MPO GHG TASK FORCE
Legislative Concepts Report*
Responding to House Bill 2186 Section 10

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I. Executive Summary

[To be inserted, and include summary of recommendations]

II. Introduction

The Problem

In brief, Oregon faces unprecedented challenges rooted in our use of fossil fuels that will have impacts on many aspects of life. As the saying goes, those who fail to plan, plan to fail.

In 2004, the Governor's Advisory Group On Global Warming concluded: "Global warming is not just another environmental issue. … Absent decisive actions across the globe … [t]he impacts of such changes on Oregon citizens, businesses and environmental values are likely to be *extensive and destructive*. Coastal and river flooding, snowpack declines, lower summer river flows, impacts to farm and forest productivity, energy cost increases, public health effects, and increased pressures on many fish and wildlife species are some of the effects anticipated by scientists at Oregon and Washington universities."[i]

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* **This document was prepared by the facilitators and staff and does not represent working group or task force member concurrence with any of the provisions.**

In response to the threat of global warming, the 2007 Legislative Assembly adopted House Bill 3543 (codified at ORS 468A.205), declaring "it is the policy of this state to reduce greenhouse gas emissions in Oregon pursuant to the following greenhouse gas emissions reduction goals:

(a) By 2010, arrest the growth of Oregon's greenhouse gas emissions and begin to reduce greenhouse gas emissions.
(b) By 2020, achieve greenhouse gas levels that are 10 percent below 1990 levels.
(c) By 2050, achieve greenhouse gas levels that are at least 75 percent below 1990 levels."

The Legislative Assembly further declared that "it is the policy of this state for state and local governments, businesses, nonprofit organizations and individual residents to prepare for the effects of global warming and by doing so, prevent and reduce the social, economic and environmental effects of global warming."[ii]

In 2008, the Governor's Climate Change Integration Group (CCIG), charged to create a preparation and adaptation strategy for Oregon, concluded: "[i]n the human-built environment, our transportation system, land use planning, and building design will all face unprecedented challenges as we face the impacts of a changing climate."

The Task Force

In 2009 the Legislature adopted House Bill 2186 and created this Task Force. The Task Force consisted of the following:

Table 1. Task Force

Task Force Members	Affiliation
Gail Achterman (co-vice chair)	Oregon Transportation Commission
Craig Campbell	AAA of Oregon
Mark Capell	Bend Metropolitan Planning Organization (MPO) (Bend City Councilor)
Jon Chandler	Oregon Homebuilders Association
Dan Clem	Salem-Keizer MPO (Salem City Councilor)
Senator Peter Courtney (co-chair)	Oregon Senate
Albert Densmore	Rogue Valley MPO (Medford City Councilor)
Senator Jackie Dingfelder	Oregon Senate
Chris Hagerbaumer	Oregon Environmental Council
Mike Hoglund	Metro
Representative Dave Hunt (co-chair)	Oregon House of Representatives
Representative Nick Kahl	Oregon House of Representatives
Mary Kyle McCurdy	1000 Friends of Oregon
Linda Modrell	Corvallis MPO (Benton County Commissioner)
John VanLandingham (co-vice chair)	Land Conservation and Development Commission
Alan Zelenka	Central Lane MPO (Eugene City Councilor)

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Additional Participants	Affiliation
Representative E. Terry Beyer	Oregon House of Representatives

HB 2186 Section 10 required the Task Force to study and evaluate the development of alternative land use and transportation scenarios that accommodate planned population and employment growth in those areas of the state that are served by metropolitan planning organizations (MPOs) while achieving a reduction in greenhouse gas emissions (GHG) from motor vehicles with a gross vehicle weight rating of 10,000 pounds or less (Light Vehicles).[*] Specifically, the Task Force was required to:

- take into account the amount of GHG caused by Light Vehicles that need to be reduced by 2035 in order to meet the goals stated in ORS 468A.205[iii] *(Section 10(2)(a))*;
- take into consideration the reductions in vehicle emissions that are likely to result by 2035 from the use of improved vehicle technologies and fuels *(Section 10(2)(a))*;
- evaluate potential fiscal and other resource needs to implement land use and transportation scenarios described in the paragraph above, including staffing and resources needed by state agencies, local governments and each MPO *(Section 10(2)(b))*;
- evaluate impediments to implementing land use and transportation scenarios that reduce GHG emissions *(Section 10(2)(c))*; and
- recommend legislation to the interim Legislative Assembly committees related to transportation and to the environment establishing a process for adoption and implementation of plans for reducing GHG emissions caused by Light Vehicles by 2035, in an amount sufficient to meet the goals stated in ORS 468A.205, in each area of this state served by a MPO, including a schedule for the planning process and an estimate of funding required to complete the planning process *(Section 10(2)(d))*.

The Task Force met four times between October 15 and December 4, 2009. The Task Force reached [full] consensus on this report and the recommendations.[iv]

The Need for Action

The Task Force urges the State and MPOs to take action now, given available funding, to plan for climate change and to engage the public and stakeholders about the need to plan for climate change. While the planning process for climate change will require MPOs to build consensus on ways to address future uncertainties, there is a need for action in the short-term based on the best available technology and knowledge. There are many important and effective actions that local governments can and should take now that will make a significant difference. Many of these actions have other important benefits (co-benefits) that make these actions worthwhile and that will reduce the need for even more aggressive GHG reduction measures in the future. For example, Oregon's land use and

[*] Both HB 2186 and HB 2001 call for reductions in GHG emissions from "… motor vehicles with a gross vehicle weight rating of 10,000 pounds or less." Vehicles in this weight range are motorcycles, passenger cars, vans, SUV's, and pickup trucks. They are collectively referred to as "Light Vehicles."

transportation planning efforts to date put us well-ahead of most other states in taking next steps to reduce GHG emissions.

MPOs also can look for "low hanging fruit" opportunities to immediately reduce energy use and encourage alternative transportation. Moreover, studies and resources on transportation and climate change available now can be used by MPOs in selecting strategies that are both cost-efficient and effective at reducing GHG.

The Task Force recognizes that there are uncertainties among many in the public about the degree of urgency about addressing climate change. Nevertheless, activities to reduce GHG emissions will have other important benefits for transportation and land use that make them worthwhile. In addition, the recommendations in this report build on the positive activities MPOs are undertaking to address GHG emission reductions. Finally, the legislature has already concluded, with 2007's HB 3543, that it is state policy to reduce GHG emissions.

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III. Background on Climate Change and the Need for Scenario Planning

The economic impacts of inaction are large. A 2009 report produced for the University of Oregon's Climate Leadership Initiative's Program on Climate Economics by ECONorthwest estimates that if nothing is done to reduce GHG emissions, Oregon will face some $3.3 billion in annual costs, which could translate to an individual tab of about 4 percent of annual household income by 2020.[v]

A Statewide Framework for Action and the Role of Metropolitan Areas
Successfully reducing GHG emissions to minimize the impacts of climate change, while at the same time adapting to changes already underway, will require a coordinated global effort. While Oregon cannot do it alone, Oregon must be part of the solution and has an opportunity to be a leader.

