Scenario Planning and Greenhouse Gas Emission Reduction

Oregon Department of Transportation

June 2015

Presentation Overview

- Legislative Background
- Oregon Sustainable Transportation Initiative
  - Target Rule and Target Rule Review
  - Sustainable Transportation Toolkit
  - Statewide Transportation Strategy
  - Scenario Planning and Strategic Assessments
- Questions and Discussion

Legislative Background

HB 2001 (2009) and SB 1059 (2010)

- Direct LCDC to set targets
- Require Portland Metro/ Central Lane to conduct scenario planning
- Requires ODOT and DLCD to provide support for metropolitan planning
- Directs ODOT to develop Statewide Transportation Strategy

Oregon Sustainable Transportation Initiative

Reducing transportation-related GHG emissions

Driven by Legislation

Has evolved over time

Through creating more livable, healthier and prosperous communities

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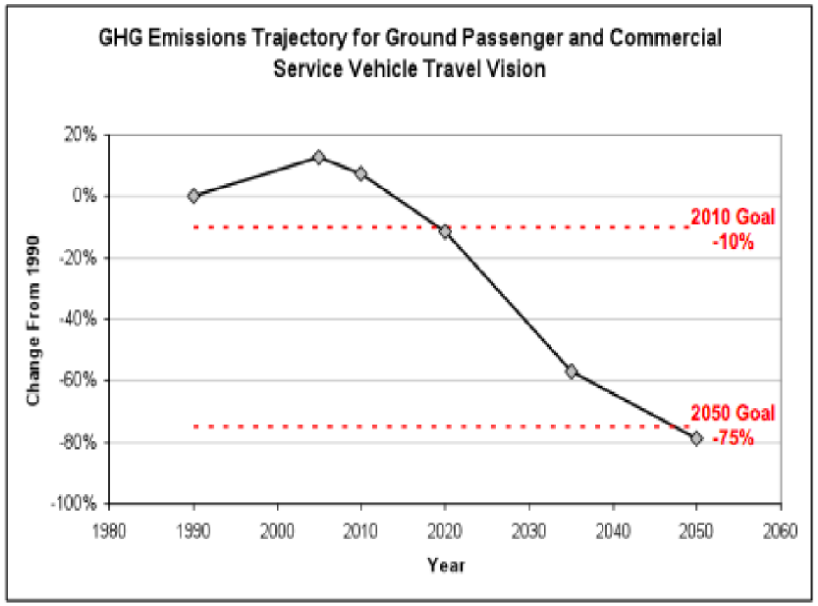
The OSTI Program

- *Rules and Regulations*
- *Guidance and Tools*

- *Scenario Planning*

State Goals and LCDC Rules

- State Goals (2007)
  - Stop emissions growth by 2010
  - Reduce emissions by 10% by 2020
  - Reduce emissions by 75% by 2050
- Metropolitan GHG Targets (2011)
  - Cover MPO areas
  - Designed to help achieve state goals
- Portland Metro Scenario Planning (2012)



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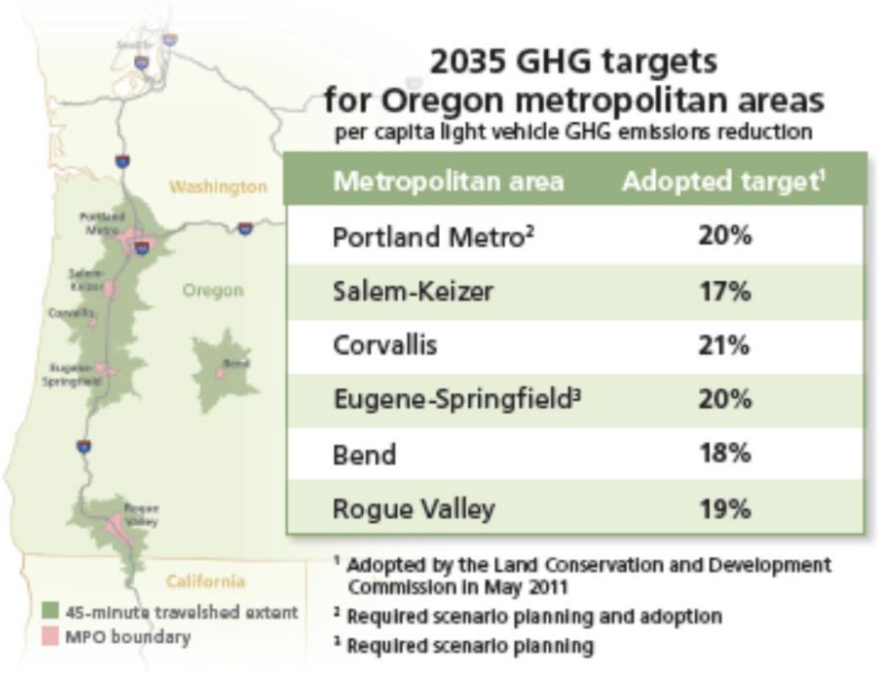
Metropolitan GHG Targets (2011)



2035 GHG targets for Oregon metropolitan areas

per capita light vehicle GHG emissions reduction

Metropolitan area	Adopted target[1]
Portland Metro[2]	20%
Salem-Keizer	17%
Corvallis	21%
Eugene-Springfield[3]	20%
Bend	18%
Rogue Valley	19%

[1] Adopted by the Land Conservation and Development Commission in May 2011

[2] Required scenario planning and adoption

[3] Required scenario planning

- For year 2035
- "Light vehicle travel in metropolitan areas"
- Per capita
- Above and beyond fleet, fuels & technology

