
**METROPOLITAN PLANNING ORGANIZATION GREENHOUSE
GAS TASK FORCE**

**LEGISLATIVE CONCEPTS REPORT
RESPONDING TO HOUSE BILL 2186 SECTION 10**

January 11, 2010

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I. Executive Summary

House Bill 2186ⁱ directs the Metropolitan Planning Organization (MPO) Greenhouse Gas Emissions Task Force to study scenario planning and provide recommendations for legislation directing metropolitan areas to conduct land use and transportation scenario planning to aid in meeting state goals to significantly reduce greenhouse gas (GHG) emissions. This report sets forth the Task Force's consensus findings and recommendations.

Overall, the Task Force finds that revising transportation and land use plans in metropolitan areas will be a necessary part of a broader statewide effort to meet state GHG reduction goals. Planning our metropolitan areas in ways that build in transportation options can reduce the need for travel and significantly reduce GHG emissions from automobiles. The Task Force acknowledges that revising plans will be a challenging, long-term effort, and concludes that it is also necessary, doable, and should start now. Done soon, and done well, it can help create safer, healthier, and more prosperous communities and expanded transportation choices for Oregonians, and can avoid the need for more dramatic measures later.

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. The Task Force identified several important attributes of scenario planning to reduce transportation GHG emissions:

- Provide flexibility to the local governments and MPOs particularly in the beginning to reflect differences in authorities, resources, geographic situations, and aspirations;
- Build on and coordinate with ongoing planning efforts;
- Build on the work already required by House Bill 2001ⁱⁱ;
- Be iterative and phased; and
- Be clearly tied to the availability of adequate funding for MPOs, local governments and state agencies, and recognize significant additional resources will be needed.

The state, through the Oregon Department of Transportation (ODOT) and the Department of Land Conservation and Development (DLCD) – and their respective commissions (the Oregon Transportation Commission (OTC) and the Land Conservation and Development Commission (LCDC)) - has a key role to play in providing an overall framework for metropolitan planning. The Task Force recommends that:

- ODOT lead development of, and OTC adopt, a state strategy for reducing GHG emissions from the transportation sector to provide a framework for metropolitan and local planning.
- LCDC take the lead in setting targets for GHG emission reductions for individual metropolitan areas.
- ODOT and DLCD provide technical assistance in the form of a detailed toolkit, improved modeling tools and recommended best land use and transportation practices for reducing GHG emissions.

The Task Force recommends expanding the existing metropolitan planning process to incorporate scenario planning in three phases:

- *Phase 1*: over the next two years, using existing resources, MPOs would explore ways to reduce GHG emissions as regional transportation plans are being updated.
- *Phase 2*: beginning in 2012 - once state targets are set, and adequate resources and state guidance are available – metropolitan areas would develop land use and transportation scenario plans to meet GHG reduction goals as part of their regional transportation plans.
- *Phase 3*: at regular intervals thereafter, the state strategy and metropolitan scenario plans would be updated and extended to reflect available information and progress in meeting GHG reduction goals.

The Task Force recognizes that additional resources and capabilities will be needed to conduct scenario planning and to fully engage the public in scenario planning:

- MPOs will need expanded resources for scenario planning, and their planning responsibilities need to be spelled out in state law.
- ODOT and DLCDC will need additional resources to develop the state strategy and targets and provide technical assistance to local governments.

While the Task Force has made significant progress, additional work is needed in advance of the 2011 Legislature to provide specific estimates of funding needs.

II. Introduction

Scientists have become increasingly alarmed at what they see as a real risk that the Earth's climate will change rapidly and drastically over the next several decades. These changes pose a real threat to populations that depend upon our existing predictable weather patterns, whether they are human, animal or plant. These changes pose threats to humans and to animal and plant populations that are adapted to existing climatic conditions. The climatic changes that are developing and are predicted to occur will drastically affect water availability, agricultural productivity, the abundance of natural resources, and the frequency and severity of flooding and other weather-related emergencies.

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."ⁱⁱⁱ

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

Oregon has prided itself on being ahead of the curve when it comes to addressing environmental issues. The Governor and the Legislature have developed policies to curtail practices and activities that contribute to the likelihood and severity of adverse climate change.

In 2007, the Legislative Assembly accepted the challenge of climate change by adopting House Bill 3543 (codified at ORS 468A.205), and declaring "it is the policy of this state to reduce GHG emissions in Oregon pursuant to the following GHG emissions reduction goals by:

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

In 2008, the Governors Transportation Vision Committee presented five transitional "pillars" of a future framework, including "Ensure Oregon's transportation system meets the state's goals for reducing GHG emissions."^{vi} Reducing GHG emissions from the transportation sector will require Oregonians to have choices in how they travel, the transportation systems that serve them and the towns and neighborhoods in which they live and work. As the state's population and economy grow, Oregon will be unable to meet its emission reduction targets if Oregonians have no choice but to continue driving as much as the average household does today. New planning initiatives are needed in the state's fast-growing metropolitan areas to enable communities to provide a mix of transportation choices — walking, biking and transit

as well as driving — and more mixed-use development in town centers, main streets and other appropriate places, so that more Oregonians have the opportunity to get to and from destinations with fewer miles of driving.

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.”^{vii}

In 2009, the Legislative Assembly took an additional step with the adoption of House Bill 2186 and the creation of the 16-person statewide MPO GHG Task Force to:

- take into account the amount of GHG caused by motor vehicles with a gross vehicle weight rating of 10,000 pounds or less (Light Vehicles)¹ that needs to be reduced by 2035 in order to meet the goals stated in ORS 468A.205^{viii} (*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, 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, listed below, met four times between October 15, and December 4, 2009 and reached consensus^{ix} on this report, including recommendations and legislative concepts. This report identifies the initial work of that task force.

¹ 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.”

Table 1. Task Force

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

The Problem

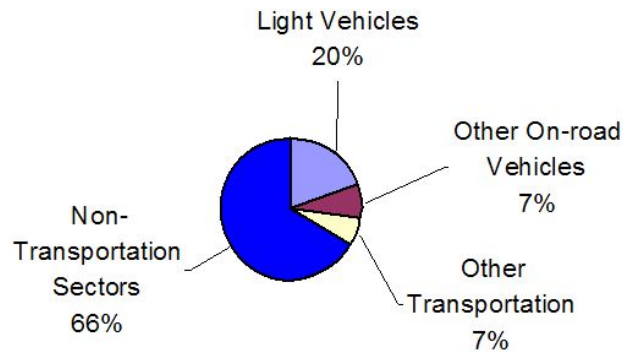
Transportation accounts for over a third of Oregon’s GHG emissions -- of the total GHG emissions produced by the transportation sector, Light Vehicles account for 60% of the GHG emissions from the transportation sector or 20% of Oregon’s total GHG emissions. Figure 1 illustrates the relative importance of Light Vehicle travel to Oregon’s total GHG emissions.

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 associated with 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}

In 2004, the Governor’s Advisory Group on Global Warming recommended two important components of Oregon’s coordinated strategy:^{xii}

- 1) Reduce GHG emissions from consumption of fossil fuels by displacing conventional combustion engines with hybrid, electric and other technological/fuel options, and
- 2) 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.

