



Both States say: "Cool It"

Oregon GHG Reduction Planning Update

Bob Cortright
Oregon Department of Land Conservation and Development
October 20, 2011




Background

- 2007
 - HB 3543 sets state goals for GHG reduction (75% reduction by 2050)
- 2009
 - HB 2001 Jobs & Transportation Act (JTA)
 - HB 2186 MPOGHG Task Force
- 2010
 - SB 1059

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Metropolitan Scenario Planning

- Objective: Figure out what it will take to meet GHG goals
 - Combination of actions that is most effective, most beneficial
 - At vision/concept level
 - Like Metro 2040 Concept Plan
- Informs:
 - Legislative dialogue about targets, state actions, next steps
 - Plan updates, local actions

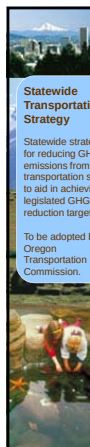
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HB 2001 & SB 1059

	Scenario Planning?	Meet Targets?
Portland Metro	Required	Required
Eugene-Springfield	Required	Optional
Other metropolitan areas	Optional	Optional

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Oregon Sustainable Transportation Initiative (OSTI)

Statewide Transportation Strategy

Statewide strategy for reducing GHG emissions from the transportation sector to aid in achieving legislated GHG reduction targets.

To be adopted by the Oregon Transportation Commission.

Agencies' Technical Report

ODOT, DEQ, and ODOF provide estimates of 1990 light vehicle GHG emissions and forecasts of future vehicle fleet and fuel characteristics.

Scenario Planning Guidelines

Guidelines and process for metropolitan areas to develop land use and transportation scenarios to meet GHG reduction targets.

Toolkit

Information on actions and programs local governments may undertake to reduce GHG emissions from light vehicles.

Public Education

Statewide public outreach and education about the need to reduce GHG emissions from light vehicles and about the costs and benefits of reducing GHG emissions.

↓

LCDC Rulemaking to Set Metropolitan Area Light Vehicle GHG Emissions Targets

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Scenario Planning Funding Report

- January 2011
- Conclusions
 - Each metropolitan area will need \$250,000 - \$1.5 million to conduct scenario planning
 - Preliminary estimate only – depends on guidelines and targets

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Agencies Technical Report

- March 1 by ODOT, DEQ, DOE
- **Conclusions**
 - GHG needs to be reduced 74% per capita by 2035 to meet 2050 goals
 - Expected changes to vehicle technology, fleet and fuels will get 80% of needed reduction:
 - Avg. fuel economy will improve to 60 mpg
 - Continued shift to low carbon fuels
 - Average vehicle age drops from 10 to 8 years old
 - Light trucks (pickups/SUVs) drop to 40% of new vehicles

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Metropolitan GHG Reduction Targets

- Target Rule adopted by LCDC May 2011
- Sets per capita GHG reduction targets for six metropolitan areas
 - Portland, Salem-Keizer, Eugene-Springfield, Rogue Valley, Bend & Corvallis
 - 17-21% reduction per capita from 2005 levels
 - In addition to reductions from expected improvements in vehicle technology, fleet and fuels

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Key Points

- Targets may be met by increasing adoption of technology as well as reducing amount of driving (vmt)
- State has key role to:
 - take actions to help reduce metropolitan emissions
 - help with scenario planning
- External travel is a big challenge
- LCDC commits to review targets at regular intervals starting in 2015

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Scenario Planning Guidelines

- Process for scenario planning
 - Seven Steps
 - Assumptions
 - Evaluation methods
- Allow for a range of actions for reducing transportation GHG
- Integrate with existing planning processes
- In progress – draft this Fall

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GHG Reduction Toolkit

- Best Practices for GHG reduction
- Local & regional programs and actions
 - Provide examples
 - Document GHG reduction effects
 - Identify benefits/ co-benefits
- Recommend Analysis and Modeling Tools
- In progress, Draft this Fall

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Education & Outreach Plan

- Inform public about
 - Need to reduce GHG emissions from light vehicle travel
 - Costs and benefits of GHG emission reduction
- Consultant selected to help draft plan

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What do we think we've learned? (So far)

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"Everything is needed! Don't slack!"