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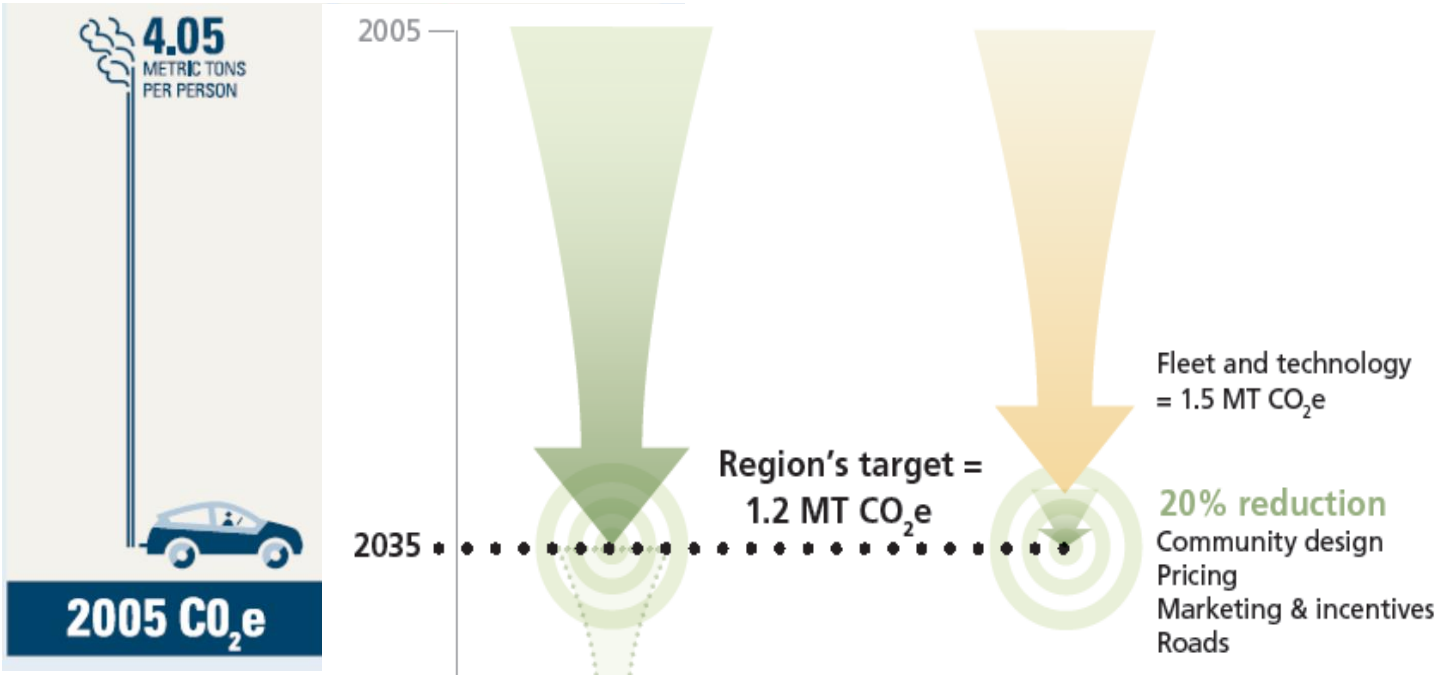
LCDC Target Rule Review

- Review:
  - New information about fleet, fuels, technology
  - Results from scenario planning

- Decide whether revisions to targets are "warranted"

Changes in Technology, Fleet and Fuels



Expected changes in vehicle technology, fleet and fuels are key to reducing GHG Emissions

Fuel Economy/Vehicle Technology

Target Rule	New Information	On Track?
Auto: 68 mpg	• Feds adopt new motor vehicle standards in 2012 • DEQ adopts California's updated zero emission vehicle (ZEV) rules in 2013	Yes

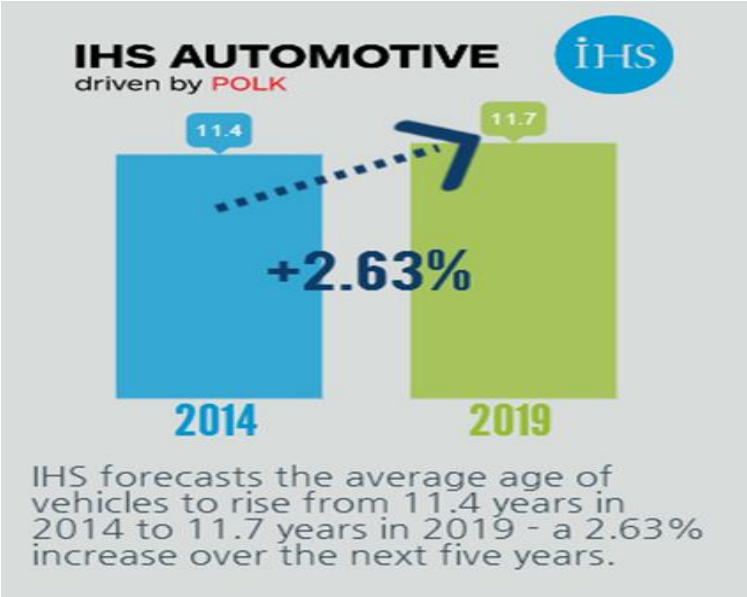
Hybrid and Electric Vehicles

Target Rule	New Information	On Track?

8% of new car sales by 2035	• STS anticipates much more rapid adoption of EV and PHEV:
	  • 23% of new cars
	  • 20% of new trucks
	• California AB 32 estimates more than 40%+ of new cars in 2035 may be Zero Emission vehicles (ZEV)
		Yes (Ahead of 2011 estimates)

Fleet Turnover

Target Rule	New Information	On Track?
8 year turnover	• STS anticipates 9 year turnover • Studies indicate vehicle lasting longer, slower turnover	Not quite



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Fleet Mix

Target Rule	New Information	On Track?
2035 Fleet will be: Auto: 70% Light Truck: 30%	• STS and recent trends anticipate much slower shift to light trucks • STS estimates 60/40 in 2035	Not quite

Low Carbon Fuels

Target Rule	New Information	On Track?
-20% in carbon intensity of fuels by 2035	• State continuing implementation of Clean Fuels Program • Oil is getting "dirtier" – sources of oil (shale, fracking) have higher CO2 emissions	Close

Are changes to targets warranted?