Figure 1. Light Vehicle Emissions as a percent of Oregon’s Total GHG Emissions



Similarly, the 2009 *Moving Cooler* report prepared by Cambridge Systematics for the Urban Land Institute identified four basic approaches for reducing GHG emissions from transportation:^{xiii}

- **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.^{xiv}

Benefits of Scenario Planning

Many ask how scenario planning relates to efforts to reduce GHG emissions from transportation. Planning for the future is challenging, especially when, as is often the case, reasonable forecasts vary widely. Scenario planning is a technique intended to help better inform the decisions to be made at present despite uncertainties about the future. Scenario planning provides a mechanism by which to put forth possible future scenarios for evaluation and study. Scenarios are visions of what our communities might look like in the future. They are not forecasts and they are not predictions. They are possible futures that are based on what already exists, on trends that are evident, and on the values and preferences of the community being studied. The essential requirement of any scenario is that it be plausible, within the realm of what exists and what is now known.

The benefit of scenario planning is that it helps address the possible circumstances of the future in advance to avoid an emergency situation. The art of scenario planning lies in blending a combination of known facts and future uncertainties to produce a range of possibilities. It has been used extensively by business and commercial organizations as well as the military. Scenario planning's application for land use and transportation planning is a more recent trend.

Scenario planning for GHG emissions reduction evaluates combinations of land use development alternatives and transportation system alternatives in order to identify a plan and actions to reduce GHG emissions. Often, these alternatives are compared to a "trend" or "business-as-usual" case to estimate the amounts of benefits that alternative courses of action would have. Scenario planning is a useful tool to plan for anticipated growth and develop strategies to optimize outcomes while comparing different choices and potential consequences. It is possible to explore how alternatives for accommodating growth could affect how people would travel, the amount of vehicle travel, and the amount of GHG emissions. The degree to which scenario planning would help reduce GHG emissions from Light Vehicle travel depends on comparisons with the base case, implementation of the alternative scenario that predicts reduced Light Vehicle emissions, monitoring the outcomes of implementation, and adapting the approach in future planning iterations.^{xv}

Coordinating our metropolitan land use and transportation planning to reduce GHG emissions has many benefits beyond helping to mitigate global climate change. These additional benefits (co-benefits) can be significant and also provide economic opportunities for Oregon businesses and communities. Individuals, families, and communities can expect to realize economic, environmental, and social benefits as well, such as:

- Reducing non-productive time spent traveling long distances for goods and services.
- Increasing household spending power by reducing the amount of household budgets spent on transportation.
- Supporting healthy lifestyles through active transportation such as walking and biking;
- Reducing the cost of public infrastructure; and
- Reducing dependence upon fossil fuels as a strategy to reduce GHG emissions has the correlating benefit of reducing our dependence upon foreign sources of oil, as most GHG emissions result from the combustion of fossil fuels.

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, short-term action is needed based on the best available technology and knowledge. Local governments can and should take many important and effective actions now that will make a significant difference. Many of these actions have other important benefits (co-benefits) that make these actions worthwhile. 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 not all Oregonians agree about the urgency of addressing climate change. Nevertheless, activities to reduce GHG emissions will have other important benefits for communities 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 already has concluded, with the 2007 legislative session's HB 3543, that it is state policy to reduce GHG emissions.

As the state, MPOs, and local governments undertake this daunting, yet crucial, effort to meet the climate challenge, they must actively engage all segments of the population, as well as key stakeholders in each community who are affected 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.

Every Oregonian is a stakeholder in this process, and will be impacted by today's land use and transportation decisions. With adequate tools and resources, Oregon's MPOs will be able to capitalize on their role in providing a regional forum for cooperative transportation decision making to take steps forward to reduce GHG emissions.

III. MPO Planning Today

MPOs are designated by federal law to have the lead responsibility for regional transportation planning for areas with a population greater than 50,000. There are approximately 400 MPOs across the country and six in Oregon. MPOs serve as a forum for cooperative transportation decision-making for the local jurisdictions within metropolitan areas, producing plans and programs that focus on the regional aspects of transportation planning. MPOs are responsible for distributing federal transportation dollars in metropolitan areas. MPOs work is guided primarily by federal laws including SAFETEA-LU, the National Environmental Policy Act (NEPA), and the Clean Air Act. The MPOs' five core functions include:

- Establishing a fair and impartial setting for regional decision making;
- Evaluating transportation alternatives;
- Maintaining a long-range transportation plan (regional transportation plan or RTP) covering a 20 year planning horizon;
- Developing a 4 year Transportation Improvement Program or Metropolitan Transportation Improvement Program (TIP or MTIP) and prioritizing projects; and
- Involving the public.

The federal government is the primary funding source for most Oregon MPOs. Each MPO also may receive some funding from other sources including the state, transit districts, and local governments.

The MPOs in general – Portland 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 or local governments in each area provide staff for and conduct transportation planning for the MPOs. Portland Metro, which is a local government, supports the Portland metro area MPO.²

Although the MPO work is not directly subject to Oregon laws, the Transportation Planning Rule (TPR) – adopted by 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 TPR requirements generally parallel and are consistent with the federal requirements. Several key features are worth noting:

² The Joint Policy Advisory Committee on Transportation (JPACT) is the designated policy making body for the Portland area MPO.

- 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 reducing reliance on the automobile. Originally, the rule required MPOs to plan for a 10% reduction in vehicle miles traveled (VMT) per capita – a requirement that approximates the kind of goal 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.

Oregon MPOs represent approximately 60% of Oregon’s households. Consequently, MPO planning will play an important role in achieving Oregon’s goals to reduce transportation sector GHG emissions. Each MPO already has programs in place that contribute to the reduction of GHG emissions, including:

- Coordinating land use and transportation planning efforts;
- Establishing measures to track transportation system performance relating to Vehicle Miles Traveled;
- Incorporating policies promoting higher density residential development and mixed use development into Regional Transportation Plans;
- Allocating funding to improve modeling and data collection to support more efficient and effective land use and transportation planning;
- Funding and promoting Transportation Demand Management programs, such as Park and Ride, van and carpooling, and Employer and Student Group Transit Pass programs;
- Promoting alternative transportation modes, such as transit, bus rapid transit, bicycle and pedestrian; and
- Pursuing funding to replace diesel buses with hybrid buses.

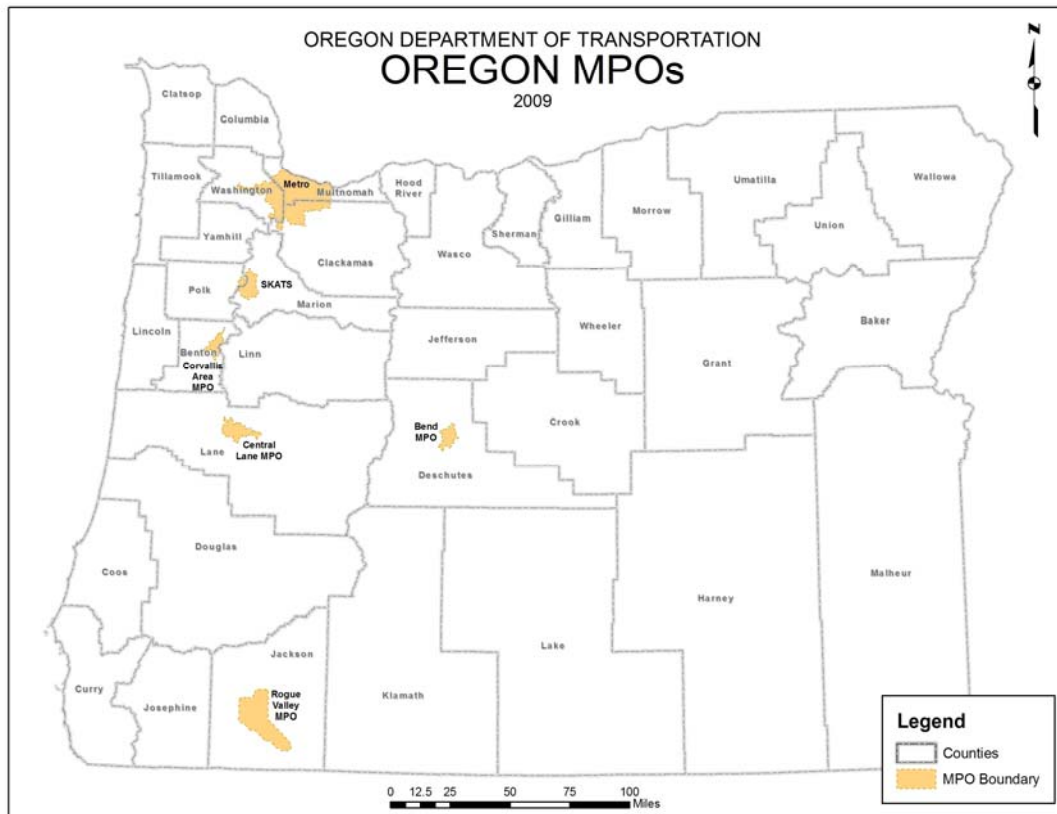
In addition, five of Oregon’s Six MPOs have received Bicycle Friendly Community Awards. Portland is a Platinum level community, Eugene and Corvallis are Gold, Bend is Silver, and SKATS received the Bronze Level Bicycle Friendly Community Award.