- Needed GHG reductions are dramatic
 - Population growth (+40%) means the 75% reduction goal for 2050 = 90% per capita
 - By 2035 – 52% reduction; 74% per capita
- Major levers are:
 - Vehicle Technology
 - Pricing
 - Urban development (land use and transit)
 - System Optimization (TDM, eco-driving)

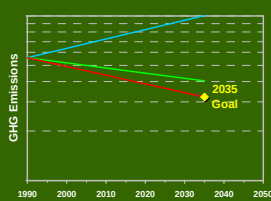
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Technology is key

By 2035:

- Avg mpg increases from 24 to 60 mpg
- Continued progress with low carbon fuels
- Fleet gets younger (more rapid turnover); fewer SUVs and light trucks



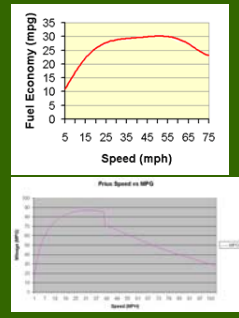
Expected improvements in vehicle technology will cut emissions by 2/3 or more

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Technology & Congestion

- 2035: Not your father's Oldsmobile
- Stop/start, hybrids will dramatically reduce idling & low speed emissions



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Technology = Rebound

- Reduced variable costs (costs per mile) = more driving
- Tripling fuel economy means fuel cost for driving drops
 - 17 cents per mile today
 - 7-10 cents per mile in 2035

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Why Scenario Planning?

- It's the co-benefits!
 - More livable communities
 - Reduced spending on foreign oil
 - Reduced infrastructure costs
 - Reduced transportation costs
 - Improved public health, reduced health care costs
 - Better air quality

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Getting Started

- Acknowledge good stuff
 - UGBs, compact development, expanded transit, planning for alternatives
 - We're already driving less, emitting less
- Evaluate existing plans
 - How far will they get us? (with expected state & federal policies)
 - Measure other outcomes/issues

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What will scenarios look like?

- Land Use: *maximize Low VMT development*
 - More infill/redevelopment in centers
 - More mixed use, transit oriented development
 - Higher densities for new development
 - Little or no UGB expansion
- Transportation: *expand low GHG options*
 - Expanded transit
 - Complete bike / ped networks
 - Incentives for alternative modes
 - Parking management
- Integrated packages – LU & Transportation
 - Example: TODs + BRT + cash out etc.

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What's "feasible"?

- Economic feasibility
 - can we afford it?
 - are we willing to pay for it?
- Political feasibility:
 - will electeds, public support it, vote for it?
- (Are existing plans feasible?)

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Resources

- OSTI Website
www.oregon.gov/ODOT/TD/OSTI/
- Oregon Global Warming Commission
www.keeporegoncool.org
- TGM Carbon Footprint Webpage
www.oregon.gov/LCD/TGM/carbonfootprint/index.shtml

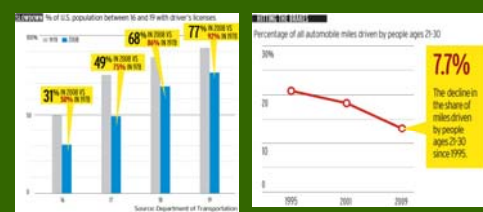
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Gen Y Drives Less!



Fewer younger drivers; driving fewer miles

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Gen Y Driving Less – Much Less

Percent Change in VMT and PMT
(1995, 2001, 2009 NHTS)

Survey Year	Average Annual VMT (per person)			% Change		
	16-30	31-55	56+	16-30	31-55	56+
1995	9,872	12,446	7,081	-	-	-
2001	9,748	12,892	7,951	-1.25	3.58	12.28
2009	7,319	11,493	7,787	-24.9	-10.8	-2.06

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Reducing transportation emissions

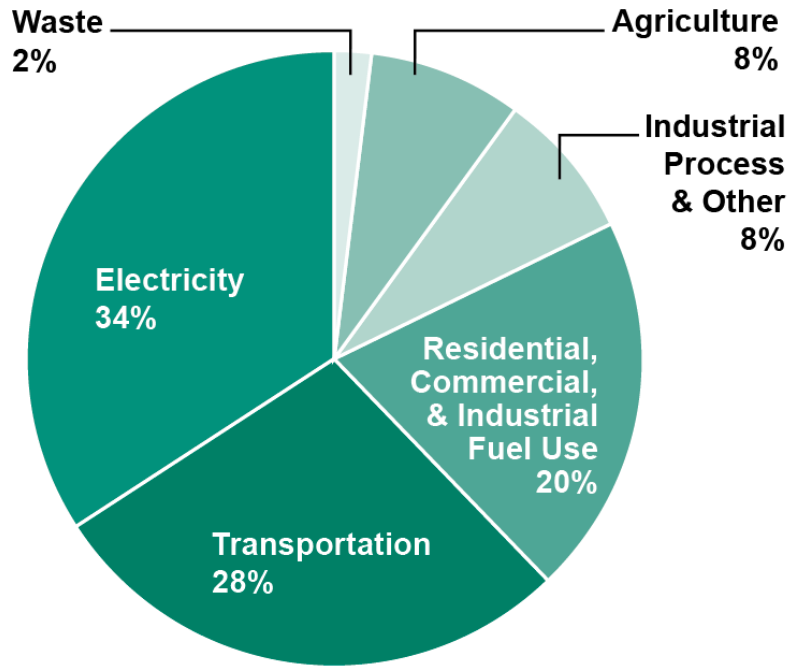
and Washington Governor's Executive Order 09-05