- Metropolitan areas are updating plans to 2040 and beyond

Metropolitan Area	Next RTP Update	Next RTP Planning Horizon
Portland Metro	December 2018	2040
Salem-Keizer	May 2015	2035
Central Lane	December 2015	2040
Corvallis Area	April2017	2041-2042
Rogue Valley	March 2017	2042
Bend	September 2015	2040

- Additional reductions will be needed to meet 2050 goal

Results of Scenario Planning

Central Lane Scenario Planning

CLIMATE SMART COMMUNITIES SCENARIOS PROJECT

STRATEGIC ASSESSMENT OF TRANSPORTATION AND LAND USE PLANS

Corvallis Area Metropolitan Planning Organization

July 2014

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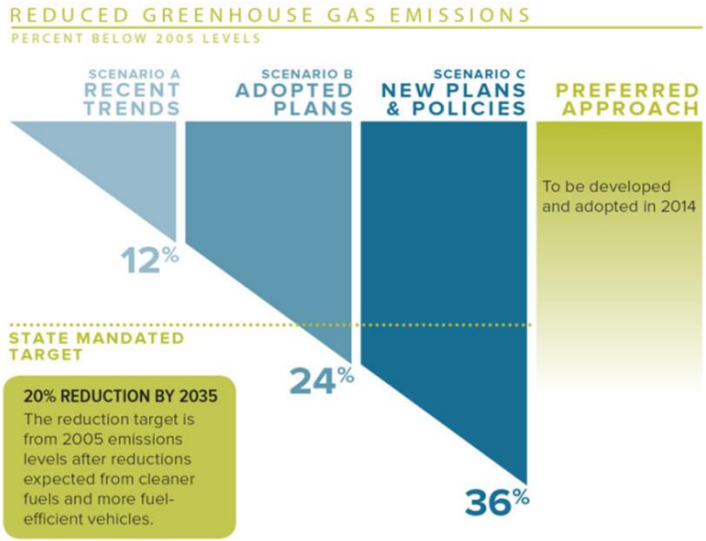
Targets are achievable

- Metro –29% reduction
- Central Lane – 14% reduction
- Corvallis – 18% reduction



What will it take?

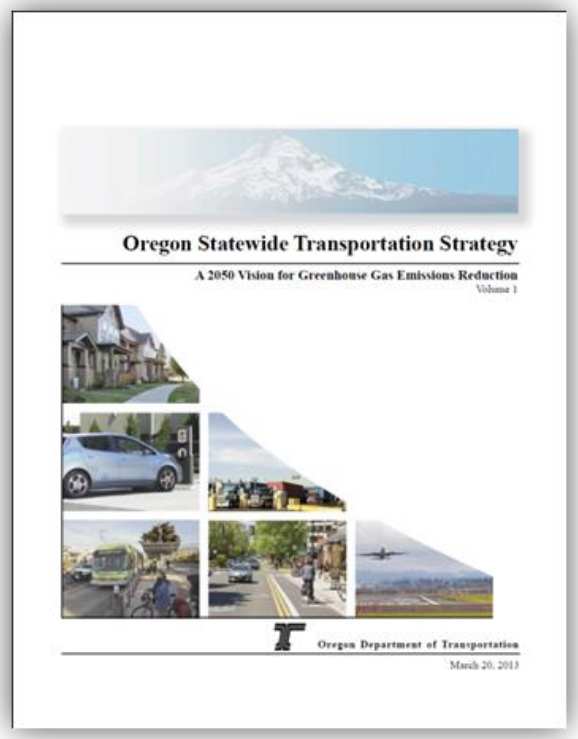
A comprehensive, coordinated set of actions

- More transit
- Pricing– shift to pay by the mile road user fees and PAYD insurance
- Increased biking, walking
- Compact, mixed use development
- Parking management
- Transportation demand management / transportation options

What will it take?

Supporting state actions

- Pay-as-you-drive insurance
- Road user fee
- Support for transportation options



What will it take?

Funding

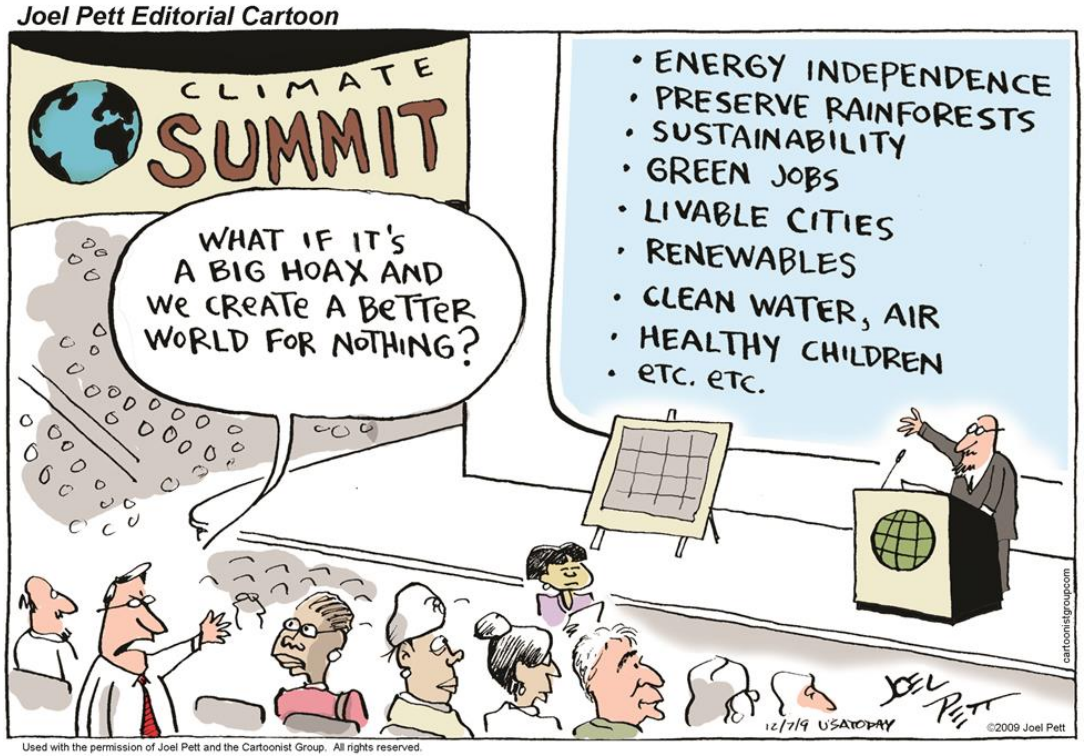
New investments are needed

- Transit
- Walking, biking and new programs to support transportation options
- ITS and operational improvements