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 2 (below) 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 STP³ 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 DVMT⁴ (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

Figure 2. Map of Oregon MPOs



³ STP means federal Surface Transportation Program.

⁴ DVMT means daily vehicle miles traveled.

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)).

Scenario Planning

Nationally, scenario planning is becoming an accepted tool to help communities figure out ways to plan for GHG reduction.⁵ The expanded role of scenario planning reflects a growing recognition that land use and transportation patterns have a significant impact on GHG emissions, and that current land use and transportation plans will result in development and travel patterns that will increase rather than reduce GHG emissions.

Scenario planning is a valuable tool because it allows communities to consider a range of possible alternative choices about land use patterns and transportation options, and evaluate their effectiveness in reducing GHG. Through scenario planning local governments and citizens can construct and test different alternatives for accommodating expected growth. In many ways, scenario planning builds on the land use planning that Oregon communities have been engaged in for the last four decades. Scenario planning adds a couple of new elements by:

- Looking a bit further into the future (25 to 40 years).
- Considering a broader range of alternatives for accommodating expected growth.
- Considering a broader range of other policies and actions to reduce emissions from vehicle travel (e.g. increasing transit, demand management programs, land use densities and locations, and facilitating a transition to electric vehicles).

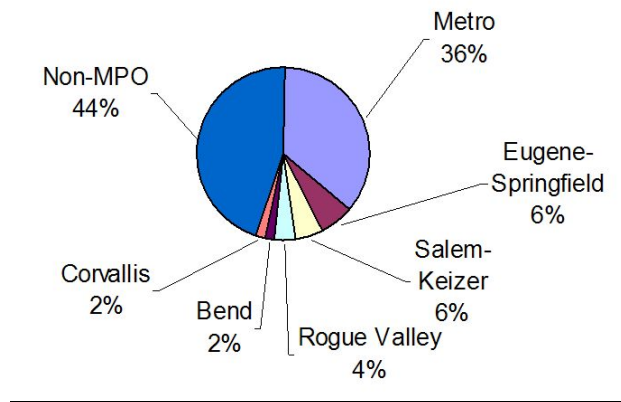
While scenario planning is a necessary action, it is important to keep in mind that it is only one of many actions that are needed to achieve the state's GHG reduction goals. State and national studies make it clear that significantly reducing GHG emissions will require a broad range of efforts: basically that we do a lot of everything. With this in mind, scenario planning is only one of the many actions that we will need to take. Nonetheless, scenario planning is a key action for several reasons:

- Vehicle travel in metropolitan areas is a major and fast-growing source of GHG emissions in Oregon. ODOT estimates that metropolitan area households are responsible for approximately 56% of the state's GHG emissions from Light Vehicles. (Figure 3)
- Our other major options for reducing GHG from Light Vehicles - mostly more fuel efficient cars and low carbon fuels – won't be enough by themselves to meet GHG

⁵ For example, in 2008, California adopted SB 375, directing each of its 18 metropolitan areas to conduct scenario planning for GHG reduction as they develop regional transportation plans. SB 375, directs each metropolitan area to prepare and adopt a "sustainable communities strategy" which sets forth a land use and transportation scenario adequate to meet state adopted targets for GHG emission reductions.

- reduction goals. The reason: a growing population – and the attendant increase in driving– will overwhelm the benefits that these improved technologies provide in reducing GHG emissions. Consequently, other actions will be necessary to reduce vehicle travel and facilitate travel in ways that produce fewer GHG emissions. Scenario planning is a valuable process for identifying the combination of actions that can be implemented at the metropolitan and local level to help meet these goals.
- We know that the way we plan our metropolitan areas affects people’s travel choices. We also know that good land use and transportation planning carefully done can help reduce VMT and GHG emissions. As a result of past efforts to plan for compact growth and build in transportation options, metropolitan Oregonians already drive less - and emit fewer GHG emissions - than residents of comparably sized metropolitan areas around the country.
 - Good planning can improve the effectiveness of other GHG reduction actions. For example, planning for compact, mixed-use development along planned transit routes increases the effectiveness of transit investments.

Figure 3: Percentage of Light Vehicle Emissions for Metropolitan and Non-Metropolitan Areas



Scenario planning will enable Oregon communities and Oregonians to make well-informed choices about how best to accomplish GHG reductions. Through scenario planning communities can consider costs and benefits of different actions and make choices that minimize the economic pain and maximize the economic opportunities and benefits from reducing GHG emissions. GHG emission reduction is an important goal, but can and should be achieved in a way that also helps communities achieve high levels of livability and economic opportunity and that minimizes economic hardship. Scenario planning is an important tool because it allows individual metropolitan areas and communities the opportunity to evaluate and choose from a broad range of possible actions the combination that best suits the needs and aspirations of a local community.

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.

As noted above, scenario planning is just one of many actions that will be needed to meet the state's GHG reduction goals. Other steps that will be needed to meet GHG reduction goals and to provide a framework for scenario planning include:

- Development of a statewide strategy for reducing GHG emissions from the transportation sector. This statewide strategy should clearly identify responsibilities and necessary coordination between local, state, and federal efforts.
- Development of a toolkit of actions that metropolitan areas and local governments can take – in addition to scenario planning - to reduce GHG emissions from the transportation sector.
- 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 scenario planning to reduce transportation GHG emissions will need to have:

- Provide flexibility to the local governments and MPOs particularly in the beginning to reflect differences in authorities, resources, geographic situations, and aspirations.
- Be coordinated with ongoing planning efforts.
- Build on the work already required by HB 2001. HB 2001 sets a detailed process and schedule for scenario planning for GHG emission reduction in the Portland Metropolitan area over the next two to three years.⁶ Work done in this process should help set a framework for setting targets and conducting scenario planning in other metropolitan areas.
- The process should 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 to coordinate with other land use and transportation activities and 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.
- Requirements for scenario planning should be clearly tied to adequate funding availability for MPOs, local governments and state agencies to conduct scenario planning. While scenario planning can build on existing planning processes it's clear that significant additional resources will be needed.

Scenario Planning Under HB 2001

The Task Force recommends that scenario planning build on work already scheduled for the Portland metropolitan area over the next two years. 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

⁶ Section 38a of HB 2001 also requires the Eugene Springfield metropolitan area to conduct scenario planning by 2013. While requiring scenario planning and modeling (provided receipt of sufficient funds) this section of HB 2001 does not include requirements for meeting state targets or state rulemaking.

