

**Transportation Technical Work Group**  
**Summary List of Recommended High Priority Mitigation Options**

*Additional draft material for options not ready for CAT review can be viewed at the CAT website ([http://www.ecy.wa.gov/climatechange/cat\\_twg\\_trans.htm](http://www.ecy.wa.gov/climatechange/cat_twg_trans.htm)) under the most recent TWG meeting.*

#	Mitigation Option Name	Straw Proposal Development Status
T-1	Transit, Ridesharing, and Commuter Choice Programs (originally 5.2, 5.3, and 5.6)	In progress
T-2	State, Regional, and Local VMT and GHG Reduction Goals and Standards (originally 4.4 and 5.10)	Developed by TWG; Ready for CAT Review
T-3	Transportation Pricing (originally 5.7, 5.9, and 5.12)	In progress
T-4	Promote Compact and Transit-Oriented Development (originally 4.1)	Developed by TWG; Ready for CAT Review
T-5	Quantification of GHG Impacts of Transportation Plans, Programs, and Projects (originally 5.11)	Developed by TWG; Ready for CAT Review
T-6	Improvements to Freight Railroads and Intercity Passenger Railroads (originally 6.1 and 6.2)	Developed by TWG; Ready for CAT Review
T-7	Diesel Engine Emission Reductions and Fuel Efficiency Improvements (originally 1.3 and 1.4)	Developed by TWG; Ready for CAT Review
T-8	Local Transportation Financing Tools and Bicycle and Pedestrian Infrastructure Improvements (originally 5.4 and 5.5)	Developed by TWG; Ready for CAT Review
T-9	Transportation System Management (originally 5.1)	In progress
T-10	Incentives to Promote Low-GHG Vehicle Technologies (originally 1.5)	In progress
T-11	Low Carbon Fuel Standard (originally 3.1)	Developed by TWG; Ready for CAT Review
T-12	Zero Emission Vehicle Standards	Developed by TWG; Ready for CAT Review

**Mitigation Option T-1:  
Transit, Ridesharing, and Commuter Choice Programs**

*Based on Transportation Catalog Option 5.2, 5.3, and 5.6*

**Mitigation Option Description**

The goal of this set of activities is to have the state provide the leadership and resources necessary to help create a transit and ridesharing system that connects activity centers on both an intra- and an inter-regional basis. Success at meeting the overall emissions reductions goals for 2020, 2035, and 2050 will require that substantial reductions be made in emissions from personal transportation. This will require that the state develop a reliable funding system that allows for near-term success and long-term major investments with the flexibility to invest in any type of solution. The set of activities and investments represented here attempts to reflect the diversity of needs across the state: what works in dense urban areas will be different than what is effective in low-density suburban or rural areas. The transit capital, operating support, ridesharing and trip reduction strategies assembled allow for local needs to drive the process.

## **Mitigation Option T-2: State, Regional, and Local VMT and GHG Reduction Goals and Standards**

*Based on Transportation Catalog Option 4.4 and 5.10*

### **Mitigation Option Description**

While new technologies and cleaner fuels are vital to reducing GHG emissions, as long as annual vehicle miles traveled (VMT) continues to grow, we'll never be able to meet the state's 2020, 2035, and 2050 goals. Reduction of vehicles miles traveled –through a partnership between the state, regional, and local level– is critical. Regional entities' and local governments' ability to achieve VMT reductions also depends a great deal upon other complementary policy tools considered in the CAT process.

In 2007 lawmakers passed legislation that committed the state to develop a plan to gradually reduce per capita VMT. Vehicle miles traveled is commonly used a primary predictor in GHG output. This option builds on that initial state action and would consist of the state establishing a schedule of targets for reducing statewide VMT and working alongside local governments or regional planning organizations to achieve those targets.

### **Mitigation Option Design**

#### **Goals:**

1. Develop a statewide plan with targets to reduce annual VMT.
2. Apportion local/regional jurisdictions their responsibilities of that statewide plan.

The state should adopt a schedule of statewide VMT reduction targets, similar to the emissions reductions schedule in E.O. 07-02. The state would commit to a plan to reduce annual per capita VMT from W thousand VMT per capita currently, to X thousand VMT per capita by 2020, Y thousand VMT per capita by 2035, and Z thousand VMT per capita by 2050. (Actual numeric targets will be determined through the course of the Climate Advisory Team process.)