Brian Smith, AICP
Director, Strategic Planning, WSDOT



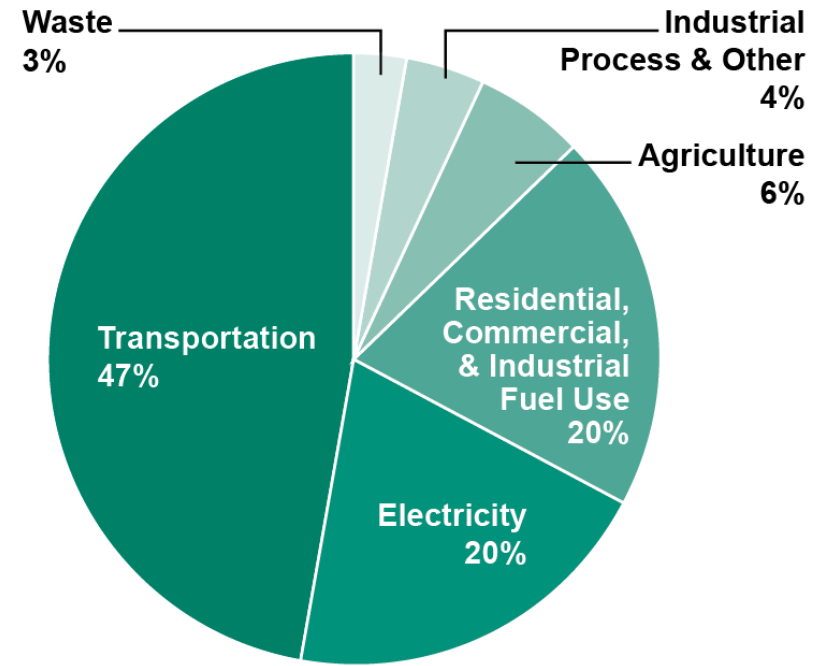
Transportation accounts for 47% of greenhouse gas in Washington

U.S. Greenhouse Gas Emissions



Source: Washington State Department of Ecology, 2005

Washington Greenhouse Gas Emissions



Source: Washington State Department of Ecology, 2005

2005 data - Source: Leading the Way on Climate Change: the Challenge of Our Time, February 2008, Washington State Dept. of Ecology Publication #08-01-008

Climate Change Chronology

- 2007
 - Legislation
 - Executive Order 07-02 – climate challenge and Climate Advisory Team 1 & *Climate Change Challenge*
 - Statewide analysis of preparation needed for climate impacts
- 2008
 - Legislation
 - Climate Advisory Team 2
 - VMT benchmarks (RCW 47.01.440) & GHG reduction goals set (RCW 70.235.020)
 - TIWG and LUCC Advisory Committee
- 2009
 - Legislation
 - Executive Order 09-05 Washington's Leadership on Climate Change
 - RCW 19.27A.190
- 2010
 - 09-05 2(a) Report to Legislature and Governor
 - Begin work on statewide climate change vulnerability assessment
- 2011
 - 09-05 2(b) Work with regional transportation planning organizations on strategies to reduce VMT and GHG

Climate Change Legislation

Legislation in 2008 and 2009 specify sustainable transportation, GHG emissions and vehicle miles traveled (VMT) requirements of WSDOT:

- RCW 19.27A.190 directs WSDOT to report energy usage to assess the need for energy audits.
- RCW 43.16.648 (4) requires WSDOT to install outlets for electric vehicle charging in our state's fleet parking and maintenance facilities.
- RCW 43.21M.010 instructs the department to participate in the development of a statewide integrated climate change response strategy.
- RCW 47.01.440 established VMT reduction benchmarks and assigns specific implementation, monitoring, economic assessment and analysis tasks to WSDOT.
- RCW 70.235.020 established GHG emissions reduction goals for the state.
- RCW 70.235.050 directs WSDOT to quantify and reduce our GHG emissions to achieve state agency's mandatory targets.