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.

DCLD and 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

ODOT and DLCD will undertake several state level 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. These activities will be carried out collaboratively with the MPOs and in consultation with other agencies, stakeholders and the general public. Figure 4 illustrates the activities, the relationships between them, and connections to tasks established by HB 2001, and includes:

- ODOT, in consultation with other agencies and stakeholders, will prepare and OTC will 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 the MPOs scenario planning and the analysis of the effects of prospective actions for reducing GHG emissions from metropolitan area Light Vehicle travel. This will build on work by Metro and ODOT under HB 2001 to provide land use modeling technical assistance to other MPOs.
- ODOT and the DLCD 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.
- ODOT and DLCD 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 DLCD will prepare guidelines, methodologies and tools for preparing metropolitan area transportation sector GHG inventories.

- ODOT with the assistance of DLCD, DEQ and ODOE will compile data required for computing GHG emissions that are not readily available to MPOs and not ordinarily collected and used to prepare a RTP.
- As with HB 2001, DLCD and ODOT in consultation 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

The Task Force envisions that MPO planning for GHG emission reductions will be carried out in three phases as illustrated in Figure 5.

Phase 1

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 second phase of MPO planning to reduce transportation GHG emissions would start after LCDC adopts Light Vehicle GHG reduction targets, the Scenario Planning Guidelines and GHG Reduction Toolkit are ready to use, and a commitment for adequate funding and staffing has been made to the MPOs to do this work. Only RTPs adopted after December 31, 2011 would be required to meet the Light Vehicle GHG reduction targets. During this phase, each MPO as part of its RTP update would do the following⁷:

⁷ During the first and second phases, under HB 2001 Section 37, Portland 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.

- 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 and adopting a plan that will meet the GHG reduction target.
- Continue public involvement.
- Continue working with member local governments to implement land use and transportation actions to reduce GHG emissions

Phase 3 and Beyond

In the third 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 and adopt changes needed to improve the success of actions to reduce GHG emissions, or if needed consider additional scenarios.
- Conduct additional scenario planning if needed to meet the GHG emission reduction target.
- Identify additional actions from GHG reduction toolkit needed to meet the GHG emission reduction target.
- Continue public involvement.
- Continue working with member local governments to implement land use and transportation actions to reduce GHG emissions.

The Task Force recognizes that the steps necessary to implement a GHG reduction plan and the roles of MPOs and local governments in implementation will be determined once scenario planning is completed.

Figure 4. Phases of State Planning to Reduce GHG Emissions

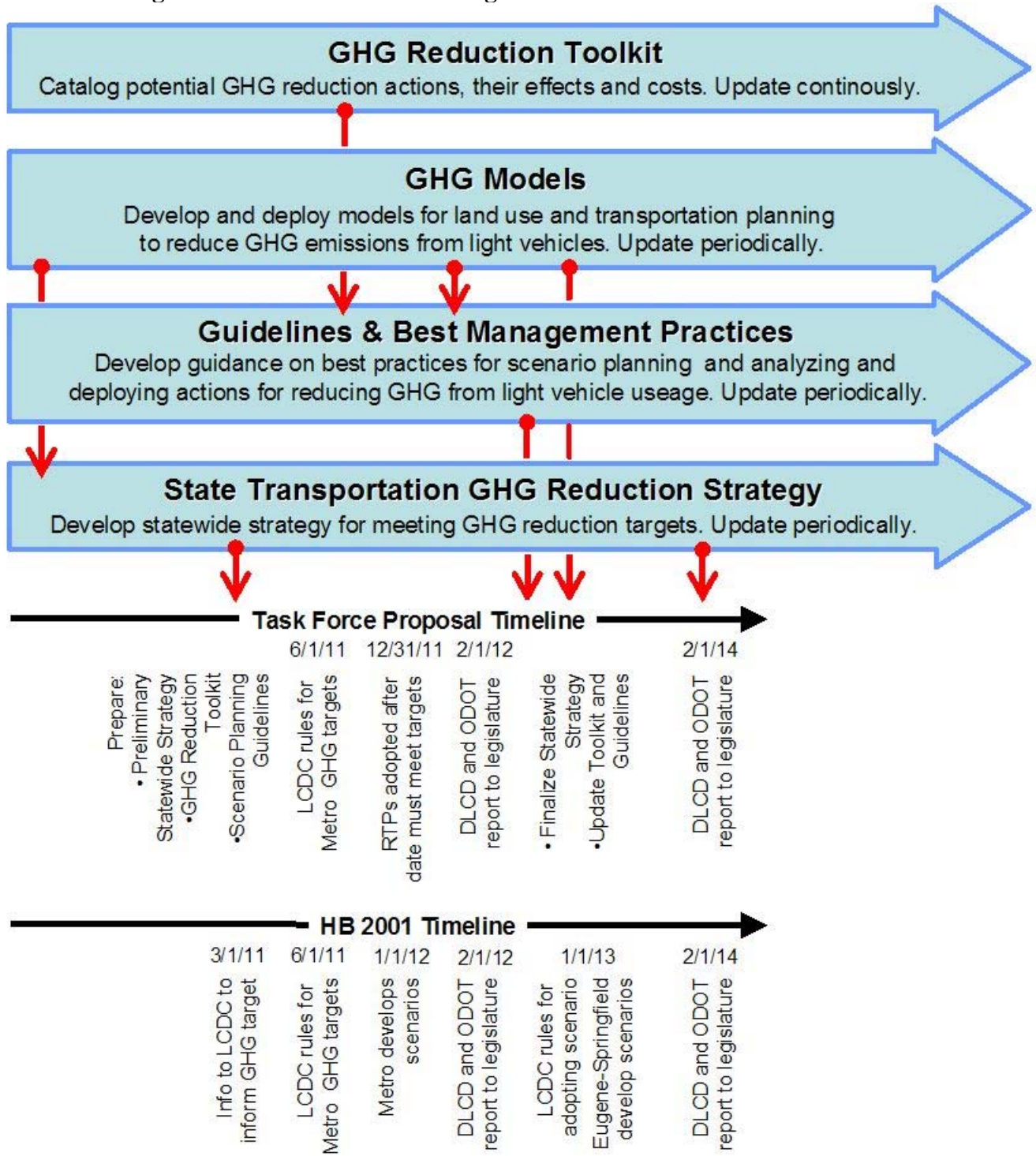
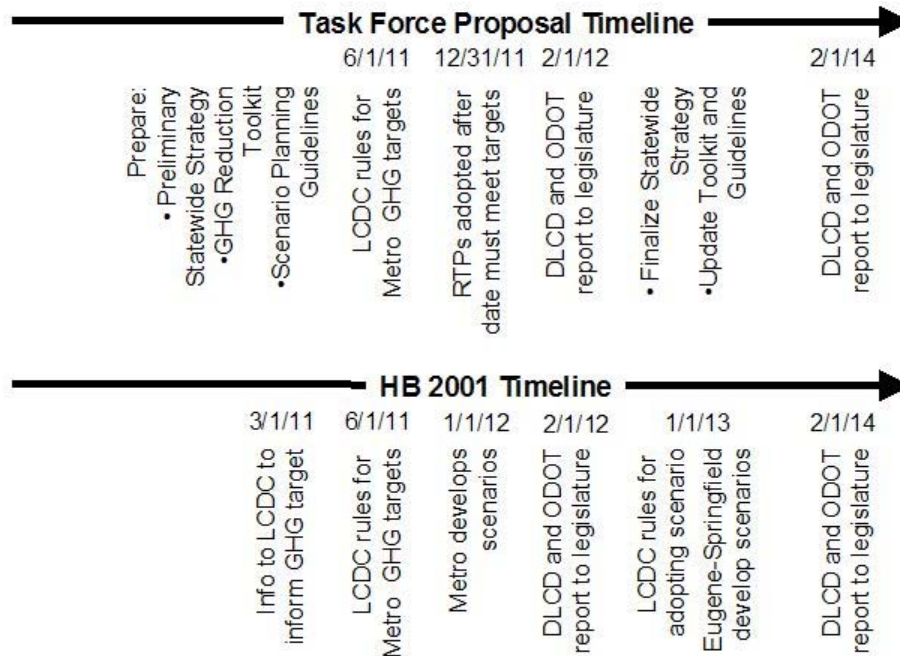
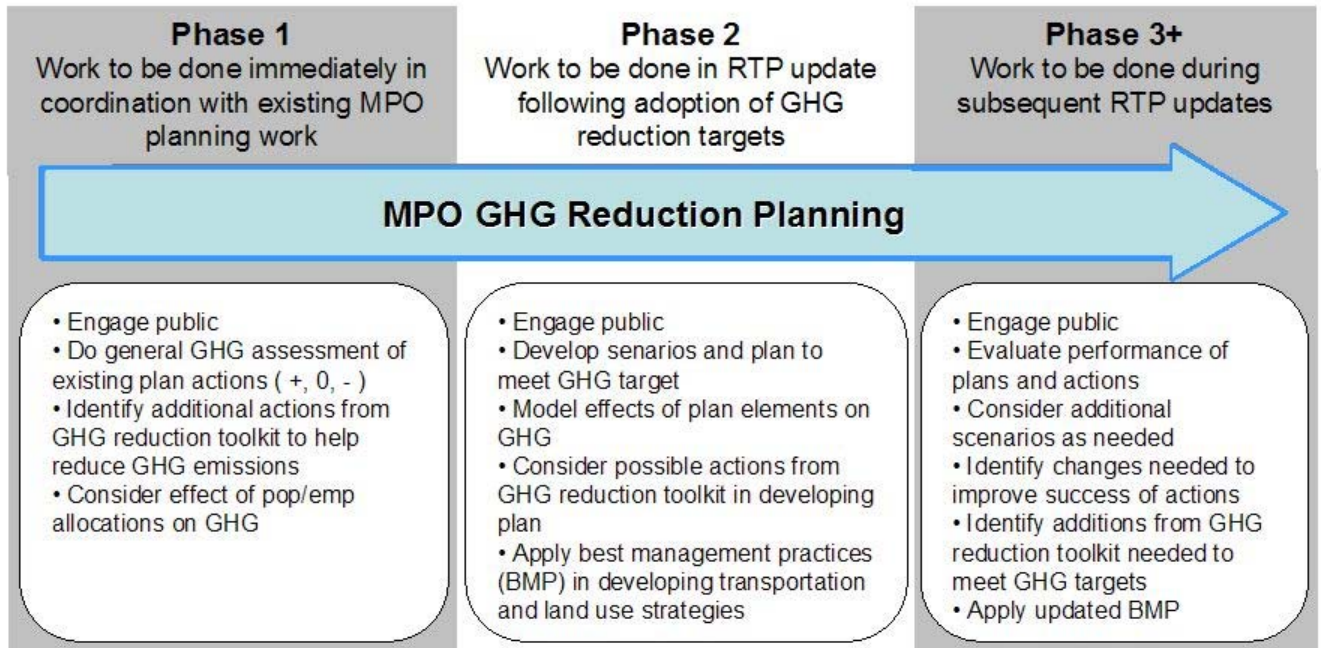