The per capita VMT reduction plan would be a partnership connecting the state, regional, and local levels. The state would design a plan that consists of both state actions and investments to achieve the targets. Significant state investment is anticipated and much of the attainment in VMT reduction is expected to result from other complimentary actions considered by the TWG.

After the state has committed to a schedule of per capita VMT reductions, the state will then apportion to RTPOs their responsibility in achieving that goal. Here, RTPOs would adopt a local vehicle miles reduction commitment in a low-med-high range. Local governments would adopt policies in their comprehensive plans that are consistent with

those commitments, and development and infrastructure decisions would have to be consistent with the VMT reduction plan. RTPOs would review local government transportation elements for consistency with the GMA and the regional transportation plan, as currently required. In concept, agencies would provide guidance, including a wide range of design treatments, approaches, and best practices to offer in order to reach the identified benchmark.

**Timing:**

The legislature would adopt the statewide VMT targets in the 2008 legislative session. Agencies would develop guidance and best practices in 2008, with phased implementation at the local and regional level in 2009 and 2010. Early adopters could receive incentive money from the state, and all jurisdictions would be given additional revenue authority for implementation.

**Parties Involved:**

State Legislature

CTED

DOT

Regional air quality control agencies

Cities and Counties

Regional Transportation Planning Organizations

**Implementation Mechanisms**

TBD

**Related Policies/Programs in Place**

[Insert text here]

### **Mitigation Option T-3: Transportation Pricing**

*Based on Transportation Catalog Option 5.7, 5.9, and 5.12*

#### **Mitigation Option Description**

Growing traffic congestion, particularly in the urban areas of our state, leads to increased vehicle idling, reducing fuel efficiency and adding significant amounts of pollutants and greenhouse gas emissions. The way we pay for transportation also influences our decisions on when, where, and how we travel – or don't travel. A major reason for congestion is that there is little relationship between how a person travels and the cost, personal, social, and environmental of that travel. Pricing sets a direct economic relationship between the costs and benefits of when, where, and how a person travels; by doing so, pricing manages demand and increases the efficiency of the transportation system and reduce adverse environmental impacts. When variable costs of automobile travel are comparatively low, transit and ride sharing have difficulty competing.

Pricing works on the principle of supply and demand. Congestion is demand so high that the system can no-longer efficiently handle the amount of traffic. Pricing introduces or expands the use of user fees linked to existing congestion conditions to manage demand. As demand increases for a facility or service, the cost for that facility or service raises. With a cost associated with the use of a facility, travelers begin to think and react more to when, where, and how they travel. Travelers will alter their travel, reducing the demand for the facility or service and thus enable it to operate at an efficient level. For example, peak-period pricing for air travel has become one of the most significant methods to balance supply and demand by encouraging travelers to alter their travel schedules.

Applying pricing to surface transportation is a recent development, but pricing has been used successfully in other public service sectors such as water and electricity. Faced with high demand for water during peak periods water utilities introduced variable pricing strategies to promote water conservation and discourage peak period usage. Many electric utilities were faced with a similar peak demands. Through variable pricing of peak periods and conservation strategies, the utilities manage demand. In transportation, pricing can do the same thing, manage the demand on the system to reduce congestion, improve efficiency, and lessen the environmental impacts of travel.

## **Mitigation Option T-4: Promote Compact and Transit-Oriented Development**

*Based on Transportation Catalog Option 4.1*

### **Mitigation Option Description**

Ensure that growth management plans promote compact and transit-oriented development to reduce VMT and GHG emissions. Transportation is the single largest source of GHG emissions in Washington State and we will not achieve our goals without significant reduction to its share of the omissions. Washington has already taken steps to manage growth and development and has begun efforts to reduce VMT through the adoption and implementation of the Growth Management Act and related legislation. But with significant growth projected across the state, we must improve and build upon these efforts. Compact and transit-oriented development and VMT reduction are feasible and necessary.