Expanded options are needed to realize potential from more compact, mixed use development

Actions that reduce emissions have other important benefits

- Reduced household transportation and energy costs,
- Improved air quality
- Improved public health
- Reduced congestion



Input from MPOs, local governments

- Continue voluntary approach and address a full range of outcomes
- Concern about limited resources for metropolitan planning; other obligations
- Scenario planning shows need for
  - Increased transportation funding
  - New programs to expand options
  - State leadership
- More work needed to translate high level, scenario "strategies" into land use and transportation plans

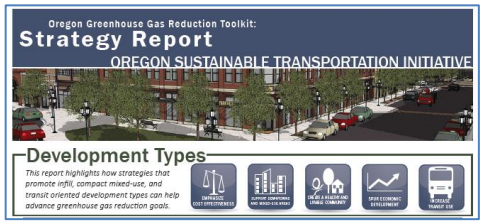
LCDC decision (May 2015)

– Amendments to targets are warranted

- Update targets to 2040 based on new technical information from ODOT, DEQ, Energy
- Explore ways to integrate GHG reduction and scenario planning with metropolitan plan updates

Sustainable Transportation Toolkit

Actions and programs you can use to boost transportation while meeting other goals



Strategy Reports

provide an overview, benefits, and implementation ideas for each strategy

Case Studies

share best practices from other communities

www.oregon.gov/ODOT/TD/TP/Pages/ghgtoolkit.aspx

or search the internet for “OSTI Toolkit”

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Statewide Transportation Strategy

- Non-regulatory document, showing a potential path forward

STS Strategies

Vehicle and Engine Technology Advancements

1 – More Efficient, Lower-Emission Vehicles and Engines

Fuel Technology Advancements

2 – Cleaner Fuels

Systems and Operations Performance

3 – Operations and Technology

4 – Airport Terminal Access

5 – Parking Management

6 – Road System Growth

STS Strategies

Transportation Options

7 – Transportation Demand Management

8 – Intercity Transit Growth and Improvements

9 – Intracity (Urban) Transit Growth and Improvements

10 – Bicycle and Pedestrian Network Growth

11 – Carsharing

12 – More Efficient Freight Modes

Efficient Land Use

13 – Compact, Mixed-Use Development

14 – Urban Growth Boundaries

15 – More Efficient Industrial Land Uses

Pricing, Funding and Markets

16 – Funding Sources

17 – Pay-As-You-Drive Insurance

18 – Encourage a Continued Diversification of Oregon's Economy

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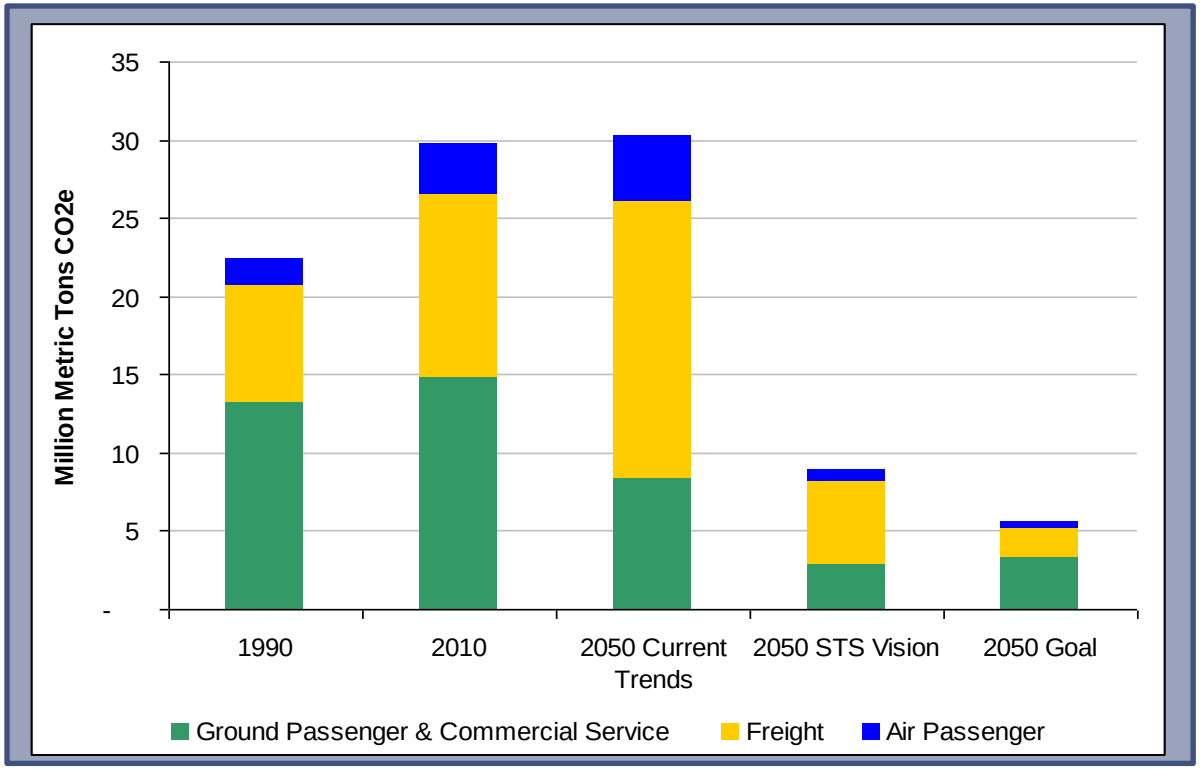
STS Results