The Governor's CCIG has developed a framework for Oregon to respond to the threat of global warming based on the following principles:

- **Business-as-Usual Is Not Climate as Usual:** A change in the Earth's climate of unprecedented magnitude is now inevitable, but concerted action to reduce GHG can help reduce the degree to which our climate changes.
- **Our Climate Is Changing Faster Than Anticipated:** Recent scientific work indicates that the climate is changing faster that had been anticipated even three years ago, and that we may be approaching a less favorable climate regime to sustain Oregon's economic health.
- **Significant Economic Threat:** Research shows that climate change will ultimately produce significant adverse economic impacts on most sectors of Oregon's economy.
- **Significant Human Health Threat:** Climate change brings with it significant new health threats, such as new diseases and new disease vectors.
- **It Is Urgent that We Act Now:** A broad scientific consensus tells us that it is urgent that we act immediately to reduce the release of GHG if we are to keep climate change manageable, and to prepare for the impacts of warming that are now inevitable.
- **There Are Significant Costs to Delay:** Waiting to act is not a wise choice, as the costs of inaction in terms of disruptions to the economy far outweigh the costs of implementing mitigation, preparation, and adaptation.
- **Preparation and Adaptation Are Mandatory:** The changes to the climate are significant, and will require all parts of civilization – our food, shelter, transportation, and energy systems – to invest considerable thought and capital to successfully prepare and adapt.
- **Uncertainty Is a Fact of Life:** Lack of scientific certainty should not preclude action; in fact, continued research will play a key role in our success in preparation and mitigation.
- **Decoupling Our Economy from GHG Emissions:** Since we must reduce our emissions dramatically while facing a growing population, we must decouple the growth in our economy from rising emissions and move rapidly towards a low-carbon economy.

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- **An Economic Development Opportunity:** While climate change represents a risk, the transition to a low-carbon economy and climate change preparation activities will not only make Oregon more resilient to a changing climate, but also represents an economic development opportunity that Oregon is particularly well-suited to seize.
- **Solutions Improve Quality of Life:** Many of the solutions we implement will not only make Oregon more resilient to a changing climate and related economic impacts, they also will improve our quality of life.
- **Planning in a Time of Rapid Change and Uncertainty:** We can no longer rely on our past experiences to help us predict and plan for future environments.

According to the CCIG, the leading sources of GHG emissions in Oregon are the transportation of goods and people (35%), residential and commercial building energy use (30%), industrial and waste processes and facilities (28%), and livestock, soil and crop management (7%).[vi]

Building on the 2004 *Oregon Strategy for Greenhouse Gas Emissions*, the CCIG proposed additional recommendations across all sectors in its 2008 *A Framework for Addressing Rapid Climate Change*. The state has already begun to implement many of these recommendations, particularly in the energy-producing sector of the economy.

With transportation accounting for over a third of Oregon's GHG emissions -- of the total GHG emissions produced by the transportation sector, Light Vehicles account for 60% of the GHG emissions from the transportation sector or 20% of Oregon's total GHG emissions -- the CCIG recommended two important components of Oregon's coordinated strategy: [vii]

1) to reduce GHG emissions from consumption of fossil fuels by displacing conventional combustion engines with hybrid, electric and other technological/fuel options, and
2) to guide land use choices, especially in Oregon's urban areas, toward more efficient choices including higher densities, transit options, mixed-use neighborhoods, and common wall dwelling designs.

Similarly, the 2009 *Moving Cooler* report prepared by Cambridge Systematics the Urban Land Institute identified four basic approaches for reducing GHG emissions from transportation:[viii]

- **Vehicle Technology**—Improving the energy efficiency of the vehicle fleet by implementing more advanced technologies,
- **Fuel Technology**—Reducing the carbon content of fuels through the use of alternative fuels (for instance, natural gas, biofuels, and hydrogen),
- **Travel Activity**—Reducing the number of miles traveled by transportation vehicles, or shifting those miles to more efficient modes of transportation, and
- **Vehicle and System Operations**—Improving the efficiency of the transportation network so that a larger share of vehicle operations occur in favorable conditions, with respect to speed and smoothness of traffic flow, resulting in more fuel efficient vehicle operations.

In addition, the 2007 *Growing Cooler* report documents how key changes in land development patterns can help reduce transportation-related GHG emissions.[ix]

In Oregon, the six metropolitan statistical areas (MSA)—Portland-Vancouver-Beaverton, Salem, Eugene-Springfield, Medford, Bend, and Corvallis—account for most of the state's population.[x] As the entities responsible for regional transportation planning, Oregon's six MPOs for these MSAs have an important role in planning the transportation system—including the role of development patterns—in order to reduce GHG emissions as part of Oregon's larger strategy, primarily by planning to reduce the number of miles traveled by transportation vehicles, or shifting those miles to more efficient modes of transportation.[xi]

Benefits of Land Use/Transportation Planning to Reduce GHG Emissions
The CCIG concluded: "Meeting the climate challenge also will require a transformation in the ways we plan for the future and make decisions about infrastructure development."

While it is not possible to predict the future with certainty, it is essential to consider different potential futures, what are likely to be major drivers of change, and what actions can be taken to prepare for such change. Scenario planning—a means of evaluating the most cost-effective mix of transportation and land use strategies to achieve GHG reduction goals, while supporting population growth and economic vitality— can be used to prepare for a changing future.

Many co-benefits will accrue from reducing GHG emissions from transportation. For example, community design that builds in travel choices to reduce the need for Light Vehicle travel can help:

- **Reduce infrastructure costs:** Many studies comparing compact growth to sprawl have found that compact growth generates net savings on the total costs of buildings, land, infrastructure, and transportation.[xii]
- **Reduce household costs and generate economic benefits:** Transportation is the second largest expense for most households. In communities with transportation choices, families can save significantly on cars and gas. In the Portland region, where residents travel about 20% fewer miles by car than residents of other major U.S. metropolitan areas, transportation cost savings are calculated at $1.1 billion per year. Every dollar not spent on gasoline frees up money for local goods and services, benefiting Oregon's economy.[xiii]
- **Support healthy lifestyles and more time with family:** In many communities, people have no choice but to drive. Even short trips cannot be done by foot or on a bicycle. This has led to more sedentary lifestyles where people don't get the exercise they need. And when people have to drive long distances in heavy traffic, they have less time to spend with their families. Smart growth reduces commute times and supports walking and bicycling.
- **Give consumers what they want:** A 2007 study by the National Association of REALTORS® found 83% of Americans want to live in communities that allow them to use their car less often.[xiv]

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As state and local governments undertake this daunting, yet crucial, effort to meet the climate challenge, they must proactively engage all segments of the population, as well as key stakeholders in each community who are impacted by transportation and land use decisions. With adequate tools and resources, each of Oregon's major metropolitan areas will be able to fulfill its critical role in fostering regional consensus on a vision for a climate-friendly future and implementing a suite of strategies to make that vision a reality.

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IV. Development of Alternative Land Use and Transportation Scenarios

HB 2186 Charge: The task force shall study and evaluate the development of alternative land use and transportation scenarios that accommodate planned population and employment growth in those areas of the state that are served by metropolitan planning organizations while achieving a reduction in greenhouse gas emissions from motor vehicles with a gross vehicle weight rating of 10,000 pounds or less that need to be reduced by 2035 in order to meet the goals stated in ORS 468A.205. The task force shall take into consideration the reductions in vehicle emissions that are likely to result by 2035 from the use of improved vehicle technologies and fuels. (Section 10(2)(a)).

MPO Planning Today

MPOs were created by, and have evolved through, various federal laws. MPOs are responsible for preparing both long-range plans (regional transportation plans or RTPs) as well as short-range plans (metropolitan transportation improvement programs or MTIPs). RTPs cover at least a 20-year timeframe, updated every 4 years. MTIPs cover at least a 4-year timeframe and must be updated at least every 4 years. Both must be kept up-to-date in order to receive and spend federal transportation funds.

MPOs in general -- Metro is the exception in Oregon -- are neither local nor state governmental organizations nor are they regional land use planning agencies. Each MPO has a policy board made up of elected and appointed officials. Except for the MPO in the Portland metro area, the Councils of Government in each area provide staff for and conduct transportation planning for the MPOs. Metro, which is a local government, supports the Portland metro area MPO.

Work of MPOs is guided primarily by federal laws including SAFETEA-LU, the National Environmental Policy Act, and the Clean Air Act. Basic federal planning requirements include:

- Adopting an RTP that addresses multi-modal system needs for 20 years
- RTPs must be consistent with adopted state and local plans and must be in conformance with air quality standards
- RTPs must include a "financially-constrained" list of transportation improvements, based on reasonably expected sources of revenue. (MPO plans also include a much longer list of "illustrative projects" for which funding has not been identified.)
- Developing a four-year MTIP that identifies a schedule of projects or activities using federal transportation funds and must be consistent with federal planning regulations.