### **Mitigation Option Design**

**Goal (Alternative A):** Develop and implement policies and strategies that include funding, incentives and restrictions to promote compact and transit oriented development in urban areas. These actions should be designed to reduce VMT by X in 2020 and Y in 2050. (needs to relate to Option T-2)

- Encourage compact development within urban growth areas by designating urban centers for employment and housing growth, increasing urban residential densities while assuring adequate services, encouraging “brownfield” development, and discouraging urban growth area expansions that promote urban sprawl.
- Promote transit-oriented development, including requiring planning/zoning for transit-oriented development to accompany high capacity transit investments, and declaring transit-oriented development a highway purpose that reduces congestion on public roadways (similar to public transportation facilities legislation).
- Promote amenities that make high density living more attractive and encourage walking and biking.
- Promote adequate affordable housing opportunities in urban areas with convenient access to transit.

**Goal (Alternative B):** Develop and implement policies and strategies that include funding, incentives and restrictions to promote compact and transit oriented development in urban areas. These actions should be designed to reduce VMT by X in 2020 and Y in 2050. (needs to relate to Option T-2)

- Encourage compact development within urban growth areas by designating urban centers for employment and housing growth, increasing urban residential densities, and encouraging “brownfield” development. Urban growth boundaries should be judiciously expanded when necessary to allow for jobs and services to keep local residents from having to commute long distances.
- Promote transit-oriented development, including requiring planning/zoning for transit-oriented development to accompany high capacity transit investments, and declaring transit-oriented development a highway purpose that reduces congestion on public roadways (similar to public transportation facilities legislation).
- Promote amenities that make high density living more attractive and encourage walking and biking.
- Promote adequate affordable housing opportunities in urban areas with convenient access to transit.

**Timing:** Amend the Washington State Growth Management Act in 2008.

**Parties Involved:**

State Legislature

CTED

Cities and Counties

Regional Transportation Planning Organizations

Transit Agencies

Developers

Environmental Organizations

**Implementation Mechanisms**

TBD

**Related Policies/Programs in Place**

[Insert text here]

## **Mitigation Option T-5: Quantifying Greenhouse Gas Emissions from Transportation Projects**

*Based on Transportation Catalog Option 5.11*

### **Mitigation Option Description**

Transportation projects such as road expansion, land development impacting transportation systems, increasing public transit, bicycle lanes, sidewalks, other transportation modes, and infrastructure all influence the amount of greenhouse gas (GHG) pollution emitted from the transportation sector.

Current measurement tools need to be more comprehensive and accurate because the amount of GHG pollution emitted from the transportation sector and individual projects is influenced by more than just the project itself. Assumptions about how people will travel (e.g. walk, bus or in a single occupancy vehicle) will greatly influence the estimates of GHG emissions associated with transportation projects. As a result, the increased availability and quality of public transit, bicycle lanes, sidewalks, other transportation modes, and infrastructure also influence the amount of GHG pollution and need to be more accurately evaluated.

State and local agencies have influence over a number of decisions that affect these projects. Both in the transportation planning and the projects planning process, transportation agencies should be required to evaluate and provide information to decision-makers, including the public, about current and future GHG emissions associated with transportation system plans and projects. This is especially important for major transportation projects that include alternatives to capacity expansion such as HOV lanes or other options which reduce GHG emissions. Decision-makers need to be given information regarding impacts on emissions to allow for a more informed debate. Transportation projects such as transit and other alternatives to single occupant vehicles, bicycle lanes, sidewalks, and even new projects that permanently reduce congestion or create significantly shorter travel routes can reduce greenhouse gases; the greenhouse gas implications of these projects should also be presented to decision makers.

### **Mitigation Option Design**

Calculating CO<sub>2</sub> emission associated with an individual transportation project is conceptually quite simple. However, in practice, this analysis can be quite complicated when analyzing multiple projects since transportation models often do not accurately predict impacts of land use and travel behavior, particularly from induced demand from road expansions.

In order to accurately predict CO<sub>2</sub> emissions associated with transportation projects, transportation planning agencies will need to evaluate and improve current models.

Specifically, transportation agencies need to improve model predictions by evaluating the impact of model assumptions such as:

- Changes in land use patterns and the resulting impact on citizen decisions regarding transportation modes. New research demonstrates that connecting neighborhood areas with sidewalks and other pedestrian-friendly options promotes walking over driving.<sup>1</sup>
- Transportation agencies should consider the potential impact of induced demand associated with transportation projects.
- Assumptions about potential impacts of transportation projects on citizen decisions to use public transit, sidewalks, high-occupancy vehicle lanes, congestion pricing, etc.