- Overall, 60% fewer GHG emissions than 1990 (83% per capita)



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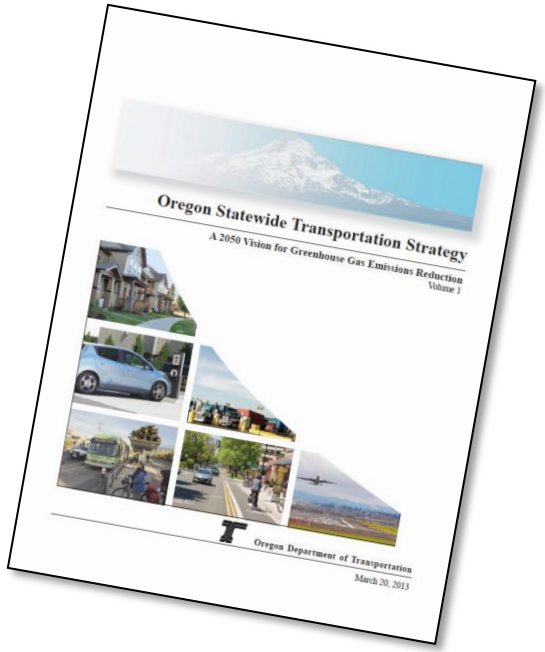
What Does the STS Mean?

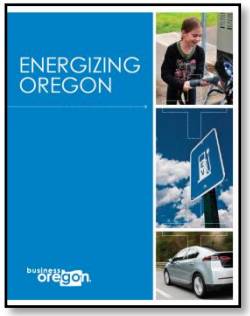
- OTC accepted in March 2013
- Is a statewide strategy
  - Includes *potential* actions for Federal and State Government, local jurisdictions, the private sector and individuals
  - Includes strategies that need to be acted on in short, mid, and long term by ODOT and others



- Consulted with stakeholders to select short term actions for ODOT to implement

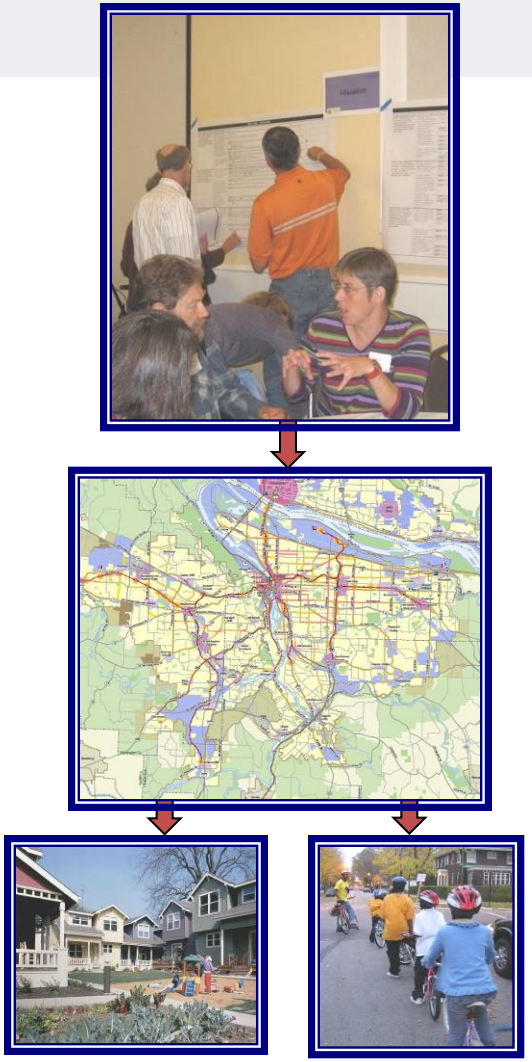
ODOT Short Term Implementation Actions

- Electric Vehicles and Low Emission Fuels
- Eco-Driving
- Intelligent Transportation Systems (ITS)
- Road User Charge Econ. Analysis
- Transportation Planning and Project Selection
- Stakeholder Coordination
- Strategic Assessment and Scenario Planning



Scenario Planning

- Uses new tools
  - Regional Strategic Planning Model (RSPM)
  - Sketch Planning Tools
- To evaluate likely outcomes
  - Including GHG emissions
  - Also, health, household costs, and other community values
- Provides improved information to evaluate and improve plans



Scenario Planning Tool

Regional Strategic Planning Model (RSPM)

Inputs

Regional Context
Vehicles & Fuels
Pricing
Community Design
Marketing & Incentives