Although the work of MPOs is not directly subject to Oregon laws, the Transportation Planning Rule (TPR) – adopted by the Land Conservation and Development Commission (LCDC) – establishes state requirements for metropolitan transportation planning. The TPR applies to local governments (cities and counties) that are MPO members – and is implemented by them through adoption and amendment of regional and local transportation system plans (TSPs). On the other hand, MPO boundaries are established

for federal planning purposes and do not coincide with urban growth boundaries established under Oregon law and used in planning processes throughout the state.

The requirements of the TPR generally parallel and are consistent with the federal requirements. Several key features are worth noting:

- In 2006, LCDC amended the rule to synchronize state and federal planning timelines, and to encourage and direct local governments to address state and federal requirements and avoid duplication through a single, coordinated planning process.
- A major feature of the TPR is that it directs metropolitan areas to plan for expanding transportation options and reduced reliance on the automobile. Originally, the rule was written to require MPOs to plan for a 10% reduction in vehicle miles traveled (VMT) per capita – a requirement that approximates the kind of measure that will be needed to accomplish GHG emission reductions. Currently, the rule requires metropolitan areas to adopt measurable standards and benchmarks for accomplishing reduced reliance on the automobile. Four of the six MPOs have approved plans that implement this part of the rule, although results of implementation efforts have been mixed.
- State-required TSPs must be consistent with adopted land use plans and urban growth boundaries.

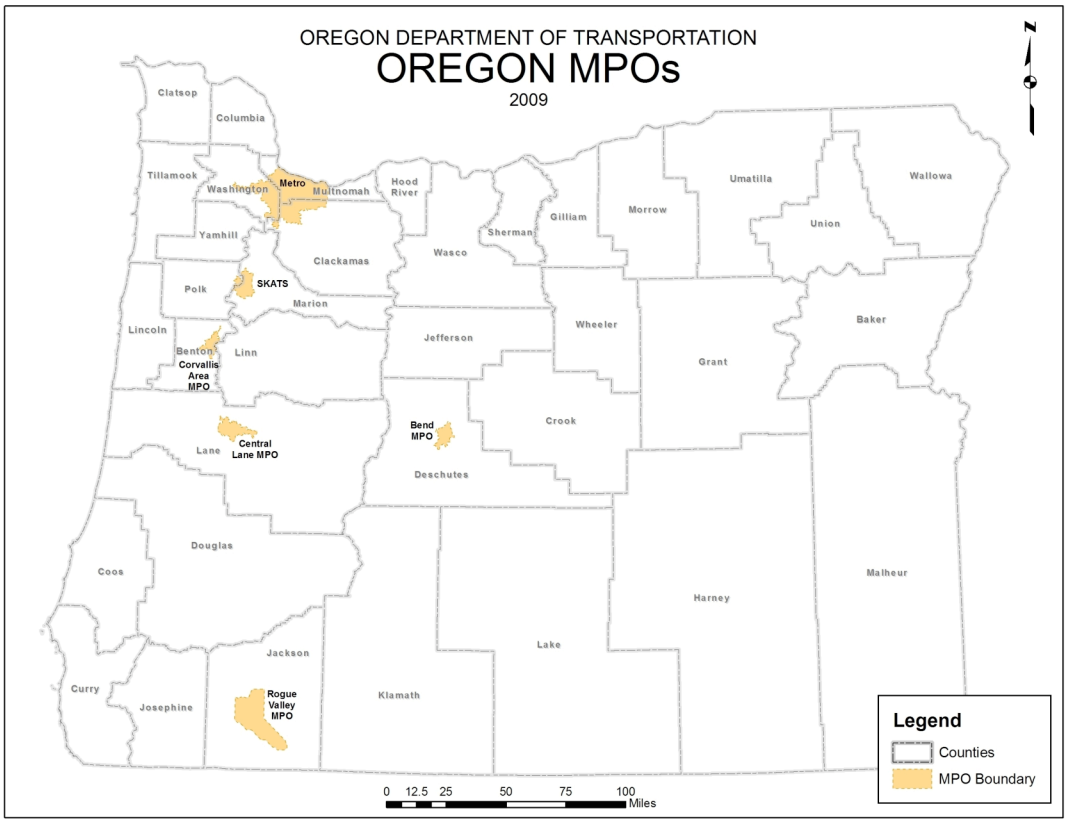
The information in Table 2 (below) was excerpted from tables provided to the Task Force by members of the Oregon MPO Consortium and depicts the variation among Oregon MPOs. (See also Figure 1 on the following page for the location of the Oregon MPOs.)

Table 2. Oregon MPO Characteristics

	Bend MPO	Corvallis MPO	Rogue Valley MPO	Salem Keizer MPO (SKATS)	Central Lane MPO	Portland Metro
Population	88,000	65,415	157,272	237,000	237,262	1,583,138
Area	35 sq. mi.	39 sq. mi.	263 sq. mi.	135 sq. mi.	123 sq. mi.	463 sq. mi.
# of Cities (Counties) in MPO	1(1)	3(1)	8(1)	3(2)	3(1)	25(3)
Land Use Authority	None	None	None	None	None	Yes
TOTAL FY 08-09 Planning Budget	$223,000	$320,000	$476,302	$1,101,206	$976,415	$10,993,000
TOTAL STP* Funds FFY 2009	$570,956	$577,944	$1,278,187	$2,937,254	$3,175,660	$18,407,670
Staff/FTE	2.5	1	3.75	8	5.75	96
Regional/Metropolitan Plan Updates	Every 5 Years	Every 5 Years	Every 4 Years	Every 4 Years	Every 4 Years	Every 4 Years
Next RTP/MTP	FY 2009-2010	Sept. 2011	Spring 2013	May 2011	Nov. 2011	Dec. 2009
RTP Horizon Current(Update)	2030(2035)	2030(2035)	2034(2038)	2031(2035)	2031(2035)	2035(2040)
Total DVMT (Thousands)**	1,511	857	2,915	4,254	4,475	29,192
Vehicle Miles Traveled per Capita	18 DVMT	13 DVMT	19 DVMT	19 DVMT	19 DVMT	20 DVMT

* STP means federal Surface Transportation Program.
** DVMT means daily vehicle miles traveled.

Figure 1. Map of Oregon MPOs



Scenario Planning

Land use and transportation scenario planning is used widely in metropolitan areas across the United States. At its core, "scenario planning" is a public planning process that compares a "trend" or "base case" to one or more alternatives for growth or development. Modeling is used to estimate costs, benefits, and impacts of different choices, and to help public and local officials understand implications of different growth options. Scenario planning grew out of an understanding that smart land use planning could reduce the need for car travel and VMT.

Consultants advising the Task Force reviewed a broad range of scenario planning projects that have been conducted in Oregon and mid-sized metropolitan areas around the US, such as Gainesville, Florida (pop. 160,000), and Missoula, Montana (pop. 57,000). In general, they provided the following information about scenario planning:

- Scenario planning involves and requires broad public involvement to develop and evaluate possible future visions or alternatives.
- Computer modeling tools for transportation and land use analysis are used to depict and compare effects of alternatives and address a variety of factors including VMT, travel time, congestion, transit use, and housing/employment location.
- While few scenario plans have directly addressed GHG emissions, most measured reductions in VMT – a major factor affecting transportation-related GHG emissions.