In addition, transportation agencies should identify the uncertainties associated with the model assumptions and predictions, and indicate whether or not the models are likely to over-estimate or under-estimate pollution emissions. Estimates must be provided to public officials, decision-makers, and the public before selecting transportation improvement projects and options within selected projects. Finally, the long-term impact of the projects on traffic patterns, land use, and other considerations need to be incorporated into the analysis.

**Goals:** All significant transportation projects would be required to have an evaluation of their contribution to GHG emissions.

**Timing:** Metropolitan planning organizations could work with WADOT to start developing methods to evaluate GHGs from transportation projects immediately and be required to finalize the methods in a report to the Governor by 2009. Similarly, the State Environmental Policy Act (SEPA) could be amended by 2010 so that MPOs and transportation agencies would be required to conduct those evaluations for all “significant” transportation projects.

**Parties Involved:**

#### **Implementation Mechanisms**

TBD

#### **Related Policies/Programs in Place**

[Insert text here]

<sup>1</sup> Frank, L. *Reducing CO2 Emissions and Improving Air Quality in the Puget Sound Region: The Built Environment Potential*. Prepared for the Puget Sound Clean Air Agency, Seattle WA. June 2007.

## **Mitigation Option T-6: Improvements to Freight Railroads and Intercity Passenger Railroads**

*Based on Transportation Catalog Option 6.1 and 6.2*

### **Mitigation Option Description**

Significant expansion of dedicated rail corridors and improvements to freight rail and intercity passenger rail will allow the Washington State rail network to increase volumes and reduce vehicles on the road. Movement of passengers and freight by an efficient rail system decreases overall greenhouse gas emissions by 2-4 times as compared to movement by highway. Additional improvements to the rail system and equipment handling technologies can reduce direct emissions. A robust and efficient rail network is a cornerstone for sustaining a thriving economy under future carbon emission constraints and provides many social, economic, and environmental benefits.

### **Mitigation Option Design**

In 2004, the Washington Public Ports Association released its “Rail Capacity Study” which detailed specific statewide improvements that will be necessary to meet future demands for freight and passenger rail. This report projected system needs to 2025 based on increases to freight movement and passenger transport using industry estimates and the Washington State Department of Transportation’s “Intercity Passenger Plan.” If all of these improvements are implemented, the system will be able to support both increased freight and passenger demands well within the practical capacity.

Several unique challenges face the design and implementation of these strategic improvements. Public funding would not likely be used to fund the majority of rail improvements, due to private ownership of the rail system. Rather, public funds would be used to incent private investments. This type of public private partnership would be used either to accelerate improvements or to help align improvement priorities more closely with public needs. A significant prerequisite, then, is to organize and prioritize the approximately 2 billion dollars worth of identified improvements in the Washington State rail system according to public needs, rates of growth, and system dependencies. This exercise would support the goals of this TWG priority item based on the underlying assumption that better rail service inherently leads to system-wide greenhouse gas reductions – reductions that occur when freight and passenger movement shifts to a mode that is much more efficient on a per-ton-mile basis.

Additionally, to satisfy the goals of the Governor’s Climate Initiative, improvements to the rail system or associated equipment that can have direct impacts on greenhouse gas emissions also need to be quantified. Existing technologies, such as anti-idle equipment, newer and more efficient locomotive engines, and hybrid equipment can add significantly to capital improvement costs. These added costs may not contribute to increased return

on capital and thus may only be weighed as public priorities to the extent they are assigned a specific value for their emission reduction potential. Likewise, investments in future technologies such as fully-electric equipment and electrified switch yards, require a distinct public commitment to funding emission reductions from hydrocarbon-based fuels.

**Goals:**

- Decrease inefficiencies and limitations in existing WA rail network by reducing bottlenecks and increasing storage. The efficiency of a rail network will be largely determined by its least efficient components. As these components are gradually improved, the overall system capacity will increase.
  - Using measures of “percent total capacity” and/or “percent of practical capacity” (50-60% of total capacity), increase overall rail system efficiency to X by 2020.
- Maximize the amount of freight that is moved by rail in order to decrease reliance on truck transport as freight volumes increase.
  - Overall freight rail volume will increase from X currently to Y by 2020. Railroad mode share of state surface freight movement will increase from X currently to Y by 2020.
- For intercity travel, shift passengers from road to rail.
  - Passenger rail volume on intercity and regional routes will increase from X currently to Y by 2020. Railroad mode share of intercity passenger movements will increase from X currently to Y by 2020.
- Standardize the use of anti-idle equipment and strategies on all locomotives and develop the use of fully-electric locomotives and rail support systems.
  - Locomotive idling will be reduced by X% by 2020. Locomotive fuel use will be reduced by Y gallons by 2020 as a result of new or retrofit electrically powered systems that would have previously use carbon-based fuels.