GHG/VMT Reduction Goals

- **2007 Senate Bill 6001** (RCW 70.235.020)
 - Washington's greenhouse gas emissions reduction goals:
 - 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*

- **2008 House Bill 2815** (RCW 47.01.440)
 - Per capita VMT benchmarks (for vehicles under 10,000 lbs) based on 75B VMT forecast for 2020
 - 18% reduction by 2020
 - 30% reduction by 2035
 - 50% reduction by 2050

Emission reduction strategies

- **Improve fuel**
 - Support lower fuel carbon content; find and invest in alternative fuels
- **Advance vehicle technology**
 - Support improved vehicle technology; encourage energy efficiency and non-petroleum powered engines
- **System efficiency**
 - Operate our transportation system to maximize efficiency and improve traffic flow; coordinate with our partnering agencies to do the same
- **Increase options, reduce vehicle miles traveled**
 - Support efficient transportation options like carpooling; working from home; riding a bus, train or bicycle; walking; or telecommuting.

PLUS

- **Land use**
 - Connect land use and transportation. Leverage transportation investments to encourage land uses accessible to alternative travel options

Executive Order 09-05 2(a) What is required?

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 vehicle miles traveled 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.
- Report findings and recommendations to the Governor by December 31, 2010;

Executive Order 09-05 2(a) –Approach

Established a Executive Order Working Group

Studies/Analysis Included

- Washington Climate Action Team transportation policy options analysis (December, 2007);
- *Transportation Role in Reducing U.S. GHG Emissions: Report To Congress* (April, 2010)
- *Moving Cooler* (July, 2009)
- Harvard Kennedy School Belfer Center for Science and International Affairs Study, *Analysis of Policies To Reduce Oil Consumption and Greenhouse-Gas Emissions from the US Transportation Sector* (February, 2010)
- *EPA Analysis of the Transportation Sector Greenhouse Gas and Oil Reduction Scenarios* (February, 2010)
- U.C. Berkeley Study: *Review of Modeling Analysis of Transit, Land Use, and Auto Pricing Strategies to Reduce VMT and GHG Emissions*, C. Rodier, for CARB and Caltrans (October, 2009)
- PSRC T-2040 Modeling Analysis

Executive Order 09-05 2(a)– Findings and Recommendations- 1

- **Current Vehicle Miles Traveled**

- 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.

- **Estimating Future 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.

Recommendation

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

Executive Order 09-05 2(a) – Findings and Recommendations- 2

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

- 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 should not be changed at this time to address low- or no-emission vehicles.

Executive Order 09-05 2(a)– Findings and Recommendations- 3

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

There is no silver bullet

- Major contributions from each of the strategies are needed to reduce GHGs
- Many 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.

Implementing combinations of aggressive transportation emission reduction strategies can achieve roughly a 10% reduction in total statewide GHG emissions compared to the 2050 baseline.

Did not assess the political or financial feasibility of implementing the strategies

Recommendation

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 would further inform practical approaches for reducing GHG emissions at the regional level.

Executive Order 09-05 2(b) What is required?

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:

- Provide people with additional transportation alternatives and choices,
- Reduce greenhouse gases and
- Achieve the statutory benchmarks to reduce annual per capita vehicle miles traveled
- 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.

Governor's Executive Order 09-05, Section 2(b): Survey Responses

- 2(b) follows work from last year looking at statewide GHG/VMT reduction from transportation
- 2(b) work and survey focused on 4 RTPOs
 - Puget Sound Regional Council
 - Spokane Regional Transportation Council
 - Southwest Washington Regional Transportation Council
 - Thurston Regional Planning Council
- Survey addresses (current transportation plan and upcoming plan update)
 - plans with GHG reduction strategies,
 - which strategies appear to have the greatest potential to achieve the benchmarks,
 - what policy or funding issues need to be resolved to ensure implementation

Governor's Executive Order 09-05, Section 2(b): Survey Responses Continued

- Survey responses mainly reflect conditions of existing plans which pre-date climate change interest and activity
- Except *Transportation 2040*, GHG/VMT reduction not reflected in plans, but relate strongly to congestion reduction strategies
- Survey responses to serve as the basis of 2(b) report – due in December