- Extensive involvement of local officials is required, and most scenario plans are approved by a consensus of participating local government officials.
- Approved scenario plans are used by local officials to guide subsequent land use and transportation plan updates and to guide local transportation investments.
- The typical scenario planning process takes two years or more, and costs ranged from $250,000 to over $3 million.
- Scenario planning is becoming a regular element of regional transportation planning around the US, with support and encouragement from the Federal Highway Administration.
- MPOs were typically the lead agency for scenario planning, although most have no authority over land use
- Oregon's four largest MPOs – Portland, Salem-Keizer, Central Lane, and Rogue Valley – all have experience with preparing scenario plans and Metro's 2040 work is considered a leading national example of scenario planning.

A Framework for Scenario Planning

The Task Force recognizes that the State must get started immediately at all governmental levels to plan how to reduce GHG emissions from the transportation sector in the future and to identify and carry out actions that can be done now to reduce GHG emissions. One of the first tasks will be to begin a comprehensive public education and engagement process at local and state levels to develop public understanding of the challenges and opportunities of GHG reductions and to encourage public involvement in the process.

The Task Force identified several attributes that the process for planning to reduce transportation GHG emissions will need to have:

- Clearly allocate responsibilities and identify necessary coordination between local, state, and federal efforts;
- Be based on an overall statewide strategy for reducing GHG emissions from the transportation sector;
- Provide flexibility to the local governments and MPOs particularly in the beginning to reflect differences in authorities, resources, geographic situations, and aspirations; and,
- Be coordinated with ongoing planning efforts.

In addition, the Task Force recognizes that the process of planning for and implementing actions to reduce transportation GHG emissions will need to be iterative and phased. Planning will need to be iterative because many things are unknown about the technologies that will be developed, the laws and rules that will be adopted at the federal and state levels, and the success of local and regional programs. Planning will need to be phased in order to balance the need for immediate action with limitations posed by current staffing and budgets as well as the time required to start up a new program. The planning phases envisioned in this framework would be coordinated with the GHG emissions reduction planning that is required by 2009 House Bill 2001.

HB 2001 requires LCDC to adopt rules that would set a target for reductions in Light Vehicle emissions for the Portland metropolitan area. The 2035 target date for emission reduction is the half-way point between the adopted state goal for GHG emissions from

all sources in 2020 (10 percent less than 1990 levels) and the goal for 2050 (75 percent less than 1990 levels). Metro is required to develop two or more land use and transportation scenarios before January 2012. These scenarios are to achieve GHG emission reductions from Light Vehicles while accommodating planned population and employment growth. The Central Lane MPO for the Eugene-Springfield metropolitan area is similarly required to develop two or more scenarios by January 2013. The Department of Land Conservation and Development (DLCD) and the Oregon Department of Transportation (ODOT) are required to report to the House and Senate interim committees related to transportation in February 2012 and again in February 2014 on the progress of scenario planning to reduce GHG emissions.

State Planning Activities

The framework for scenario planning proposed by this report includes several state activities to support MPO scenario planning to reduce transportation GHG emissions. These activities will be coordinated with work that will be done to carry out the requirements of HB 2001 and the experience and results will benefit other MPOs. Figure 2 illustrates the activities, the relationships between them, and connections to tasks established by HB 2001, and includes:

- Oregon Transportation Commission (OTC) in consultation with other agencies and stakeholders, will prepare and adopt a preliminary and final state strategy for reducing GHG emissions from the transportation sector to meet the targets in ORS 468A.205. The strategy will make recommendations as necessary for changes to the Oregon Transportation Plan to reduce GHG emissions. The strategy will establish planning assumptions about state and federal programs, policies, and incentives expected to be in place to reduce transportation related GHG emissions. Because the state strategy will address all travel, it will address the intercity travel issues identified by the Task Force as being important, but outside the jurisdiction of the MPOs. Examples of these issues include commuting to and from metropolitan areas and surrounding areas, the roles of tolling and pricing, and the roles of intercity public transportation including high speed rail. The strategy and accompanying analysis will provide the information called for in HB 2001 to be provided to LCDC to support target-setting rulemaking.
- ODOT will develop and assist with the deployment of modeling tools to support MPOs scenario plans and analysis of the effects of prospective actions for reducing GHG emissions from metropolitan area Light Vehicle travel. This is will build on work by Metro and ODOT under HB 2001 to provide land use modeling technical assistance to other MPOs.
- ODOT and DLCD, in consultation with other agencies and stakeholders, will prepare guidelines and best management practices for the preparation and evaluation of alternative land use and transportation scenarios for reducing GHG emissions from metropolitan area Light Vehicle travel. These guidelines will assist the MPOs with their second phase work described below.
- ODOT and the DLCD in cooperation with MPOs and others, will develop a GHG reduction toolkit, which catalogs actions and programs for reducing GHG emissions from the transportation sector that can be implemented at the local and regional level. The toolkit will be updated continuously to incorporate new

information. Early versions of the toolkit will be used by MPOs for their first phase work described below.

- As with HB 2001, DLCD and ODOT in coordination with MPOs and local governments will provide reports to the legislature every two years on progress on scenario planning and adoption and implementation of plans to reduce GHG emissions, whether new or additional incentives are needed, or whether the state should require a different framework or additional actions to carry out the GHG reduction goals. These reports will also identify whether adjustments need to be made to address new scientific findings, new technologies, or unintended consequences of existing policy approaches.
- As with HB 2001, LCDC, in consultation with the OTC and with assistance from State agencies, will adopt rules for MPOs, other than Portland Metro, to identify each MPO's needed reduction by June 1, 2011 in GHG emissions caused by Light Vehicles.

MPO Planning Activities

Phase 1

The Task Force envisions that MPO planning for GHG reduction will be carried out in three phases as illustrated in Figure 3. The first phase will begin immediately, will be coordinated with existing MPO planning activities, and will be carried out to the degree possible within existing resource limitations. During this phase, each MPO will do the following:

- Begin engaging the public about the need to reduce transportation GHG emissions and the options, costs, and benefits of reducing GHG emissions.
- Consider how the population and employment distributions assumed for the regional transportation plan could be altered, consistent with adopted comprehensive plans, to lower GHG emissions.
- Evaluate proposed actions in its existing regional transportation plan and assess whether those actions would be likely to increase, decrease, or have no effect on GHG emissions.
- Consult the GHG reduction toolkit developed by ODOT and DLCD to determine whether any immediate actions could be taken to reduce GHG emissions.

Phase 2

The 2nd phase of MPO planning to reduce transportation GHG emissions would start after LCDC adopts Light Vehicle GHG reduction targets and depends on actions to be taken y the 2011 legislature. During this phase, each MPO as part of its RTP update would do the following:

- Conduct scenario planning and select a scenario.
- Model the effects of proposed elements of the scenario plan on GHG emissions.
- Consider additional possible actions from the GHG reduction toolkit in developing a plan that will meet the GHG reduction target.
- Continue public involvement.

During the first and second phases, under HB 2001 Section 37, Metro and the local governments within its boundaries will be developing, selecting and implementing a transportation and land use scenario to reduce Light Vehicle GHG emissions. In phase 2,

under HB 2001 Section 38(a), Eugene-Springfield area MPO will be developing several scenarios and local governments within the MPO will cooperatively select a scenario.

Phase 3 and Beyond

In the 3rd phase and at each RTP update thereafter, each MPO will do the following:

- Evaluate the performance of its plans and actions to reduce GHG emissions, and based on the evaluation, apply best management practices and identify changes needed to improve the success of actions to reduce GHG emissions, or if needed consider additional scenarios.
- Conduct scenario planning.
- Identify additional actions from GHG reduction toolkit needed to meet the GHG emission reduction target.
- Continue public involvement.