Figure 5: Phases of MPO Planning to Reduce GHG Emissions



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)).

Preliminary research over a dozen case studies presented to the Task Force showed overall project costs to conduct a scenario planning process ranged from a low of \$250,000 to more than \$3 million. The Central Lane MPO estimates that its Region 2050 Study, conducted between 1999 and 2006 cost the agency more than \$1,000,000, which does not include the costs incurred by each partner agency that participated. In addition to the MPO costs, impacts to ODOT and DLCD budgets are roughly estimated to be two to three million dollars annually, after the initial round of work. However, to adequately assess the costs requires additional study of three key components:

- Internal agency staff level and capabilities;
- Level of public involvement anticipated at the state and MPO level;
- Tool development costs, including modeling and modeling expertise.

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 at both the MPO and state level. However, consistent with HB 2001 Section 38a, ODOT and DLCD will need to provide additional resources to conduct a pilot demonstration of scenario planning for the Central Lane MPO.

Additional resources will be needed in the later phases of implementing the recommendations of the Task Force. A thorough assessment of fiscal and other resources needed to carry out the objectives of GHG reduction, including the tools, timing, expertise, data, and financial considerations for state agencies and the six MPOs, should be conducted –

- Resource needs assessment for DLCD, ODOT, DEQ, and other involved state agencies.
- Resource needs assessment for each MPO, including modeling, data, public involvement, staffing, training, and professional expertise.

Cities and counties also might need additional resources for their role in implementing GHG reduction plans.

The Task Force recognizes that the accomplishments of each MPO will vary based on their individual resources, staff capacity, and other ongoing planning responsibilities. In addition, assessing resource needs for MPOs will depend on the compatibility of the state requirements with both current and future federal transportation requirements. Planning activities that meet both federal and state rules may be funded with MPOs allocation of federal dollars. Planning activities that are not compatible should be considered unfunded and additional revenue sources will need to be identified.

As illustrated in Figure 4, 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. In addition, LCDC will set GHG reduction targets for the MPOs.

The state agencies, with assistance from the MPOs, will be primarily responsible for developing 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 now, 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. The state agencies will develop a package of fiscal and resources needs for the 2011 legislative session. This work will affect the agencies of ODOT, DLCD, DEQ, and ODOE on an ongoing basis.

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. Cities and counties also might need additional resources to implement GHG reduction plans. 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 the Governor designates MPOs, they are federally-mandated and federally-funded forums for cooperative transportation decision-making by state and local officials. Oregon's MPOs, with the exception of Metro, do not have the authority to conduct land use planning. Therefore, the MPOs focus on conducting and coordinating federally-required transportation planning. As in other states, Oregon MPOs have played a lead role in scenario planning providing for public engagement and review of alternatives in spite of the fact that most do not have land-use planning authority. However, the local jurisdictions – the cities within each MPO – are ultimately charged with adopting their own land use plans, and the MPOs have no authority to impose specific land use requirements.

Thus, there are two authority issues in Oregon regarding requiring the MPOs other than Portland Metro to use scenario planning to reduce transportation GHG emissions – (1) whether the state currently has authority under state law to direct the planning work of MPOs and (2) how to ensure that local governments act upon the findings of the scenario planning.

Oregon law, unlike laws in many other states, does not formally authorize MPOs or guide their work. Additional analysis of Oregon laws is needed to determine MPO status and whether changes to state statute are needed. Oregon law may need to be amended to formally recognize MPOs and define their planning responsibilities. Once MPO authority is established, the state could impose additional requirements to implement scenario planning to reduce GHG emissions. Because MPOs are also subject to federal law, it is likely that any state statutes addressing the role of MPOs would have to clarify that any inconsistency between state and federal requirements would be resolved by the federal requirements controlling. The Task Force notes that other states have adopted statutes successfully addressing this issue.

MPOs' authority over local jurisdictions is addressed partially and indirectly through MPOs existing authority to approve projects in the TIP/MTIP. In addition, the state should look at some of its planning requirements for local jurisdictions and by legislation or rulemaking require compliance with MPO determinations related to GHG reduction. Short of that, additional discussion and engagement with local jurisdictions will be needed to create a process to realize the recommendations developed through MPO GHG reduction planning processes within locally adopted land use plans.