1. Create MPO Households

2. Estimate Daily VMT

3. Add Vehicles & Estimate Greenhouse Gas Emissions

Outputs

Environment
- Greenhouse gases
- Air quality

Land Use
- Mixed Use

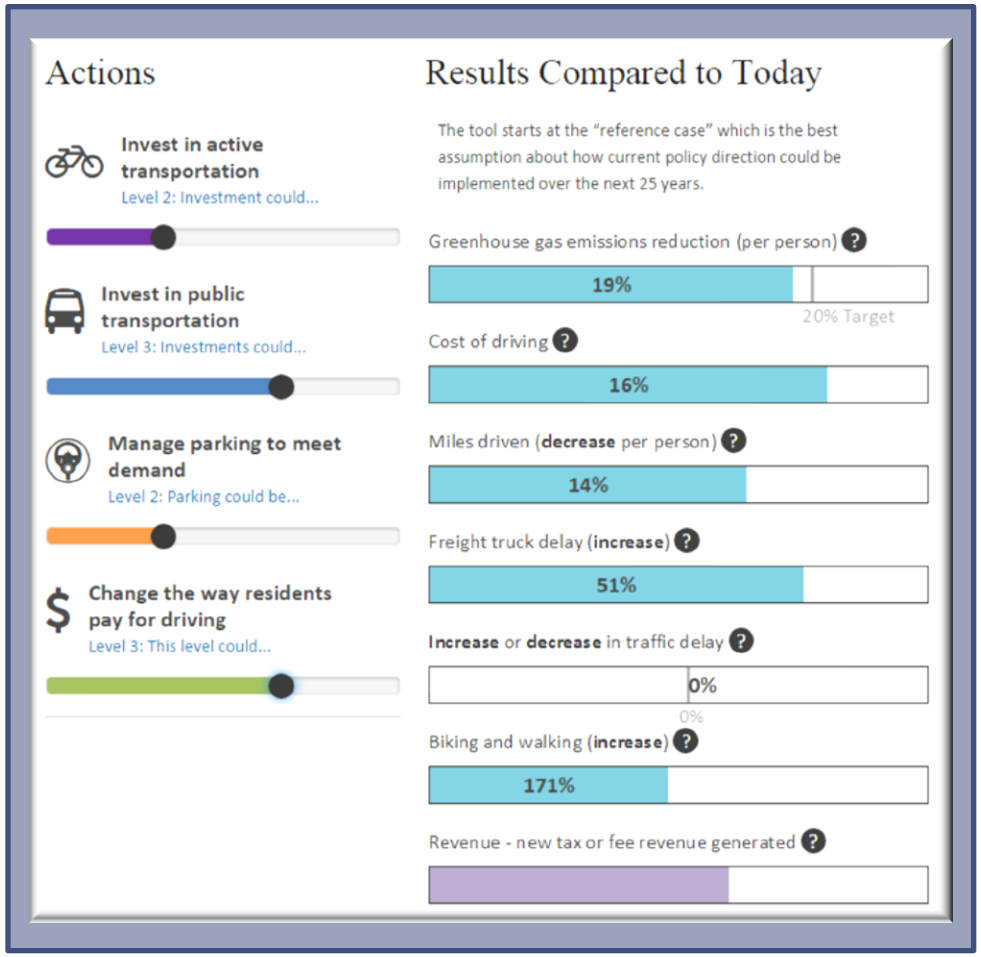
Mobility
- Vehicle miles traveled

Economy
- Travel costs
- Travel delay

Scenario Planning Steps

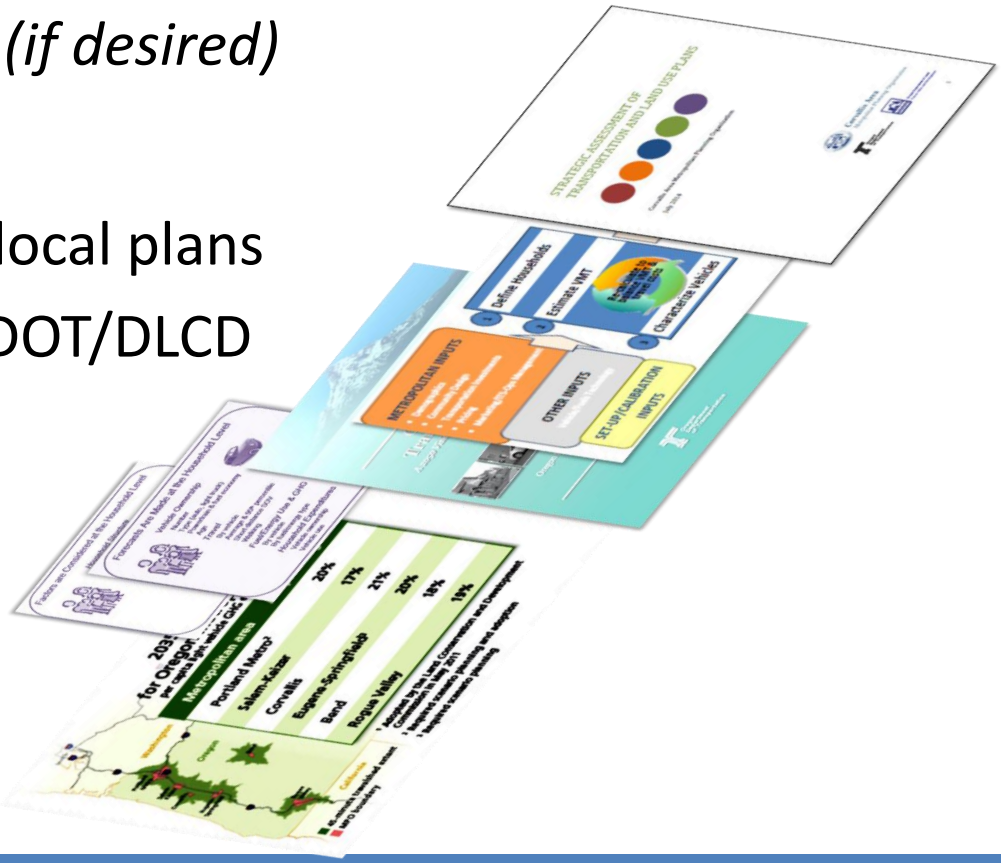
- Evaluate outcomes

1. Understand where we are going
2. Test different actions
3. Select the desired future



Strategic Assessment

- Relies on the first steps of Scenario Planning
  - Understand where we are going
  - *Test different actions (if desired)*
- Work entails…
  - Compiling data from local plans
  - Collaborating with ODOT/DLCD to conduct analysis
  - Preparing report that highlights findings, issues, etc.