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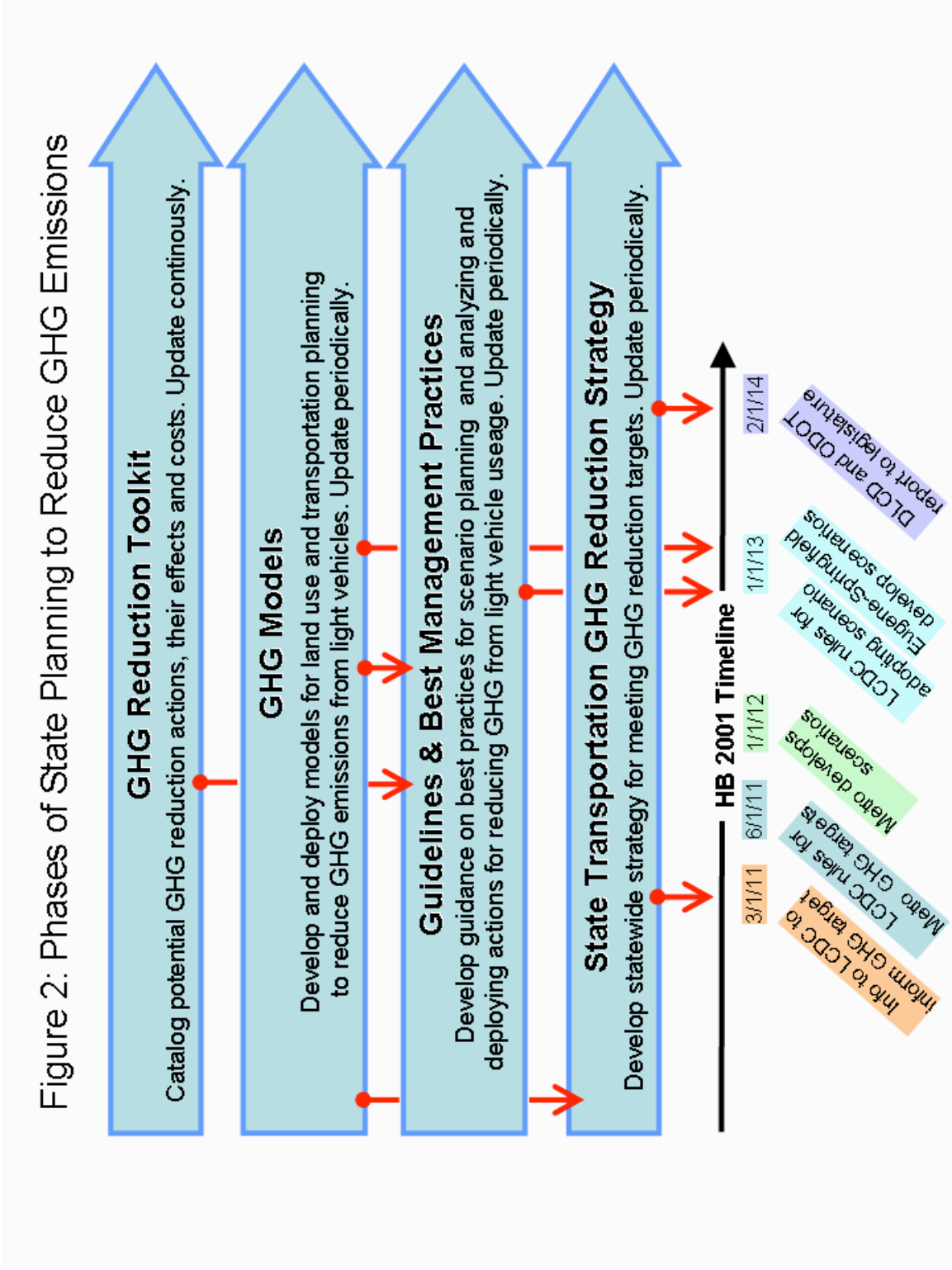
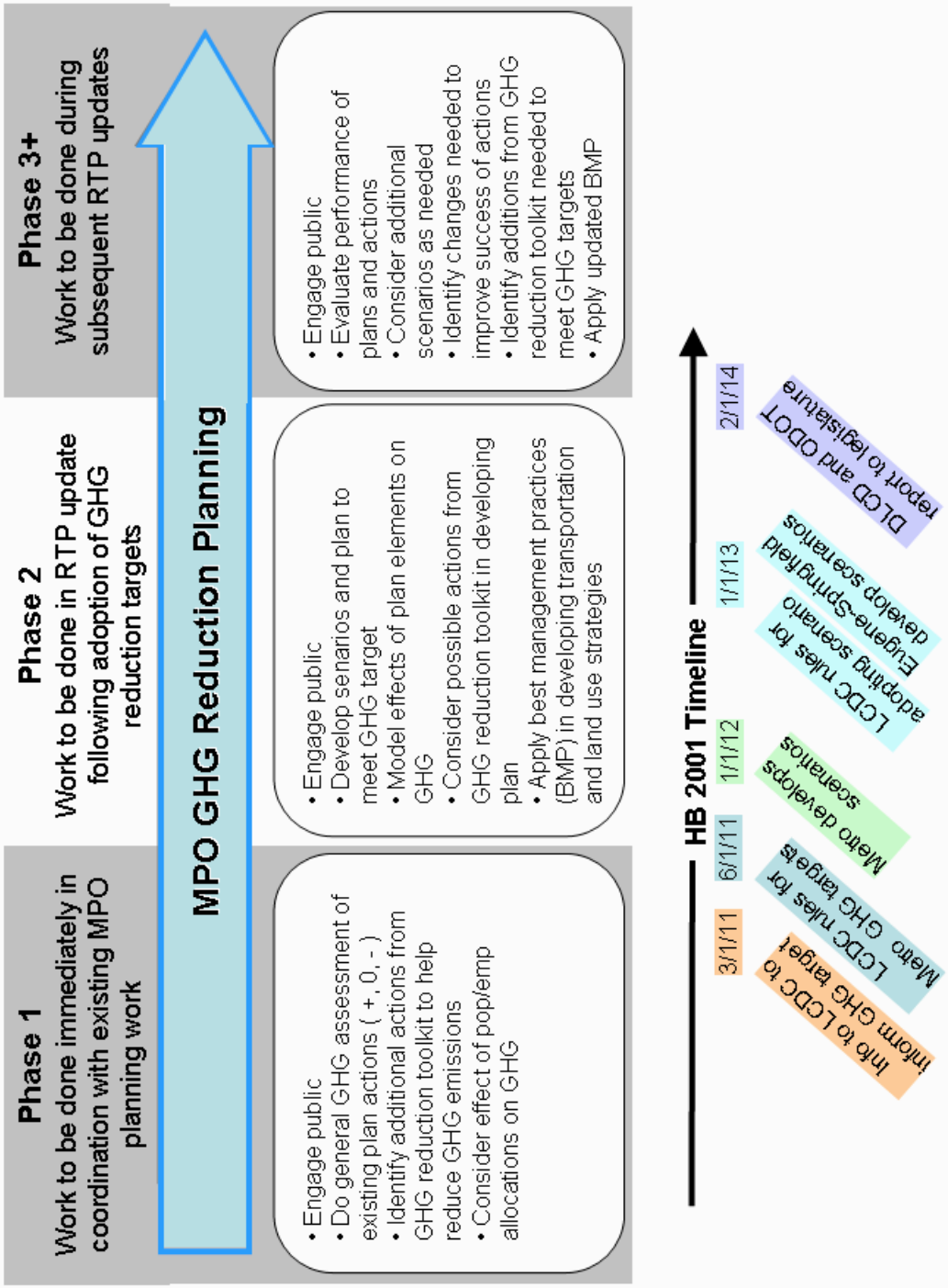


Figure 2: Phases of State Planning to Reduce GHG Emissions
GHG Reduction Toolkit
Catalog potential GHG reduction actions, their effects and costs. Update continously.
GHG Models
Develop and deploy models for land use and transportation planning to reduce GHG emissions from light vehicles. Update periodically.
Guidelines & Best Management Practices
Develop guidance on best practices for scenario planning and analyzing and deploying actions for reducing GHG from light vehicle useage. Update periodically.
State Transportation GHG Reduction Strategy
Develop statewide strategy for meeting GHG reduction targets. Update periodically.
HB 2001 Timeline
3/1/11
6/1/11
1/1/12
1/1/13
2/1/14
Info to LCDC to inform GHG target
Metro GHG targets
LCDC rules for
Metro develops scenarios
LCDC rules for adopting scenario
Eugene-Springfield develop scenarios
DLCD and ODOT report to legislature

Figure 3: Phases of MPO Planning to Reduce GHG Emissions



V. Potential Fiscal and Other Resource Needs to Implement Land Use and Transportation Scenarios

HB 2186 charge: The task force shall evaluate potential fiscal and other resource needs to implement land use and transportation scenarios described in paragraph (a) of this subsection, including staffing and resources needed by state agencies, local governments and each metropolitan planning organization. (Section 10(2)(b)).