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^{xvi}, 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. Modeling resource needs are not strictly financial, but are also affected by a lack of qualified, trained professionals. The schedule for scenario planning needs to allow

time to both develop the tools needed and to provide technical staff capable of conducting the needed analysis.

Public Engagement. Successful scenario planning will require extensive public outreach and engagement to develop public understanding and to provide meaningful opportunities for public input in crafting actions and programs to reduce GHG emissions. 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 (some trips originate inside MPO boundaries and continue outside, others originate outside MPO boundaries and continue within the boundary). 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.

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 incorporate GHG reduction strategies into land use and transportation plans.

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)).

Process for Adoption and Implementation of Plans for Reducing GHG in Metropolitan Areas

The Task Force recommends that the 2010 Legislature enact legislation directing state commissions and agencies, MPOs, and local governments in metropolitan areas to take the following actions to support and conduct land use and transportation scenario planning and related work to reduce greenhouse gas (GHG) emissions from motor vehicles with a gross vehicle weight rating of 10,000 pounds or less (Light Vehicle) travel.

1. State Strategy for Reducing Transportation GHG

Direct ODOT, in consultation with other agencies, MPOs, and stakeholders, to prepare and OTC, in consultation with LCDC, to 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. The strategy also will analyze and provide recommendations for reducing GHG emissions from commuting and travel that extends beyond metropolitan area boundaries.

2. Scenario Planning Guidelines

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

- a. Describing common planning assumptions and any assumptions used in preparing the guidelines, including state and federal programs, policies, and incentives expected to be in place to reduce transportation related GHG emissions;
- b. Describing the process for developing scenarios providing:
 - 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 and to use tools and practices that fit local needs;
 - iii. coordination between state and local plans; and
 - iv. encouragement of innovation and local incentives and ideas, such as integrating with private sector planning; and
- c. Providing appropriate examples of scenario planning.

3. *GHG Reduction Targets*

Direct LCDC, in consultation with OTC and with assistance from state agencies, to adopt administrative 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.

4. *GHG Reduction Toolkit*

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,
 - ii. Successful practices from around the country and in Oregon that are implementable by local governments in Oregon,
 - iii. Cost-effectiveness,
 - iv. Time required to implement, 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 for MPOs and local governments to inventory and account for GHG emissions from the transportation sector and 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.

5. *Scenario Planning Process*

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.

Direct scenario planning to be carried out 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. Work with member local governments to identify cost-effective, short-term actions to reduce GHG emissions that can be implemented by the end of 2010 using available resources.

- b. *Phase 2 – Beginning Next Biennium, After LCDC Adopts Light Vehicle GHG Reduction Targets (Additional Resources Needed)*
 - i. Review and amend their RTP to meet the relevant adopted GHG reduction 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.
 - v. Continue working with member local governments to implement land use and transportation actions to reduce GHG emissions.

- c. *Phase 3 – Subsequent Updates to RTPs (Additional Resources Needed)*
 - i. Evaluate the performance of their plans and actions to reduce GHG emissions, and based on the evaluation identify and apply updated best management practices and identify changes needed to improve the success of actions to reduce GHG emissions.
 - ii. Incorporate additional actions from the GHG reduction toolkit needed to meet their GHG emission reduction target.
 - iii. Continue public involvement.
 - iv. Continue working with member local governments to implement land use and transportation actions to reduce GHG emissions.

6. *Public Involvement*

- a. Direct state agencies, in consultation with the Oregon University system, 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. 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.

7. Schedule

Direct planning to reduce GHG emissions from the transportation sector to be carried out according to the following schedule:

Phase 1 – Current Biennium

- *State*
 - Preliminary editions of State Strategy for Reducing Transportation GHG, Scenario Planning Guidelines, GHG Reduction Toolkit
 - Targets
 - Public engagement
- *MPOs*
 - Evaluate RTPs
 - Work with member local governments to reduce GHG emissions from Light Vehicles
 - Public engagement

Phase 2 – Beginning Next Biennium, After LCDC Adopts Light Vehicle GHG Reduction Targets

- *State*
 - Adopt State Strategy for Reducing Transportation GHG
 - Update State Planning Guidelines and GHG Reduction Toolkit
 - Public engagement
- *MPOs -- RTPs adopted after December 31, 2011, and contingent upon adequate funding and staffing being provided to MPOs to conduct scenario planning and upon the availability of scenario planning guidelines, toolkit and modeling or analysis tools to conduct scenario planning:*
 - Scenario planning
 - Modeling
 - Public engagement
 - Work with local governments on implementation to reduce GHG

Phase 3 – Subsequent Updates to RTPs

- *State*
 - Update State Strategy for Reducing Transportation GHG, Planning Guidelines, and GHG Reduction Toolkit
 - Public engagement
- *MPOs, each time a regional transportation plan is updated*
 - Evaluate performance, apply best management practices, identify changes to reflect changes in the state targets or strategy, new

information about best practices or to better address local needs and circumstances

- Additional scenario planning and identify additional actions from the toolkit, as needed to meet GHG emission reduction target
- Public engagement
- Work with local governments on implementation to reduce GHG

8. *Incentives, Reporting, and Compliance*

- a. Direct the state agencies, local governments, and MPOs to coordinate to develop incentives for adopting and implementing plans to reduce GHG emissions from Light Vehicles.
- b. Direct DLCD and ODOT to report, two years from the effective date of a statute adopting the Task Force recommendations, to the legislature on:
 - i. The state's progress on developing the state strategy, scenario planning guidelines and GHG reduction toolkit.
 - ii. The MPOs' progress on scenario planning and adoption and implementation of plans to reduce GHG emissions.
 - iii. Whether new or additional incentives are necessary or appropriate.
 - iv. Whether compliance measures are necessary or appropriate to implement the scenario planning requirements or meet the targets for reducing GHG emissions from Light Vehicles.
 - v. Whether the state should require additional actions or a different framework to carry out the goals of ORS 468A. 205.

Other Actions

The Task Force also recommends that the 2010 Legislature undertake the following additional actions.

1. *Direct ODOT and DLCD to fund a pilot demonstration project by the Central Lane MPO*

Direct ODOT and DLCD to provide funding from existing funds to support the Central Lane MPO in conducting a pilot demonstration of scenario planning in consultation with ODOT, DLCD and other metropolitan planning organizations.⁸

2. *Direct Further Work by the Task Force*

Direct the Task Force to continue its work, in advance of the 2011 Legislative Session, as follows:

- a. Provide a detailed estimate of funding needed by MPOs and state agencies to complete planning to reduce GHG emissions from the transportation sector as recommended by the Task Force.

⁸ The Task Force estimates that a pilot demonstration project for scenario planning would require approximately \$500,000.

- b. Consult with the Department of Justice to review the role and authorities of the state, metropolitan planning organizations, and other entities (including Area Commissions on Transportation and the Oregon Metropolitan Planning Organization Consortium) to:
 - i. conduct scenario planning for GHG emission reduction as called for in the Task Force recommendations; and
 - ii. adopt and implement plans to reduce GHG emissions once scenario planning is completed.
- c. Recommend proposed legislation, as necessary or appropriate, to clarify (i) the state's authority to require MPOs to adopt and implement plans to reduce GHG emissions, and (ii) the MPO's 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 proposed legislation should ensure that any inconsistency or conflict with federal law or regulations is addressed with the federal requirements controlling.

d. Seek Federal Funding

The Legislature should direct ODOT and DLCDC 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.

e. 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.

f. Seek Funding for Bike Lane, Sidewalk, and Trail Construction

The Legislature should consider ways to improve the level of funding for bike lane, sidewalk, and trail construction. Improved bicycle and pedestrian facilities will play a key role in strategies to reduce GHG emissions from transportation. Sustainable funding for bicycle and trail projects will be fundamental to any significant effort to reduce GHG emissions from transportation.

g. 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.