Governor's Executive Order 09-05, Section 2(b): Survey Responses, Continued

- GHG reduction strategies categorized into 3 broad groupings
 - Active transportation and transportation demand management
Examples: expanding bicycle and pedestrian networks to complete crucial gaps, removing hazardous crossings, extending network connections to underserved communities, commute trip reduction programs, intelligent transportation systems, carpool/vanpool and rideshare, complete streets
 - Transit expansion
Examples: high-capacity transportation policies and infrastructure such as right-of-way corridor agreements, access, and facilities that further enhance efficient growth, development, and transportation services
 - Growth management/land use
Examples: encouraging infill development and density, especially when combined with proper parking requirements, mixed-uses, and transit, bicycle, and pedestrian access

Governor's Executive Order 09-05, Section 2(b): Survey Responses, Continued

- Strategies with the greatest potential for achieving the VMT benchmarks
 - Package of transportation alternatives combined with land use measures

Examples: Growth and Transportation Efficiency Centers, mixed-use re/development, Complete Streets, multi-modal street standards, street connectivity, high capacity transportation connecting activity centers
 - Significant potential from marketing and tolling strategies

Examples: Spokane region alternative transportation marketing program and Puget Sound region tolling strategy

Governor's Executive Order 09-05, Section 2(b): Survey Responses, Continued

- Policy and funding issues
 - Land use and transportation planning relationship: governance and decision making

Examples: Difficulty in managing land use patterns and transportation system, limited ability for maximizing efficiency and sustainability of future land use decisions
 - Stable, sufficient funding

Examples: Limited and competitive funding of present economic climate, decreased funding source(s), limited alternative transportation funding

Questions? More information?

- Key contributors to the EO 09-05 2(a) and (b) reports included Kathy Leotta, Karin Landsberg, Jason Beloso, Keith Cotton
- <http://www.wsdot.wa.gov/SustainableTransportation/report.htm>
- Brian J. Smith, AICP
Director, Strategic Planning smithb@wsdot.wa.gov





Cool It!

Portland Metro's Scenario Planning for *Climate Smart Communities*

Cascadia Collaborative
October 20, 2011
Mike Hoglund, Metro Research Director
Portland, OR

 Metro | Making a great place

1

Presentation overview

Scenario Planning for *Climate Smart Communities*

- Legislative GHG/Scenario Planning Requirements
- Metro's Approach
 - Framing Choices
 - Analytical Requirements & Preliminary Results
 - Key Issues/Lessons
- Chances for Success?
- Q&A/Discussion

 Metro

2

Building on past innovation and successes




- 1992 - 1995: Region 2040
- 1996 - 2009: 2040 Implementation
 - Financial & Regulatory
- 2010 -2012: Climate Smart Communities
 - GHG/Trans/LU Scenario Planning
 - Climate Prosperity
 - Climate Preparedness
 - Analytical Tools & Methods
- 2013 & beyond: Implementation



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Climate Smart Communities:



- Scenario Planning Requirements
- Scenario Planning Approach
- Phase 1 Preliminary Metropolitan GreenSTEP Results

October 2011



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Oregon Greenhouse Gas Goals

- Stop emissions increases by 2010
- 10% reduction below 1990 levels by 2020
- 75% reduction below 1990 levels by 2050

Adopted by the 2007 Legislature, the goals are for all greenhouse gas emissions sources.





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Mandated state climate work

HB 2001 and SB 1059



- Set statewide transportation strategy
- Set MPO GHG targets for light duty vehicles (<10,000 lbs.)
- Develop scenario guidelines & toolkit
- Estimate future vehicle and fuel technology
- Public outreach campaign
- Portland Metro scenario planning (light duty vehicles)
- Report to 2011 and 2012 Legislatures

More information: <http://www.oregon.gov/ODOT/TD/OSTI/>



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Scenarios timeline



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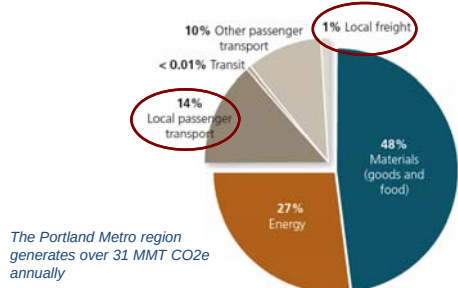
Project tracks