**Timing:** See above.

**Parties Involved:**

**Implementation Mechanisms**

TBD

**Related Policies/Programs in Place**

[Insert text here]

## Mitigation Option T-7:

### Diesel Engine Emission Reductions and Fuel Efficiency Improvements

*Based on Transportation Catalog Option 1.3 and 1.4*

#### Mitigation Option Description

Reduce diesel emissions and the use of diesel fuel in public and private sectors, both on- and off-road, through promotion of a variety of technologies that provide alternatives to diesel fuel use or greater efficiency in diesel fuel use. Based upon the Washington State Greenhouse Gas Emission Inventory, on-road diesels produced 8.1 million tons of CO<sub>2</sub>eq in 2005.<sup>2</sup> Off-road diesels emitted 3.6 million ton of CO<sub>2</sub>eq in 2005. This option also has the collateral benefit of improving air quality and reducing air toxics exposure.

#### Mitigation Option Design

Promote and fund technologies that provide alternatives to petroleum diesel fuel use and greater efficiency in diesel fuel use through continued implementation of effective existing state programs and support of new state programs. These programs include:

- Multi-sector technologies:
  - Broaden use of anti-idling technologies currently available but not widely used for locomotives, trucks and other diesel engines (Applicable sectors: freight, public and private fleets);
  - Engine rebuilds, repowers and replacements with more fuel efficient engines or add-on technologies (Applicable transportation sectors: ferries, freight, public and private fleets);
  - Technologies to reduce rolling resistance (such as single wide tires), low viscosity lubricants, weight reduction and improvements to aerodynamics (Applicable sectors: freight, public and private fleets);
  - Augment or replace petroleum fuel use with biodiesel, biogas, natural gas or other low carbon fuels (Applicable sectors: ferries, freight, ports, public and private fleets); and
  - Replace freight handling equipment with battery electric, hybrid or plug-in electric hybrid equipment (Applicable sectors: ports, freight).
- In addition to select technologies identified above, Washington State Ferries has the following opportunities to reduce fuel use on vessels:

---

<sup>2</sup> Draft Washington State Climate Advisory Team Greenhouse Gas Inventory and Reference Case Projections, 1990-2020. Center for Climate Strategies, Washington Department of Ecology and State of Washington Department of Community, Trade and Economic Development. July, 2007.

- Modify engine systems to enable ferries to run on fewer engines,
  - Install positive restraints to hold ferries steady during loading operations instead of keeping propellers rotating,
  - Upgrade shore power capabilities so diesel generators can be shut down when ferries are secured.
- Supplement Existing Programs: Where applicable, existing effective Washington State emission reduction programs for public fleets, such as those administered by the Washington Department of Ecology and the Puget Sound Clean Air Agency's Diesel Solutions program, and the Washington State Clean School Bus program will promote and fund the technological options listed above.

We need supplemental support of programs such as Puget Sound Diesel Solutions, EPA's National Clean Diesel Campaign, and the West Coast Collaborative, which targets diesel emission reductions and fuel savings in West Coast states, and the Washington State Ferries program to reduce fuel use and emissions in the vessel fleet.

- New Programs: We also need new programs to reduce private fleet diesel emissions and diesel fuel use. Successful examples include programs similar to California's Carl Moyer grant program or the Texas Emission Reduction Program. Options could include development of a second State Infrastructure Bank targeting low and no interest loans and revolving funds for private and public sector use to support scrapping of inefficient technology with more efficient technology.

Other options may include placing diesel emission reduction equipment and fuel use requirements into state and local government public construction contracts to leverage private fleet conversion or creating regulatory requirements to switch fuels and retrofit existing engines and equipment in various fleet sectors.

**Goals:** Targets and timetables for fuel use reduction and installation of diesel idle reduction equipment in the sectors identified above are presented below. Provide funding for grant and incentive programs to augment the current funding provided by the Legislature in the upcoming legislative session.