In two reports provided to the Task Force the cost of the planning efforts ranged from a low of $250,000 to a couple of million of dollars. Over a dozen case studies were analyzed and the accounting for the costs varied. To adequately assess the costs would require understanding three key components: internal staff level and capabilities, level of public involvement anticipated, and tool development, such as modeling capabilities and needs.

As indicated earlier, the Task Force envisions three phases to this work. The first phase is premised on what can be accomplished this biennium with existing resources both at the MPO and state level. The Task Force recognizes that the accomplishments of each MPO will vary based on their individual resources, staff capacity, and other ongoing planning responsibilities.

Additional resources will be needed in the second phase beginning June 2011 (following adoption of the GHG emissions rulemaking under HB 2001). This schedule anticipates MPOs will do the phase 2 work as part of their RTP updates. The additional resources needed to conduct scenario planning efforts will vary with the MPO and will need to be determined as part of RTP work plan development. ODOT and DLCD will need to work with each of the MPOs prior to the 2011 session to scope this work effort and schedule the bringing forward of recommended resource needs during the 2011 legislative session.

The third phase is evaluation and identification of changes needed for actions to be more successful. Given existing MPO resources, it is likely that they will need ongoing additional resources. This resource need is unknown at this point. An attempt will be made to identify those costs as part of the requests for resources in the 2011 session.

As illustrated in Figure 2, Phases of State Planning to Reduce GHG Emissions, the early sequence is the development of (1) GHG Toolkit, (2) GHG model development, (3) Best Management Practices Development, and (4) State Transportation GHG Reduction Strategy. This work will primarily be the responsibility of the state agencies with assistance from the MPOs during development of these products. This will be an ongoing work effort as the toolkit, model development for GHG, and Best Management Practices evolve and improve over time. The total costs for these efforts are unknown at this time as the work is just beginning to be scoped. During this biennium, the state too will begin work on these efforts using existing resources. Staff availability and financial resources will limit the scope of these work efforts. A package of fiscal and resources needs for this work effort will be developed for the 2011 legislative session. This work will affect the agencies of ODOT, DLCD, DEQ, and ODOE on an ongoing basis and is

likely in the range of two to three million of dollars on an annual basis after the completion of the initial round of work.

To be successful in this endeavor, one of the first efforts needs to be to proactively engage all segments of the population primarily around developing public support for recommended actions and programs to reduce GHG emissions. During the first phase, the citizen involvement work of the MPOs and the citizen involvement work of the state will be done using existing resources. It is expected that this citizen involvement work will begin at the MPOs and at the state but it will not be finished during Phase 1. The cost for this work over all three phases is unknown and would be dependent on the types of techniques used and expansiveness of the outreach. This cost also would be dependent on MPO involvement but would likely come at a cost of several million dollars for the citizen involvement efforts during all three phases, not including staff time and commitment on top of both MPO and state staffs' existing responsibilities. Defining what this effort might look like will take some time and involvement with other stakeholders.

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VI. Scenario Planning Impediments

HB 2186 charge: The task force shall evaluate impediments to implementing land use and transportation scenarios that reduce greenhouse gas emissions. (Section 10(2)(c)).

The Task Force has identified the following impediments and challenges that need to be addressed, as well as opportunities for overcoming these impediments and challenges.

Need for a detailed state strategy for transportation sector GHG reduction. While the state has done considerable work to craft an overall approach for addressing climate change, metropolitan scenario planning is likely to be most effective if there is a detailed state-level strategy and guidance for reducing transportation sector GHG emission reduction. Metropolitan area planners need guidance about the overall framework of state and federal policies and programs that are expected to be in place in 2035 for reducing GHG emissions to properly assess the effects of their actions and choose actions that complement state policies.

Funding for metropolitan planning. Aside from Metro, metropolitan areas have limited staffing and funding capacity to conduct scenario planning or to effectively integrate land use and transportation planning. Metropolitan Planning Organizations (MPOs) have small staffs and budgets, which are barely adequate to conduct federally-required coordination. A survey of successful scenario planning projects suggests that metropolitan planning staffs and budgets will have to be significantly expanded to undertake scenario planning. Moving quickly to establish a process for integrating land use and transportation planning to reduce GHG emissions from the transportation sector in each of the MPOs will position those regions and the state well to receive federal funding to prepare and implement scenario plans.

Funding for implementing actions. Currently, funding for transportation and land use actions that would reduce GHG emissions, such as public transit or transportation demand management (TDM) programs, is limited. Additional and sustainable funding for these kinds of actions will be needed to meet GHG reduction targets and would provide local governments a strong incentive to conduct scenario planning. More work will be needed at the state and federal levels to identify funding sources and programs to carry out these actions. Scenario planning can help Oregon communities and agencies inform this discussion by identifying cost-effective actions to reduce GHG emissions. This will also position communities to take advantage of these new funding programs as they become available.

Authority. While MPOs are designated by the Governor, they are federally-mandated forums for cooperative transportation decision-making by state and local officials. They do not have authority or responsibility for land use planning. As a result, MPOs tend to limit their role to conducting and coordinating federally-required transportation planning. The Task Force learned that MPOs in other states have played a lead role in scenario planning – even though none has Metro-like planning authority. Consultants advising the Task Force noted that the key ingredient in success of these efforts –

including Metro 2040 - was an open process for public engagement and buy-in by all the affected local governments.

Oregon law, unlike many other states, does not formally authorize MPOs or guide their work. The state's authority over MPOs should be recognized and clarified. In addition, the MPOs' authorities and duties to adopt and implement plans to reduce GHG emissions should be recognized and clarified, in state statute if necessary or appropriate. State statutes also should address the relationship between the land use and transportation scenarios developed by an MPO and local government land use plans, regional and local government transportation plans, and other local government infrastructure plans. This issue has been addressed successfully in other states.

Improved information about "Best Planning Practices" for GHG reduction. Local governments and MPOs need more detailed information on effectiveness of specific land use and transportation actions in reducing GHG emissions that are within their control to carry out. State-level guidelines and technical assistance are needed to help document and catalog effective actions and help simplify development and evaluation of scenarios. The good news is that evidence about benefits of land use and transportation strategies in reducing GHG is growing rapidly. National studies, such as Growing Cooler[xv], and similar work in other states, notably California's work implementing scenario planning under its SB 375, provide a good model for work in Oregon.

Improved tools for modeling & analysis. Planning decisions are guided in large part by computer models that estimate how the transportation system will operate in the future. Existing transportation models do not have all the needed capabilities for estimating the GHG reduction benefits from different land use and transportation actions. Improved models and other tools – such as sketch planning tools that can estimate GHG emissions of different land use or transportation measures - will be needed to help MPOs craft effective GHG reduction plans. At the same time, the Task Force notes that modeling is constantly evolving. Existing models and studies do provide useful information about benefits of land use and transportation actions to consider GHG impacts as we make major planning decisions. As new and improved tools become available we can update our plans accordingly.