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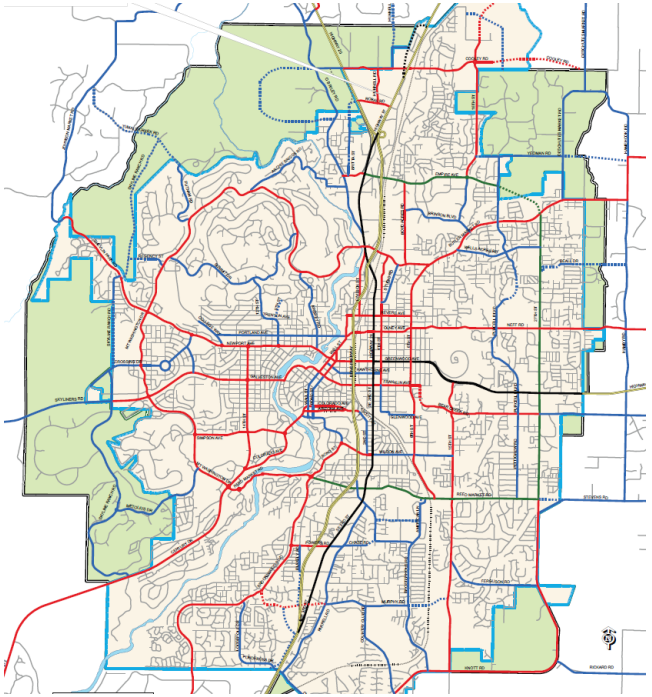
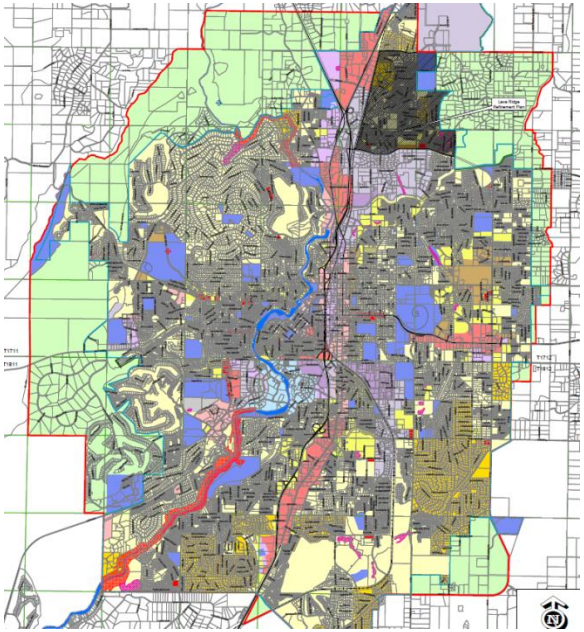
It’s voluntary (really)

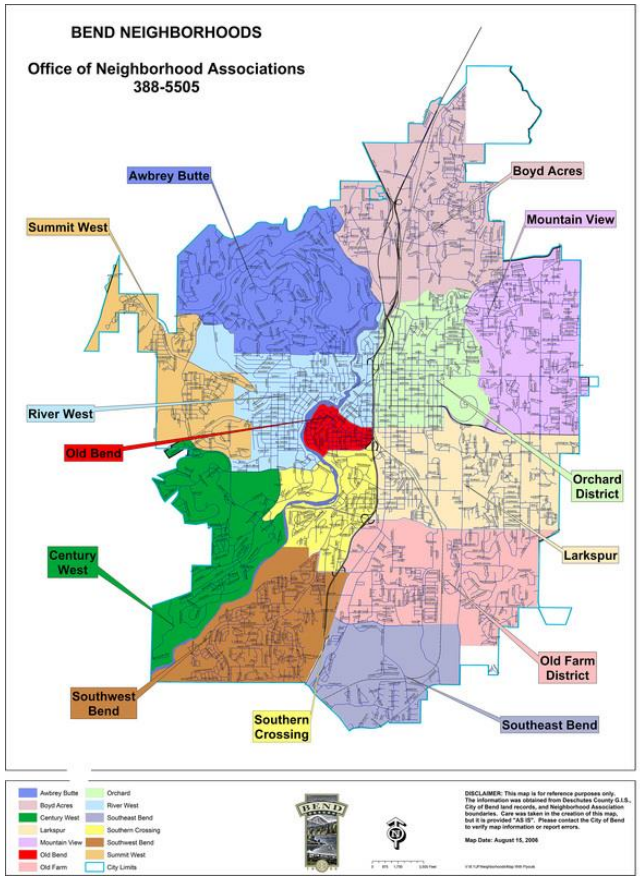
- Different from standard state-local process
- Decisions about whether and how to move forward are local
- Agencies have tools, resources, ideas to help

… and how is it different than what we've already done?





It builds on existing plans



- Starts with an evaluation of existing plans
- Detailed estimate of outcomes:
  - Household energy and transportation costs
  - Infrastructure costs
  - Accessibility
  - Health impacts
  - Others…

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Scenario Planning/Strategic Assessment Applications

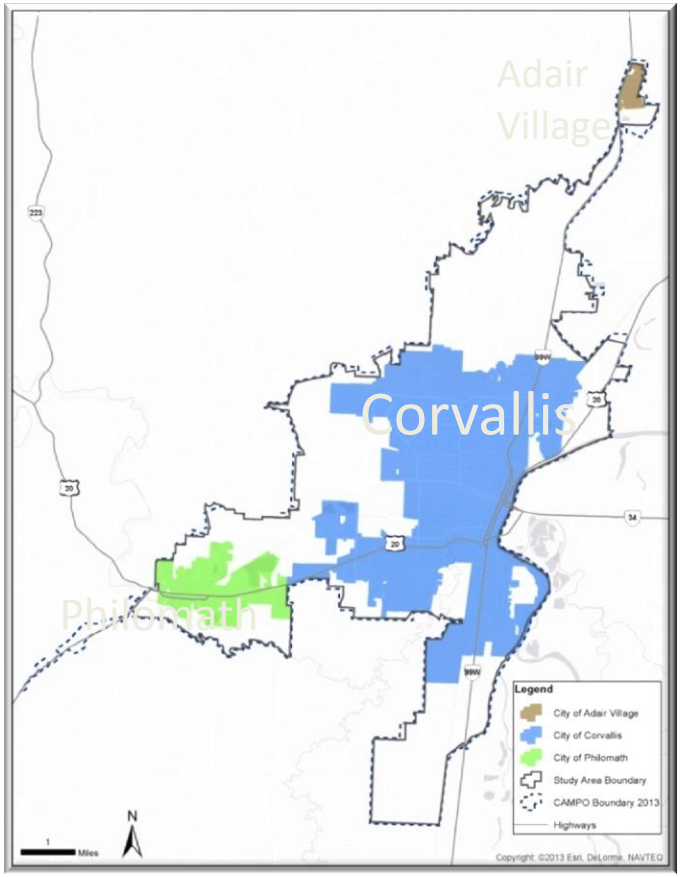
- Statewide Transportation Strategy*
- Metro Climate Smart Communities*
- Central Lane Scenario Planning*
- Rogue Valley Strategic Assessment
- Corvallis Strategic Assessment and Scenario Analysis