1. Broaden use of anti-idling technologies currently available but not widely used for locomotives, trucks and other diesel engines:
  - Public fleets: 50% of vehicles by 2015 with 100% beginning in 2020.
  - Private long haul fleets and other fleets: 25% of vehicles by 2015, 50% by 2020, 75% by 2035 and 100% by 2050.
2. Engine rebuilds, repowers and replacements with more fuel efficient engines or add-on technologies

- No goals are recommended. These are primarily applicable to marine and locomotive application. Although they have some limited potential, there is little information on which to base a goal.
3. Technologies to reduce rolling resistance (such as single wide tires), low viscosity lubricants, weight reduction and improvements to aerodynamics
    - Private long haul fleets: 50% of vehicles by 2015, 100% by 2020.
  4. Augment or replace petroleum fuel use with biodiesel, biogas, natural gas or other low carbon fuels
    - Public fleets: 100% biodiesel use (B100) by 2015
    - Private fleets: 25% B20 use by 2015, 75% B20 use by 2020 and 100% B20 use by 2035.
  5. Replace freight handling equipment with battery electric, hybrid or plug-in electric hybrid equipment
    - Battery: 10% of equipment by 2015, 25% by 2020, 50% by 2035
    - Diesel hybrids: 25% of equipment by 2015, 50% by 2020, reducing to 25% in 2035 and zero % in 2050 as they are replaced by plug-in hybrids.
    - Plug-in diesel hybrids: zero % in 2015, 10% by 2020, 25% by 2035 and 50% by 2050.
  6. Modify ferry engine systems to enable ferries to run on fewer engines
    - Complete modification for Jumbo Mk II ferries – 2007, save >600K gallons/year,
    - Complete modification for Jumbo Mk I ferries – 2008, save >140K gallons/year,
    - Complete modification for Super ferries – 2011, save >300K gallons/year
  7. Install positive restraints to hold ferries steady during loading operations instead of keeping propellers rotating.
    - Complete modification for prototype installation 2008 on two ferries/one terminal in 2008, save >XXX gallons/year
    - If determined to be a viable alternative, modify remaining vessels/terminals by 2020, save YYY gallons/year
  8. Upgrade shore power capabilities so diesel generators can be shut down when ferries are secured.
    - Complete assessment & develop upgrade plan 2007
    - Upgrade ferries & terminals by 2011, save ZZZ gallons/year

**Timing:** by 2015 with milestones in 2020, 2035 and 2050

**Parties Involved:** Washington State Legislature, Department of Ecology, Washington State Department of Transportation (Roadway, multi-modal and Ferry divisions), Department of Community Trade and Economic Development, the Puget Sound Clean Air Agency and other regional clean air agencies, City and County Governments, Non-profit groups like Cascade Sierra Solutions, US Environmental Protection Agency, US Department of Energy, Washington Trucking Association, Burlington Northern Santa Fe Railway, Ports, Associated General Contractors.

### Implementation Mechanisms

TBD

### Related Policies/Programs in Place

- Additional options and advanced technologies to reduce diesel emissions and diesel fuel use that are applicable to Washington ports are included in the Draft Northwest Ports Clean Air Strategy that can be found at:  
[http://www.maritimeairforum.org/news/NW\\_Ports\\_Clean%20AirStrategy\\_Draft.pdf](http://www.maritimeairforum.org/news/NW_Ports_Clean%20AirStrategy_Draft.pdf)

## **Mitigation Option T-8:**

### **Local Transportation Financing Tools and Bicycle and Pedestrian Infrastructure Improvements**

*Based on Transportation Catalog Option 5.4 and 5.5*

#### **Mitigation Option Description**

To succeed, policy initiatives to reduce automobile use and promote compact communities must be accompanied by policies and funding to make it easier to walk, bike and use transit. There is a growing body of research demonstrating that communities with traditional neighborhood design, connected pedestrian and bicycle networks, available transit and a rich mix of uses are strongly correlated with decreased automobile use.<sup>3</sup>

One obstacle to success is that prior planning for local streets has often prioritized the movement and storage of cars over transit, walking and biking. Another obstacle is that local governments do not have sufficient funding resources to maintain basic street infrastructure and invest in transit, biking and walking.

