmful elements that contribute to climate change
 - Action: Regional Climate Action Plan



PSRC and Climate Change: VISION 2040

VISION 2040, the regional growth, transportation and economic strategy:


- Analysis - CO₂ analysis in EIS, growth alternatives comparisons
 - Broad analysis based on total vehicle miles traveled



PSRC and Climate Change: Transportation 2040

Transportation 2040 and Climate Change


- Policy Board direction to consider climate change in the update
- Scoping process identified climate change as a significant issue to be addressed
- Analysis – carbon dioxide analysis will be performed for the EIS, comparison of alternatives
 - New Tools
 - Climate Change Technical Working Group



PSRC and Climate Change: Transportation 2040

Transportation 2040 Issues


- Land Use — Integrating transportation and land use decisions
- Economy — Transportation investments to support the Regional Economic Strategy
- Congestion and Mobility — Addressing regional congestion and enhancing mobility for people and goods
- Equity and Special Needs Transportation — Planning for special needs populations (youth, elderly, low income, and the disadvantaged)



PSRC and Climate Change: Transportation 2040

Transportation 2040 Issues


- Safety & Health — Getting to “Target Zero” and supporting healthy lifestyles
- Security — Clarifying PSRC’s role in security and emergency management
- Energy and the Environment — Climate change, air quality, Puget Sound Partnership
- Preservation of the System — Investing in our aging infrastructure



PSRC and Climate Change: Transportation 2040

Transportation 2040 Issues


- Transportation Funding — Sustainable funding for transportation investments
- Project Prioritization — Making the most of scarce transportation dollars



PSRC and Climate Change: Transportation 2040

Technical Issues:


- THEN: tools capable of simple greenhouse gas analyses, only VMT-based
- NOW: travel demand modeling improvements plus utilizing draft MOVES model
 - Ability to analyze for speed variations, changes in vehicle/fuel mix, corridor/subarea analyses, analysis of transportation and land use strategies (e.g. pricing)
 - More refined greenhouse gas analyses of each alternative; scenario testing



PSRC and Climate Change: Transportation 2040

Technical Issues:


- Board direction to address the greenhouse gas reduction goals established in SB6001 and the VMT reduction benchmarks set in HB2815 as part of the Transportation 2040 alternatives analysis
 - Draft alternative being designed to address both
 - Emissions and VMT reported for all alternatives
 - Emissions included in the environmental criterion



PSRC and Climate Change: Transportation 2040


Policy Issues:

- Transportation 2040 will also need to consider and address the impacts of climate change *to* the transportation system (adaptation):
 - Accelerated pavement deterioration
 - Flooded roadways
 - Bridge damage
 - Increased maintenance
 - Increased stormwater, drainage issues

 **PSRC and Climate Change: Transportation 2040**


Key Points for the Update:

- The Puget Sound region is growing and growth will continue
- For transportation, travel per capita has leveled off, but more people means more travel
- Distribution of growth matters to how and how much people travel

 **PSRC and Climate Change: Transportation 2040**


Key Points for the Update:

- Transportation is a significant source of greenhouse gases in the Puget Sound Region
- Transportation GHG emissions reductions can come from improved vehicle technology, improved fuels, and travel reduction

 **PSRC and Climate Change: Transportation 2040**

Key Points for the Update:

- While vehicle technology and fuels are critical long term strategies, some travel reduction is needed, especially in the short run, to meet emission reduction goals
- Transportation actions that reduce emissions include: land use changes, efficiency improvements, expanding choices, and actions that increase the cost of driving.

 **PSRC and Climate Change: Transportation 2040**

Alternatives:
The alternatives will build on Baseline, Core Strategies, Land Use, and vary components of the following investment strategies:

IMPROVING EFFICIENCY
Demand Management: *Moving people and/or goods or ideas in the most efficient manor.*
System Management: *Improving the efficiency of the facilities that people or goods travel on.*



The diagram consists of five overlapping circles. At the top is a blue circle labeled 'Improving Efficiency'. Below it is a green circle labeled 'Strategic Expansion'. To the left of the green circle is an orange circle labeled 'Baseline'. To the right of the orange circle is a red circle labeled 'Core Strategies'. At the bottom is a yellow circle labeled 'Land Use'. The circles overlap in various combinations, representing the integration of these elements into the transportation alternatives.

PSRC and Climate Change: Transportation 2040

Alternatives:

STRATEGIC EXPANSION

Roadways: Choke points and bottleneck improvements, new roadways (SR 509, etc), etc.

Transit: New vanpools or buses or trains on existing routes or new routes and supporting facilities such as bus maintenance facilities, park and ride lots, etc.

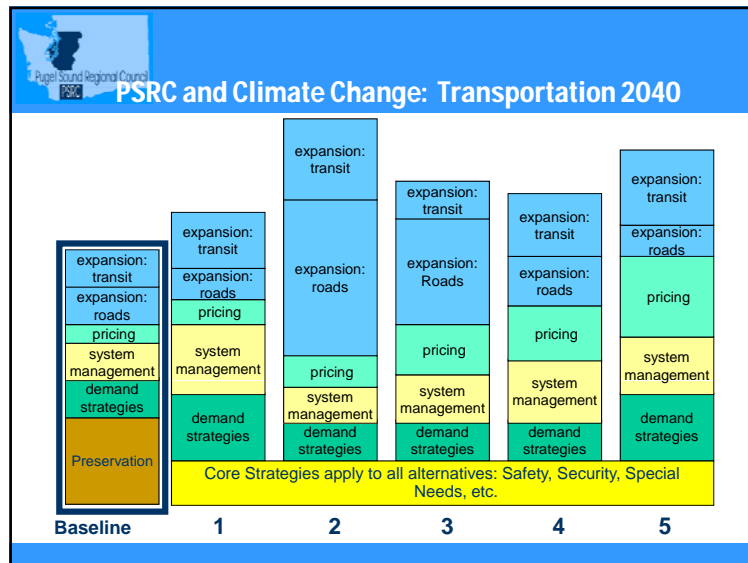
Bicycle and Pedestrian: New or expanded trails or sidewalks

Other modes: Ferries, airports, freight, etc.

PSRC and Climate Change: Transportation 2040

Alternatives:


What about tolls?: Tolls are generally used as a means to improve the efficiency of a roadway or ferry and/or provide funding for maintaining or improving transportation facilities.



PSRC and Climate Change: Collaboration

Climate Change Technical Working Group


- **EPA, Ecology, WSDOT, Puget Sound Clean Air Agency, King County, Sound Transit, others**
- **Original objectives:**
 - Discuss climate change analysis needs
 - Coordinate regional/state climate change activities
 - Consistency in methodologies, talking points



PSRC and Climate Change: Collaboration

Climate Change Technical Working Group

- **Current objectives:**
 - Assist PSRC as we incorporate climate change into Transportation 2040
 - Provide technical assistance to local agencies for project-level greenhouse gas analyses – guidebook preparation
 - Ensure regional consistency



PSRC and Climate Change: Collaboration

Climate Change Technical Working Group

Other Collaboration

- **Integrating with State's Climate Advisory Team and Implementation Working Groups**
- **Working with the Seattle-King County SEPA Greenhouse Gas Technical Advisory Group**