	Understand Choices Phase 1 (2011)	Shape Direction Phase 2 (2012)	Build and Select Strategy Phase 3 (2013-14)
Technical & policy analysis	- Evaluation framework - Research policy levers and strategies - Tool development and integration	- Evaluation framework - Alternative scenarios - Tool integration & sensitivity testing	- Preferred scenario - Update regional plans and policies
Communications & engagement	- Opinion research - Literature review - Stakeholder interviews - Regional summit - Best practices research	- Design workshops - Other TBD	- Public comment period - Regional summit - Other TBD
Tools	- Metropolitan GreenSTEP - Literature review	- Metropolitan GreenSTEP - Envision Tomorrow	- Metropolitan GreenSTEP - Regional travel model - MetroScope - MOVES

We are here.

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Light vehicles: region's mandated focus



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Oregon MPO 2035 GHG Targets

(reduce per capita light vehicle GHG emissions below 2005 levels)

Metropolitan Area	Adopted Target
Portland Metro**	20%
Eugene-Springfield*	20%
Salem-Keizer	17%
Rogue Valley	19%
Bend	18%
Corvallis	21%

*Required Scenario Planning

** Required Scenario Planning & Adoption

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Technology & fleet improvements (estimates) for the Portland region

	Fuel Economy (mpg) cars & trucks	Fleet Mix (percentage) cars & trucks	Electric & Hybrids (percentage) cars & trucks	Fuel Carbon Content (percentage reduction)
2005	29 & 21	57 & 43	0	0
2035	68 & 48	71 & 29	8 & 2	20

Source: State Agency Technical Report (March 1, 2011) and assumed in the Metropolitan GHG Reduction Targets Rule

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Metro GHG emissions reduction target in per capita terms (the logic)

- 2005 per capita roadway emissions = 4.05 MT CO₂e

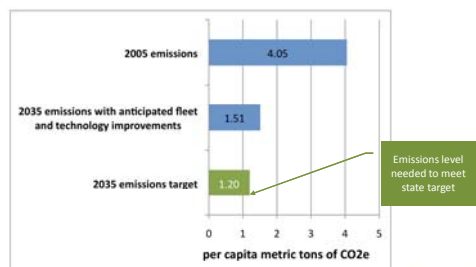
if
2005 annual per capita VMT (22) = 2035 VMT
+
State's assumed tech and fleet improvements

- 2035 per capita roadway emissions = 1.5 MT CO₂e

However,
To meet the overall target, we need an additional
20% GHG reduction = 1.2MT CO₂e per capita

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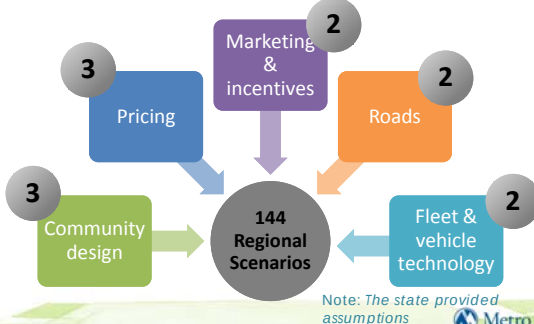
Metro GHG emissions reduction target in per capita terms



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GreenSTEP policy levers

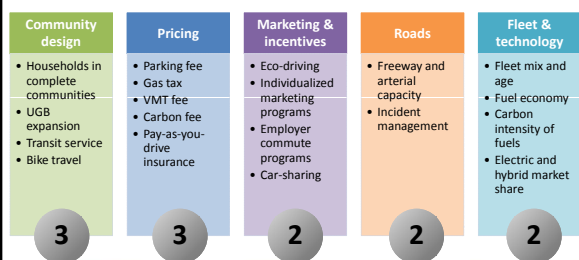
Testing levels of ambition



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Packages of policies and actions

Testing bundles of "plausible" strategies



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Caveats

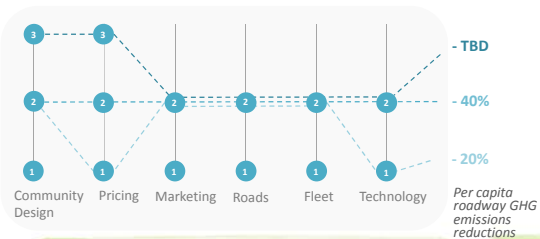
3 phased process

- Evolving analytical methods, including economic and equity affects
- Trends or themes will stay the same, but actual numbers may vary
- As we move through the process behavioral trends will be better understood
- Sensitivity testing of models

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Phase 1 Scenarios: Preliminary analysis

Range of potential scenario options that meet 20% GHG reduction target



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Most effective strategies...