This option proposes that the state explicitly prioritize funding for transportation facilities that support transit, biking and walking, as well as provide significant new taxing authority for local government to support these priorities. This would be accompanied by policies at the state and local level to require that projects are designed to encourage transit, biking and walking needs (e.g., “Complete Streets” policies and context sensitive design).<sup>4</sup>

#### **Mitigation Option Design**

The following policy and funding initiatives are recommended:

1. The state would adopt a “Complete Streets” policy for its spending supported by context sensitive design standards. Complete Street policies require that new streets, or streets undergoing major maintenance, be designed to accommodate all users.
2. The state requires local governments to adopt Complete Street policies for their spending, or provides substantial incentives to localities to do so, e.g, making

<sup>3</sup> See LUTAQH Study (find cite). FrankL, Pivo G. Impacts of Mixed Use and Density on Utilization of Three Modes of Travel: Single Occupant vehicle, Transit, and Walking. TRB 1995; 1466: 44-52. – Key study supports Healthscape or LUTAQH

<sup>4</sup> Cite to Seattle Resolution, and [www.completestreets.org](http://www.completestreets.org) – WSDOT’s Context Sensitive Design Executive Order : <http://www.wsdot.wa.gov/ta/operations/localplanning/pdf/1028.pdf>

- state transportation grants to localities contingent on project consistency with Complete Street policies.
3. The state should rewrite its Highway Design Manual to require all new engineering and construction facilitate the safe, convenient movement of bicycles and pedestrians along and across all non-limited access corridors unless exceptional circumstances exist.
  4. In addition to making required ADA improvements, the state and local agencies should incorporate low cost safety solutions that improve conditions for bicycling and walking in maintenance projects like paving projects.
  5. The state should increase funding available for bicycle and pedestrian projects and programs to \$150 million in the near term (as recommended in Washington's Transportation Plan) and more in the long term, and expand the existing State Bicycle and Pedestrian Safety Program to include projects and programs that support safety and mobility.
  6. The state should also provide local governments with new taxing authority and more flexibility with cities share of gas tax to finance local improvements. If these taxes were based on vehicle usage (e.g., miles traveled or fuel used) or vehicle type (weight, EPA mpg), it could provide further incentives for users to choose more efficient vehicles, or shift their trips to less polluting modes. The goal would be provide sufficient funding for localities to build out their pedestrian and bicycle networks, invest in inviting streetscapes to accompany new development, and retrofit existing streets to prioritize transit, biking and walking. Similarly, local transit agencies should be granted additional voter-approved revenue sources
  7. The state should provide grants to localities to develop plans and policies to encourage transit, biking and walking, including public education, safety, engineering, and revisions to local land use policies. Land use changes could include requiring shower and bike storage facilities in new buildings, design requirements to promote a good walking environment, and designing new buildings to incorporate transit stops.
  8. The State should provide grants to local governments to identify and study the gaps in their bicycle and pedestrian infrastructure and determine how these gaps can be best filled by street-related improvements as well as those associated with other public right-of-ways (e.g., parks, inter-street links, specialized structures).
  9. The State should require or encourage RTPOs to quantify bicycle and walking mode share in order to allow tracking of progress of this mitigation option.

A number of local agencies, WSDOT, and FHWA have established the goal of increasing bicycling and walking to at least 15 percent of all trips, and simultaneously reducing the number of bicyclists and pedestrians killed or injured in traffic crashes by at least 10 percent. Currently, bicycling and walking account for 5 percent of all trips statewide and over 6 percent of work trips in urban areas.

**Goals:**

In the Puget Sound region, increase the bicycle and walking mode share for all trips from X% currently to Y% by 2020. [Alternatively: Increase the bicycle and walking mode share for commute trips from X% currently to Y% by 2020.]

In other Washington metropolitan areas, increase the bicycle and walking mode share for all trips from X% currently to Y% by 2020. [Alternatively: Increase the bicycle and walking mode share for commute trips from X% currently to Y% by 2020.]

**Timing:** See above.

**Parties Involved:**

**Implementation Mechanisms**

TBD

**Related Policies/Programs in Place**

[Insert text here]

## **Mitigation Option T-9: Transportation System Management**

*Based on Transportation Catalog Option 5.1*

### **Mitigation Option Description**

Transportation System Management is an interactive approach that allows transportation agencies to actively manage the transportation system to increase the efficient operations of the system and gives users better options in choosing paths that best work for them. This approach incorporates increased system performance, reliability, and safety which will reduce congestion delay and the negative environmental impacts of congestion. This option also aims to reduce inefficient of stop-and-go traffic and vehicle idling, creating smoother flows and more efficient fuel consumption for users of our roadway networks.