Public Engagement. Successful scenario planning will require extensive public outreach and engagement to develop public support for recommended actions and programs and provide meaningful opportunities for public input. Expanded funding will be needed to enable the public to participate effectively in scenario planning.

Commuting beyond Metropolitan Boundaries. ODOT estimates that 20-50% of metropolitan GHG emissions from commute trips are from trips that extend outside metropolitan area boundaries. As metropolitan areas have limited ability to affect these trips, expanded coordination and planning among ODOT, MPOs, and nearby communities will be needed to effectively address this significant source of GHG emissions. The Task Force notes that federal law allows MPOs to be expanded to cover larger areas. The Rogue Valley MPO, for example, was expanded following the 2000 Census to include Ashland, Jacksonville, and Eagle Point. The 2010 Census provides an opportunity to reconsider boundaries of other MPO areas.

Commitment of available staff to other planning work. As noted above, MPOs and local governments have limited resources for long-range transportation and land use planning. Staff and funding that are best positioned to lead scenario planning are currently committed to other long-range planning work. For example, each MPO is scheduled to prepare an updated regional transportation plan over the next one to three years that extend their planning horizons to 2035. In addition, several cities are conducting planning studies that have led (Bend) or may lead (Springfield, Eugene, Medford, Coburg, Keizer) to urban growth boundary expansion proposals to address long range land needs. Except for Metro, none of these efforts currently plan to include scenario planning to reduce GHG emissions. Since 2035 is also the target year for GHG reductions, these planning efforts are key opportunities to begin to incorporate GHG reduction strategies into land use and transportation plans.

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VII. Recommendations and Legislative Concepts

HB 2186 charge: The task force shall recommend legislation to the interim Legislative Assembly committees related to transportation and to the environment establishing a process for adoption and implementation of plans for reducing GHG caused by motor vehicles with a gross vehicle weight rating of 10,000 pounds or less by 2035, in an amount sufficient to meet the goals stated in ORS 468A.205, in each area of this state served by a metropolitan planning organization, including a schedule and estimate of funding for the planning process. (Section 10(2)(d)).

MPO Process for Adoption and Implementation of Plans for Reducing GHG

1. State Strategy for Reducing Transportation GHG

The Legislature should direct OTC, in consultation with other agencies and stakeholders, to prepare and adopt a statewide strategy for achieving GHG emission reductions for the transportation sector to meet state GHG emission reduction goals. The strategy will establish planning assumptions about state and federal programs, policies, and incentives expected to be in place to reduce transportation related GHG emissions.

2. Scenario Planning Guidelines

The Legislature should direct DLCD and ODOT, in consultation with other agencies and stakeholders, to prepare guidelines for preparation and evaluation of alternative land use and transportation scenarios, including:

a. Describing common planning assumptions, including assumptions about state and federal programs, policies, and incentives expected to be in place to reduce transportation related GHG emissions, and any assumptions used in preparing the guidelines;
b. Describing the process for developing scenarios that provides for:
    i. consideration of the full range of land use and transportation actions within the control of local governments;
    ii. flexibility for metropolitan areas to meet goals in their own way to use tools and practices that fit local needs; and
    iii. coordination between state and local plans;
c. Encouraging innovation and local incentives and ideas, such as integrating with private sector planning; and
d. Providing appropriate examples of scenario planning.

3. GHG Reduction Toolkit

The Legislature should direct ODOT and DLCD, in cooperation with MPOs and others, to develop a GHG reduction toolkit that includes, among other things:

a. Potential actions and programs for reducing GHG emissions from the transportation sector that can be implemented at the local and regional level

through: promotion, incentives, standards, transport services, land use, prices, technology, and demand management. The tools also should include the following factors:

i. Impact on reducing GHG emissions - high/medium/low,
ii. Successful practices from around the country and in Oregon that are implementable by local governments in Oregon,
iii. Cost-effectiveness (bang-for-the-buck) - high/medium/low,
iv. Time required to implement - short/near/long-term, and
v. Ideas that need more investigation.

b. Best Management Practices – develop guidance on best practices for analyzing and deploying actions for reducing GHG from Light Vehicle usage.
c. Modeling
   i. Develop modeling assumptions to incorporate expected state and federal programs and policies to reduce transportation GHG.
   ii. Prepare and improve modeling and analysis tools that MPOs and local governments can use to assess GHG reduction benefits of a range of land use and transportation actions.
d. Supporting educational information to:
   i. Inform MPOs, local governments and the public about GHG reduction targets and strategies.
   ii. Train MPO staff and planners.

4. Scenario Planning Process

The Legislature should direct the MPOs, other than Portland Metro, in consultation with their constituent local governments to conduct scenario planning for GHG-reduction, to meet adopted targets considering local governments' unique needs, resources and capacity and using the state strategy, scenario planning guidelines, and GHG reduction toolkit.

The Legislature should direct the MPOs, other than Portland Metro, to carry out planning in the following phases:

a. Phase 1 – Current Biennium (Current RTP and Using Existing Resources)
   i. Begin engaging the public about the need to reduce transportation GHG emissions and the options, costs, and benefits of reducing GHG emissions.
   ii. Consider how the population and employment distributions assumed for the regional transportation plan could be altered, consistent with adopted comprehensive plans, to lower GHG emissions.
   iii. Evaluate proposed actions in their existing regional transportation plans and assess whether those actions would be likely to increase, decrease, or have no effect on GHG emissions.
   iv. Determine whether any immediate actions could be taken to reduce GHG emissions.

b. *Phase 2 – Next Biennium After LCDC Adopts Light Vehicle GHG Reduction Targets (Additional Resources Needed)*
   i. Review and amend their regional transportation plans to meet the relevant adopted GHG target.
   ii. Model the effects of proposed elements of the plan strategies on GHG emissions.
   iii. Consider additional possible actions from the GHG reduction toolkit in developing a plan that will meet the GHG reduction target.
   iv. Continue public involvement.

c. *Phase 3 (Additional Resources Needed)*
   i. Evaluate the performance of their plans and actions to reduce GHG emissions, and based on the evaluation, MPOs apply updated best management practices and identify changes needed to improve the success of actions to reduce GHG emissions.
   ii. Identify additions from GHG reduction toolkit needed to meet their GHG emission reduction target.
   iii. Continue public involvement.

The Legislature should authorize and direct MPOs to prepare and adopt, as an element of its federally-required regional transportation plan, a land use and transportation scenario plan that meets the targets for GHG emission reduction adopted by the LCDC considering local governments' unique needs, resources and capacity and using the state strategy, guidelines, and toolkit.

5. *Public Involvement*

a. The Legislature should direct state agencies to develop a statewide approach for public outreach and education on GHG emission reduction, climate change, and the relationship to land use and transportation planning, including:
   i. Soliciting public comment through appropriate means and forums relating to developing the state strategy, guidelines, and toolkit.
   ii. Providing information to the public and soliciting public comment through appropriate means and forums relating to modifying initial and final GHG-reducing plans.

b. The Legislature should direct the MPOs to provide information to the public and involve the public through appropriate means and forums relating to developing initial and final GHG-reducing plans, and any modifications to those plans.

6. *Schedule*

The Legislature should direct that scenario plans be prepared or revised each time a regional transportation plan is updated, to reflect changes in the state targets or strategy, new information about best practices or to better address local needs and circumstances.