*Required by legislation

CAMPO Strategic Assessment

State offered each MPO support for a strategic assessment

- CAMPO Policy Board committed to the effort
- ODOT funded MPO staff time and ran the RSPM model
- DLCD and ODOT provided technical support
- MPO and State gathered data and collected information from locals
- Together, produced the CAMPO Strategic Assessment Report



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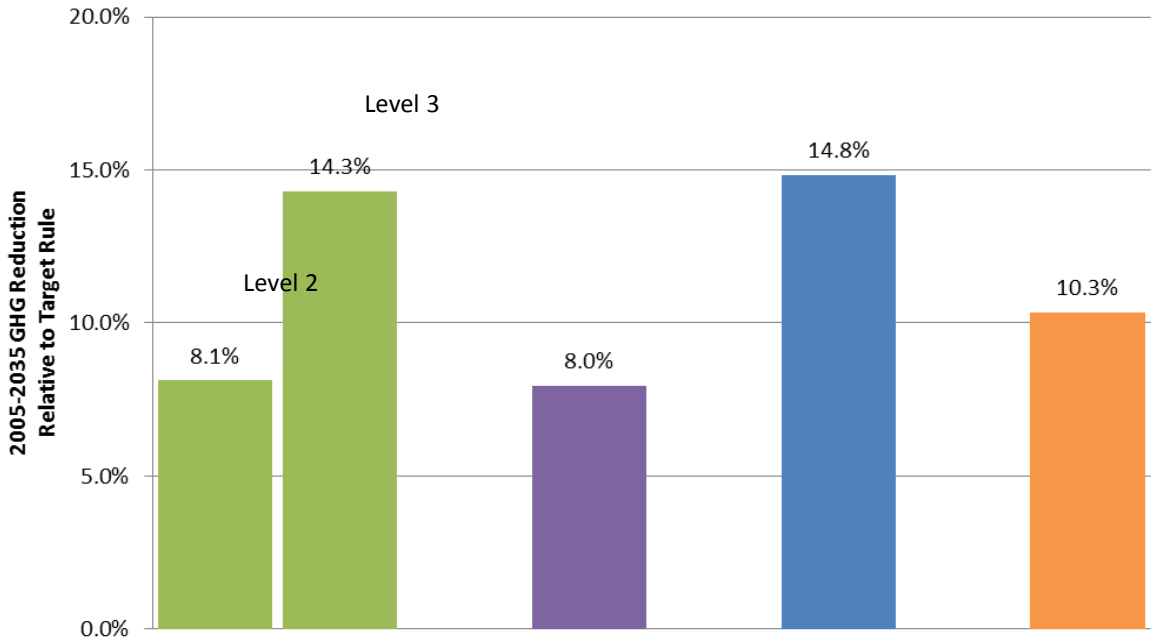
CAMPO Key Findings

Reaching the target is feasible and requires combinations of strategies



	Community Design	Marketing & Incentives	Pricing	Vehicles & Fuels
Policy levers and strategies	*Land use	*ITS	*VMT fee	*Fleet
	*Transit	*Eco-driving	*Social costs	*Light trucks
	*Bicycles	*Car sharing	*Electricity costs	
	*Parking	*TDM	*PAYD insurance	

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Scenario Planning/Strategic Assessment Overall Results

Central Lane Scenario Planning

CLIMATE SMART COMMUNITIES SCENARIOS PROJECT

STRATEGIC ASSESSMENT OF TRANSPORTATION AND LAND USE PLANS

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July 2014

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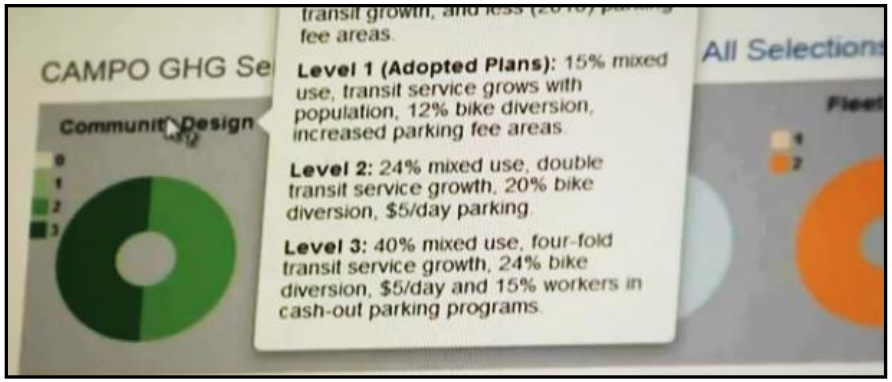
Scenario Planning/Strategic Assessment Support and Funding

- ODOT negotiates funding for MPO staff time
- ODOT and DLCD gather data from plans
  - Working with and vetting inputs with MPO and locals
- ODOT runs the model
- ODOT, DLCD, and MPO share and summarize results



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Questions and Discussion

OSTI Website: http://www.oregon.gov/ODOT/TD/OSTI/

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Actions that reduce emissions have other important benefits

- Reduced household transportation and energy costs,
- Improved air quality
- Improved public health
- Reduced congestion