Appendices

A – Glossary

B – House Bill 12186 (Enrolled) Section 10

C – Background Information

D – Task Force Participants and Meetings

Appendix A: Glossary

Definitions of Terms and Acronyms

Adaptation: Specifically in the case of climate change, adaptation includes actions that would be implemented to respond to the effects of climate change such as raising the grade of coastal roads, increasing the capacity of drainage structures, changing the design of pavement structures to withstand higher temperatures.

Adoption: Formal approval or enactment based on established procedures or laws.

Climate Change Integration Group (CCIG): A committee established by Oregon's Governor Kulongoski in May of 2006 to continue and expand on the work of his 2004 Advisory Group on Global Warming. The Governor's charge to the Climate Change Integration Group was: "to develop a climate change strategy for Oregon that provides long-term sustainability for the environment, protect public health, consider social equity, create economic opportunity and expand public awareness."

Compact growth: Community development characterized by patterns with a mix of land uses and a supporting transportation system that makes a range of transportation options convenient, including walking, cycling, transit, and shorter driving trips. The use and character of compact growth varies depending on community size and circumstances. Compact growth is also referred to as compact development or smart growth.

Daily Vehicle Miles Traveled (DVMT): A unit to quantify travel for private vehicles, such as automobiles, motorcycles, pickup trucks, SUVs, or vans, on an average day for a given area. This is usually reported for a specific geographic area, such as a metropolitan region or a city or county. Each mile traveled of the total for the average day is counted as one vehicle mile regardless of the number of persons in the vehicle.

Greenhouse Gas (GHG): Any gas that contributes to anthropogenic global warming including, but not limited to, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride (ORS 468A.210).

Implementation: The fulfillment, performance, or carrying out of an accepted or adopted plan.

Light Vehicles: Motor vehicles with a gross vehicle weight rating of 10,000 pounds or less (House Bill 2186, Section 10), which includes automobiles, motorcycles, pickup trucks, SUVs, and vans, and excludes large commercial trucks.

Metropolitan Planning Organization (MPO): A planning body in an urbanized area with a population of over 50,000 which has responsibility for developing transportation plans for that area. Designated in the 1991 ISTEA, MPOs existed in 1999 in the Eugene/Springfield, Medford, Portland, and Salem areas. Rainier is part of a fifth MPO, Longview-Kelso-Rainier, which is not considered to be an MPO for the purposes of this plan. Subsequent to the 2000 census, MPOs have been formed in Corvallis and Bend.

Metropolitan Statistical Area (MSA): A term generally used for an aggregate geographic area having an urban core of at least 50,000 residents inclusive of not only a well known city population, but also its inner city, suburban, exurban and sometimes rural surrounding populations, all of which are influenced by employment, transportation, and commerce of the more largely well known urban city.

Metropolitan Transportation Improvement Program (MTIP): An MPO's Transportation Investment Program, which identifies project scopes, budgets and timing for delivery within the MPO.

Mitigation: Specifically in the case of climate change, mitigation encompasses activities devised to reduce the emission of GHGs and thereby limit associated climate change.

Modes: Various means of moving people and/or goods such as walking, bicycles, automobiles, public transit, trucks, rail, etc.

Plan: A scheme or method of acting, doing, proceeding, making, etc., developed in advance.

Regional Transportation Plan (RTP): The federally-required multimodal transportation plan that is developed and adopted by a MPO for a metropolitan planning area. RTPs must be fiscally constrained and demonstrate conformity with federal air quality requirements. Under the TPR, cities and counties in metropolitan areas are required to adopt a Regional Transportation System Plan (RTSP). The TPR directs that local governments, insofar as possible, use the same process to develop the federal and state plans. There are additional requirements involving air quality conformity.

Smart growth: Smart growth, as described by the American Planning Association, means using comprehensive planning to guide, design, develop, revitalize, and build communities for all that:

- have a unique sense of community and place;
- preserve and enhance valuable natural and cultural resources;
- equitably distribute the costs and benefits of development;
- expand the range of transportation, employment and housing choices in a fiscally responsible manner;
- value long-range, regional considerations of sustainability over short term incremental geographically isolated actions; and
- promote public health and healthy communities.

See also compact growth.

Transportation Demand Management (TDM): Actions or programs that encourage people to travel at alternative times or with fewer vehicles, e.g., rideshare/carpool programs, transit fare discount programs, and flextime.

Transportation Improvement Program (TIP): A program of intermodal transportation projects, to be implemented over several years, growing out of the planning process and designed to improve transportation in a community. This program is required as a condition of a locality receiving federal transit and highway grants.

Transportation Planning Rule (TPR): OAR 660-012, adopted by the Land Conservation and Development Commission (LCDC) implements Statewide Planning Goal 12 (Transportation) and other statewide goal requirements related to transportation. The TPR directs local governments to prepare and adopt transportation system plans to accommodate planned development and promotes the development of safe, convenient and economic transportation systems that are designed to reduce reliance on the automobile. DLCD administers the TPR in cooperation with ODOT. Some local jurisdictions are exempt from the Transportation Planning Rule due to small populations, as specified in the TPR.

Transportation System Plan (TSP): The overall plan for all transportation modes for a given area (usually city, county or MPO). TSPs make land use decisions about need, mode, function and general location of planned transportation facilities and improvements. The TPR requires that most cities and counties prepare and adopt a TSP. (Transportation Planning Rule: OAR 660-012)

Vehicle Miles Traveled (VMT): A unit to measure travel for private vehicles, such as automobiles, vans, pickup trucks, or motorcycles. Each mile traveled is counted as one vehicle mile regardless of the number of persons in the vehicle.

Appendix B: House Bill 2186 (Enrolled) Section 10

<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/HB2186.pdf>

Appendix C: Background Information

- *Alternative Land Use and Transportation Planning Analysis – A Review of Six Case Studies in Oregon*, Fregonese Associates, December 8, 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/ORScenario.pdf>
- *State of the Practice Alternative Land Use and Transportation Scenario Development – A Review of Eight Metropolitan Planning Organization Case Studies*, Cambridge Systematics, Inc., October 30, 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/USScenarios.pdf>
- *Background Report: The Status of Greenhouse Gas Emissions and Analysis*, Oregon Department of Transportation – Transportation Analysis Unit, October 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Background.pdf>
- Existing State requirements for MPO transportation and land use planning, http://arcweb.sos.state.or.us/rules/OARS_600/OAR_660/660_012.html
- Existing Federal requirements for metropolitan transportation planning,
- <http://www.fhwa.dot.gov/planning/metro/index.htm>
- *Transportation Vision Committee Report to Governor Ted Kulongoski*, November 2008, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Vision.pdf>
- Status of Bend MPO Regional Transportation Plan, http://www.ci.bend.or.us/depts/bend_mpo/metropolitan_transportation_plan.html
- Status of Central Lane MPO Regional Transportation Plan, http://docs.lcog.org/mpo/PDF/rtp/2031/2031RTP_Chapters1-4_Nov-07Adoption_Corrected.pdf
- Status of Corvallis Area MPO Regional Transportation Plan, <http://www.corvallisareampo.org/TransportationPlan.html>
- Status of Portland area MPO (Metro) Regional Transportation Plan, <http://www.oregonmetro.gov/index.cfm/go/by.web/id=137>
- Status of Rogue Valley MPO Regional Transportation Plan, <http://www.rvmpo.org/page.asp?NAVID=95>
- Status of Salem-Keizer area MPO (SKATS) Regional Transportation Plan, <http://www.mwvcog.org/transportation/skats/rtsp.asp>
- Relationship of House Bill 2186 and House Bill 2001 Land Use and Transportation Scenario Planning Processes, http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/HB2186_2001Schedules.pdf
- *MPO Greenhouse Gas Emissions Task Force - Process Report*, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/GHGTFProcess.pdf>
- *MPO GHG Task Force – Legislative Concepts Report Responding to House Bill 2186 Section 10*, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/LegConcepts.pdf>
- *Driving and the Built Environment – The effects of Compact Development on Motorized Travel. Energy Use, and CO₂ Emissions*, Transportation Research Board of the National Research Council, Special Report 298, <http://onlinepubs.trb.org/Onlinepubs/sr/sr298prepub.pdf>