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State:
Phase 1 – Current Biennium
- Preliminary editions of State Strategy for Reducing Transportation GHG, Scenario Planning Guidelines, GHG Reduction Toolkit
- Targets

Phase 2 – Next Biennium After LCDC adopts Light Vehicle GHG reduction targets
- Adopt State Strategy for Reducing Transportation GHG
- Update State Planning Guidelines and GHG Reduction Toolkit

Phase 3 –
- Update State Strategy for Reducing Transportation GHG, Planning Guidelines, and GHG Reduction Toolkit

MPOs:
Phase 1 – Current Biennium
Phase 2 –After LCDC adopts Light Vehicle GHG reduction targets
Phase 3 – subsequent updates to RTPs

7. Incentives, Reporting, and Compliance

a. The Legislature should direct the state agencies, local governments and MPOs to coordinate to:
   i. Develop incentives for adopting and implementing plans to reduce GHG emissions from Light Vehicles.
   ii. Provide reports to the legislature every two years on the MPO's progress on scenario planning and adoption and implementation of plans to reduce GHG emissions, whether new or additional incentives are needed, or whether the state should require a different framework or additional actions to carry out the goals stated in ORS 468A.205.

b. The Legislature should direct that, two years from the effective date of a statute adopting the recommendations of the Task Force, DLCD and ODOT should report to the legislature on:
   i. The State's progress on developing the state strategy, scenario planning guidelines and GHG reduction toolkit, and the MPOs' voluntary compliance on scenario planning and adoption and implementation of plans to reduce GHG emissions; and
   ii. Whether additional compliance measures are necessary or appropriate.

8. GHG Reduction Targets

The Legislature should direct LCDC, in consultation with OTC and with assistance from State agencies, to adopt rules for MPOs, other than Portland Metro, to identify each MPO's needed reduction by June 1, 2011, in GHG emissions caused by Light Vehicles, based upon:
   a. the goals stated in ORS 468A.205,
   b. and taking into consideration: the reductions in vehicle emissions that are likely to result by 2035 from:

i. the use of improved vehicle technologies and fuels, and
ii. other statewide programs, policies and actions that will be put in place to support reducing GHG emissions from the transportation sector.

Other Actions

1. Clarify Authority

The Legislature should clarify (a) State's authorities to require MPOs to adopt and implement plans to reduce GHG emissions, and (b) the MPOs authority to adopt and implement plans to reduce GHG emissions, including the relationship between the land use and transportation scenarios developed by an MPO and local government land use plans, regional and local government transportation plans, and other local government infrastructure plans. The Legislature should ensure that any inconsistency or conflict with federal law or regulations is addressed with the federal requirements controlling.

2. Seek Federal Funding

The Legislature should direct ODOT and DLCD to report to the Legislative Emergency Board no later than October 31, 2010, and seek approval to pursue any available federal funding and grants to support scenario planning work, including development of scenario plans setting targets, developing a state strategy, preparation of guidelines and a toolkit.

3. *Seek Funding for Public Transportation Operations*

The Legislature should consider ways to improve the level of funding for public transportation operations. Improved public transportation service will play a key role in strategies to reduce GHG emissions from transportation. Sustainable funding for transit operations will be fundamental to any significant effort to reduce GHG emissions from transportation.

4. Resolution for Congress to Provide Funding

The Legislature should adopt a resolution urging Congress to provide increased federal funds to support scenario planning work by the state, metropolitan areas and local governments and to increase federal funding to support transportation and land use actions that will be effective in reducing GHG emissions.

VIII. Appendices – [To Be Inserted]

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[i] *Oregon Strategy for Greenhouse Gas Reductions*, Governor's Advisory Group On Global Warming, December 2004, http://oregon.gov/ENERGY/GBLWRM/docs/GWReport-FInal.pdf, p. i. Emphasis added.

See also *Forests, Carbon And Climate Change: A Synthesis of Science Findings*, Oregon Forest Resources Institute, 2006, http://oregonforests.org/assets/uploads/For_Carbon_fullrpt.pdf

See also *Preparing Oregon's Fish, Wildlife, and Habitats for Future Climate Change: A Guide for State Adaptation Efforts*, Oregon Global Warming Commission Subcommittee on Fish, Wildlife, and Habitat Adaptation, 2008, http://www.oregon.gov/ENERGY/GBLWRM/docs/f-w_adaptation_guide.pdf

See also *Climate Ready Communities: A Strategy for Adapting to Impacts of Climate Change on the Oregon Coast*, Oregon Coastal Management Program, January 2009, http://www.oregon.gov/ENERGY/GBLWRM/docs/climate_ready_communities.pdf

[ii] House Bill 3543, 2007, http://www.oregon.gov/ENERGY/GBLWRM/HB3543.shtml

[iii] *468A.205 Policy; greenhouse gas emissions reduction goals.*

> (1) The Legislative Assembly declares that it is the policy of this state to reduce greenhouse gas emissions in Oregon pursuant to the following greenhouse gas emissions reduction goals:
>
> (a) By 2010, arrest the growth of Oregon's greenhouse gas emissions and begin to reduce greenhouse gas emissions.
>
> (b) By 2020, achieve greenhouse gas levels that are 10 percent below 1990 levels.
>
> (c) By 2050, achieve greenhouse gas levels that are at least 75 percent below 1990 levels.
>
> (2) The Legislative Assembly declares that it is the policy of this state for state and local governments, businesses, nonprofit organizations and individual residents to prepare for the effects of global warming and by doing so, prevent and reduce the social, economic and environmental effects of global warming.
>
> (3) This section does not create any additional regulatory authority for an agency of the executive department as defined in ORS 174.112. [2007 c.907 §2]

[iv] HB 2186, Section 10(4), requires approval of a majority of the members of the Task Force for the Task Force to take official action, and Section 10(8) authorizes the Task Force to adopt rules for the operation of the Task Force. At a meeting on October 29, 2009 with a majority of the members present the Task Force adopted rules for operation of the Task Force, which included the following section on decision-making consensus:

> "The Task Force will operate by consensus, which the Task Force defines as concurrence of all the members except one. Members should not block or withhold consensus unless they have serious reservations with the approach or solution that is proposed for consensus. Consent means that members can at least "accept," however reluctantly, the agreement that emerges. If a member disagrees with the approach or solution proposed, they will make an effort to offer an alternative satisfactory to all members. In the absence of consensus, official action by the Task Force requires approval of a majority of the members of the Task Force. A member not voting with the majority may request that a minority report(s) detailing the other view or views be added to the final document."

[v] *An Overview of Potential Economic Costs to Oregon of a Business-As-Usual Approach to Climate Change*, February 2009, http://climlead.uoregon.edu/sites/climlead.uoregon.edu/files/reports/economicreport_oregon.pdf , p. iv.

[vi] *Ibid.*, pp. 36–37.

[vii] *Ibid.*, p. 75.

[viii] *Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions*, Cambridge Systematics, Inc., 2009, http://www.movingcooler.info/, p. 1.

[ix] *Growing Cooler: The Evidence on Urban Development and Climate Change*, Reid Ewing, *et al.*, 2007, http://www.smartgrowthamerica.org/gcindex.html

[x] *2008 Oregon Population Report*, PSU Population Research Center, http://www.pdx.edu/prc/

Portland-Vancouver-Beaverton, OR-WA MSA consists of Clackamas, Columbia, Multnomah, Washington, and Yamhill Counties in Oregon; Clark and Skamania Counties in Washington. Eugene-Springfield MSA consists of Lane County. Medford MSA consists of Jackson County. Salem MSA consists of Marion and Polk Counties. Corvallis MSA consists of Benton County. Bend MSA consists of Deschutes County.

[xi] In general, Oregon's metropolitan planning organizations have authority over areas that are smaller than the corresponding metropolitan statistical areas.

[xii] *A Report by the Center for Clean Air Policy Transportation and Climate Change Program*, June 2009, http://www.ccap.org/docs/resources/677/CCAP%20Smart%20Growth%20-$%20per%20ton%20CO2%20_June%202009_%20FINAL.pdf

[xiii] *Portland's Green Dividend: A White Paper from CEOs for Cities*, Joe Cortright, July 2007, http://www.ceosforcities.org/files/PGD%20FINAL.pdf

[xiv] National Association of REALTORS® Smart Growth Program, http://www.realtor.org/government_affairs/smart_growth?opendocument

[xv] *Ibid.*, p. 75.

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