- Community design
- Technology and fuels
- Pricing



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Preliminary findings: Summary

- Current plans and policies are effective, but not enough
- Targets are achievable but will take effort, bold action and partnerships
- We have choices, but there is no “silver bullet”
- Combinations of strategies provide the greatest number of options
- We can’t do it alone – State and Federal actions are needed to meet target
- Sequencing will be important

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Preliminary findings...



1. Most scenarios meet or exceed target
2. Technology and fleet alone do not meet target
3. Moderate pricing and community design (Level 2) together do not meet target
4. Most ambitious community design (Level 3) provides one scenario that meets the target

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...preliminary findings

5. Most ambitious community design (Level 3) provides many options when combined with tech and fleet
6. Combinations of tech and fleet with moderate community design and pricing (Level 2) provide the most options
7. Marketing provides additional options, especially in combination with community design



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Assessing the benefits and impacts



- Roadway greenhouse gas emissions
- Vehicle miles traveled (VMT)
- Household travel costs and cost savings
- Freight travel time costs
- Households in complete communities
- Walk trips
- Average people per acre
- Urban growth boundary expansion

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Let's not talk about climate change... let's do talk about outcomes...

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2040: Six desired outcomes



Vibrant communities



Equity



Economic prosperity



Transportation choices



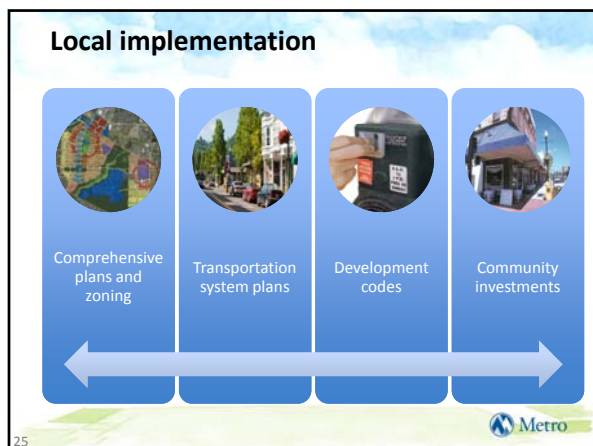
Clean air & water



Climate leadership

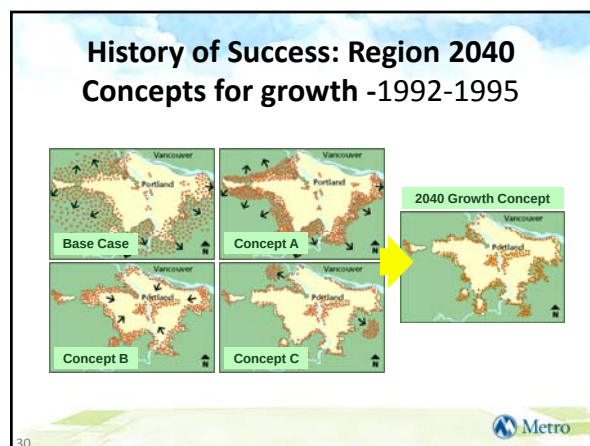
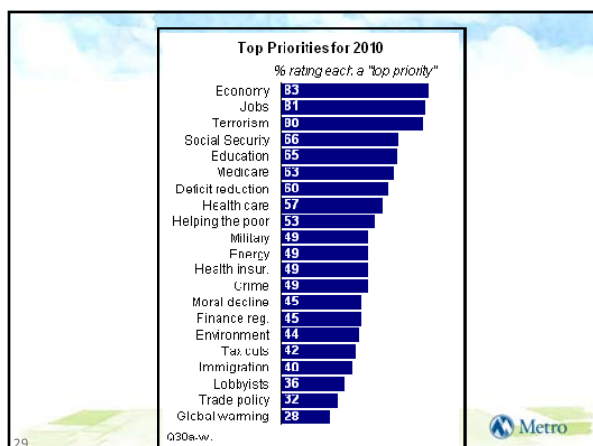
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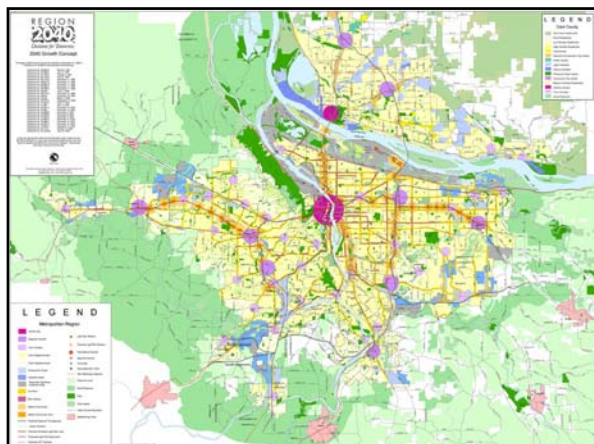




Can we succeed? Can we meet the targets?