- *Integration of Climate Change Considerations in Statewide and Regional Transportation Planning*, U.S. Department of Transportation, July 2009, http://climate.dot.gov/state-local/integration/pdf/transportation_planning.pdf
- Department of Land Conservation and Development – Transportation Growth Management Program Carbon Footprint Page, <http://www.oregon.gov/LCD/TGM/carbonfootprint/index.shtml>

Appendix D: Task Force Participants and Meetings

<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/HB2186TaskForceMemberList.pdf>

- Meeting Schedule
 - Meeting 1, Thursday, Oct. 15, 2009, 1:30 to 5:30 pm, Capitol H350
 - Meeting 2, Thursday, Oct. 29, 2009, 8:30 am to 12:30 pm, Capitol H350
 - Meeting 3, Thursday, Nov. 12, 2009, 8:30 am to 12:30 pm, Capitol HR343
 - Meeting 4, Friday, Dec. 4, 2009, 8:30 am to 12:30 pm, Capitol HR343

- Meeting Agendas
 - Meeting Number 1 Agenda,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Agenda15Oct09.pdf>
 - Meeting Number 2 Agenda,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Agenda29Oct09.pdf>
 - Meeting Number 3 Agenda,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Agenda12Nov09.pdf>
 - Meeting Number 4 Agenda,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Agenda4.pdf>

- Meeting Summaries
 - Meeting Number 1 Summary,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Mtg1Summary.pdf>
 - Meeting Number 2 Summary
 - Meeting Number 3 Summary
 - Meeting Number 4 Summary

- Meeting Presentations – Meeting Number 1
 - *State of the Practice Alternative Land Use and Transportation Scenario Development – A National Case Study Review*, presented by John Henneman – Cambridge Systematics, Inc., October 15, 2009,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/LandUseMtg1.pdf>
 - *Analyzing Greenhouse Gas Emissions from the Transportation Sector*, presented by Brian Gregor – ODOT Transportation Analysis Unit, October 15, 2009,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/ReportMtg1.pdf>
 - *Scenarios Report*, presented by John Fregonese – Fregonese Associates, October 15, 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/ScenariosRptMtg1.pdf>

- Meeting Presentations – Meeting Number 2
 - *Mindmap of Factors and Actions that Affect Greenhouse Gas Emissions*, presented by Brian Gregor – ODOT Transportation Analysis Unit, October 29, 2009,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/freemindbrowser.html>
 - *House Bill 2001 Scenario Planning – Metro Approach Linking Transportation, Land Use, the Economy and Climate Change*, presented by Mike Hoglund – Metro Research, October 29, 2009,
<http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/HB2001Metro.pdf>
 - *Portland’s Green Dividend – A White Paper from CEOs for Cities* by Joe Cortright, July, 2007, presented by Mike Hoglund – Metro Research, October 29, 2009,

- <http://www.ceosforcities.org/files/PGD%20FINAL.pdf>
- *Building Shared Understanding: Metropolitan Planning Organizations (MPOs) in Oregon*, presented by Richard Schmid for Oregon MPO Consortium, October 29, 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/MPOGreenhouseGas.pdf>
- *Greenhouse Gas Emissions, Modeling, & Reduction Opportunities*, presented by Brian Gregor – ODOT Transportation Analysis Unit, October 29, 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/GreenhouseGasEmissions.pdf>
- *Supplementary Information for HB 2186 MPO GHG Emissions Task Force Meeting Number 2 Briefing on GHG Emissions in the Oregon Transportation Sector*, Brian Gregor, ODOT Transportation Analysis Unit, November 10, 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Info.pdf>
- *GreenSTEP Presentation – General*, Brian Gregor, ODOT Transportation Analysis Unit, February 9, 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/General.pdf>
- *GreenSTEP Presentation – Detailed*, Brian Gregor, ODOT Transportation Analysis Unit, February 3, 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/Detailed.pdf>
- *Cost Effective GHG Reductions through Smart Growth & Improved Transportation Choices – An economic case for investment of cap-and-trade revenues*, Center for Clean Air Policy, June 2009, http://www.ccap.org/docs/resources/677/CCAP%20Smart%20Growth%20-%20per%20ton%20CO2%20June%202009_%20FINAL.pdf
- *Socially Optimal Transportation Emission Reduction Strategies*, Todd Litman, August 20, 2009, <http://www.planetizen.com/node/40252>
- *Win-Win Emission Reduction Strategies – Smart Transportation Strategies Can Achieve Emission Reduction Targets and Provide Other Important Economic, Social and Environmental Benefits*, Todd Litman, Victoria Transport Policy Institute, September 4, 2009, <http://www.vtppi.org/wwclimate.pdf>
- *Recommendations of the Regional Targets Advisory Committee (RTAC) Pursuant to Senate Bill 375 – A Report to the California Air Resources Board*, California Regional Targets Advisory Committee, September 29, 2009, <http://www.arb.ca.gov/cc/sb375/rtac/report/092909/finalreport.pdf>
- *Executive Summary of Moving Cooler – An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions*, Cambridge Systematics for Urban Land Institute, July 2009, http://www.rockfound.org/initiatives/transportation/moving_cooler_summary.pdf

ENDNOTES

ⁱ House Bill 2186, 2009, <http://www.leg.state.or.us/09reg/measpdf/hb2100.dir/hb2186.en.pdf>

ⁱⁱ House Bill 2001, 2009, <http://www.oregon.gov/ODOT/JTA.shtml>

ⁱⁱⁱ *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; *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; *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

^{iv} *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.

^v House Bill 3543, 2007, <http://www.oregon.gov/ENERGY/GBLWRM/HB3543.shtml>

^{vi} Transportation Vision Committee Report to Governor Ted Kulongoski, November 2008, http://governor.oregon.gov/Gov/pdf/tvreport_final.pdf, p. 1.

^{vii} House Bill 3543, 2007, <http://www.oregon.gov/ENERGY/GBLWRM/HB3543.shtml>

^{viii} ORS 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]

^{ix} 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.”

^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} *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. 75.

^{xiii} *Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions*, Cambridge Systematics, Inc., 2009, <http://www.movingcooler.info/>, p. 1.

^{xiv} *Growing Cooler: The Evidence on Urban Development and Climate Change*, Reid Ewing, *et al.*, 2007, <http://www.smartgrowthamerica.org/gcindex.html>

^{xv} *Alternative Land Use and Transportation Scenario Planning Analysis*, Fregonese Associates, December 2009, <http://www.oregon.gov/ODOT/TD/TP/docs/HB2186page/ORScenario.pdf>

^{xvi} *Growing Cooler: The Evidence on Urban Development and Climate Change*, Reid Ewing, *et al.*, 2007, <http://www.smartgrowthamerica.org/gcindex.html>