Metro





2040: Local plan implementation

"A level playing field"



- Housing and jobs targets
- Stream protection
- Regional parking management
- Street design standards (boulevards)
- Street connectivity
- Multi-modal mobility corridors
- Model development codes

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2040: Preserving natural areas

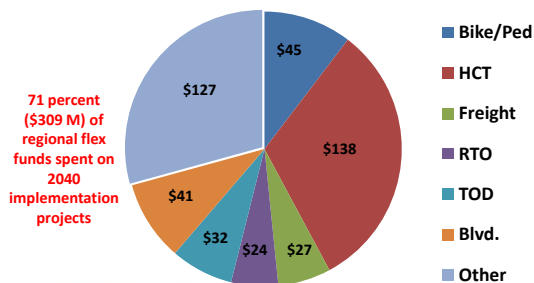
To date:

- 11,200 acres purchased & preserved
- more than 90 miles of rivers and streams protected
- more than one million trees planted



2040: Investing in communities

1995-2010 (millions)



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Leveraged private investment



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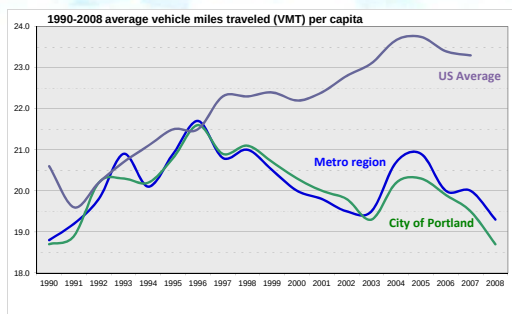
The region's growth strategy is working



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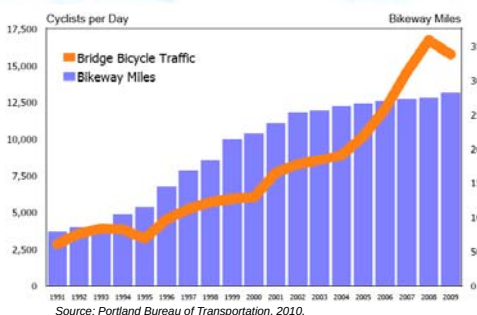


Portland area residents drive less...



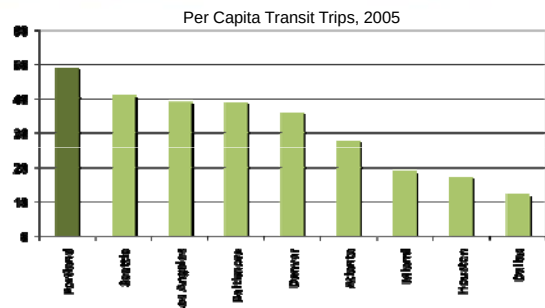
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...bike more...



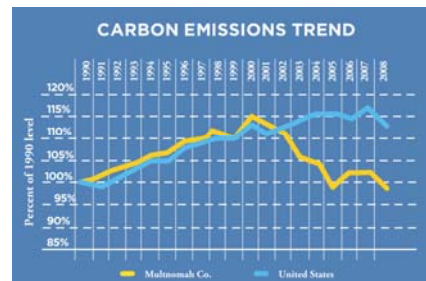
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...take transit more...



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...and, emit fewer greenhouse gases.



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2040: Local aspirations and actions



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Data/Research Gaps

- Inaction vs. Mitigation and Adaptation (costs)
- More research into economic and equity benefits and impacts needed
- How does Climate Smart development grow businesses and create jobs?
- From Green Dividend to "Community Dividend"

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Conclusions

- 20 percent light-duty target by 2035
- Define and commit to vision
- Identify “plausible” options
- Co-beneficial opportunities (public health, equity, community health, oil independence, etc.)
- Continue implementation of 2040 Plan
- Local implementation will be key
- Measure what matters



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Discussion



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