In addition, Transportation System Management needs the development of specific benchmarks and goals that establish definite improvements to better move people and goods throughout the state, with associated funding packages and programs to accomplish them. The greater the efficiency in the movement of people and goods, the greater the greenhouse gas benefit and connection within our economic systems.

**Mitigation Option T-10:  
Incentives to Promote Low-GHG Vehicle Technologies**

*Based on Transportation Catalog Option 1.5*

**Mitigation Option Description**

Two studies released on July 19<sup>th</sup> by the Natural Resources Defense Council (NRDC) and the Electric Power Research Institute (EPRI) show that widespread adoption of plug-in hybrid electric vehicles (PHEVs) in the United States could reduce greenhouse gas (GHG) emissions “by more than 450 million metric tons annually in 2050—equivalent to removing 82.5 million passenger cars from the road.”

Biofuel PHEVs and battery electric vehicles would produce even lower GHG emissions.

The combination of Washington State’s comparatively clean existing electric power system, coupled with the Renewable Portfolio Standards adopted by voters in 2006 and other limitations enacted by the legislature this year, mean that the electric fuel for PHEVs and battery powered vehicles now and in the future will be as low or lower than any other state.

Gasoline and diesel powered vehicles produce most of the GHGs in Washington State. Even small cars such as the Aveo and Kia produce 8 to 9 tons of CO<sub>2</sub> a year on average. Current hybrids, such as the Prius, produce 5 or more tons of CO<sub>2</sub>. PHEVs and battery powered vehicles would produce zero to 2 tons a year depending on driving patterns. The combination of biofuels, such as biodiesel and cellulosic ethanol, and electricity in a PHEV would produce CO<sub>2</sub> levels approaching zero, depending on the source of the bio fuel.

As noted in the Governor’s letter to the Climate Action Team, Washington state drivers spend over \$9 billion a year on petroleum for vehicles—more than the state spends on K through 12 education—and most of those dollars leave the state. Using Washington state biofuel crops and Washington state generated power would keep a significant portion of that \$9 billion in the state economy.

## Mitigation Option T-11: Low Carbon Fuel Standard

*Based on Transportation Catalog Option 3.1*

### Mitigation Option Description

This option seeks to reduce GHG emissions by decreasing the carbon intensity of all passenger vehicle fuels sold in Washington. The Low Carbon Fuel Standard (LCFS) would require all fuel providers in Washington to ensure the mix of fuel they sell into the Washington market meet, on average, a declining standard for GHG emissions measured in CO<sub>2</sub> equivalent gram per unit of fuel energy sold. The State should regulate quality standards for low carbon fuels. Low carbon fuels include, but are not limited to, biodiesel, cellulosic ethanol, hydrogen, compressed natural gas, liquefied petroleum gas, electricity, and low carbon blends such as E10 or E85. The standard would be measured on a lifecycle basis in order to include all emissions from fuel production to consumption.

Fuel providers (defined as refiners, importers, and blenders of passenger vehicle fuels) will need to demonstrate on an annual basis that their fuel mixtures provided to the market met the low carbon standard. Options for compliance may include: blending or selling increasing amounts of lower carbon fuels, using previously banked credits, and purchasing credits from fuel providers who earned credits by exceeding the standard. Penalties for noncompliance will be determined during the implementation process.

### Mitigation Option Design

**Goal levels:** Create a Low Carbon Fuel Standard for transportation fuels sold in Washington that would reduce carbon intensity of Washington's passenger vehicle fuels by at least 10 percent by 2020. In addition the reduction standard and program timing, the following issues should be addressed in creating the program:

- Credit Generation and Trading
- Lifecycle Model and Boundary Conditions

**Timing:** Following design period, program would be implemented prior to 2020. Fuel providers would be required to meet 10% reduction standard no later than 2020.

**Parties Involved:** Fuel providers, State Department of Ecology, State Department of Community, Trade and Economic Development, State Department of Agriculture

### Implementation Mechanisms

TBD

### Related Policies/Programs in Place

[Insert text here]

## **Mitigation Option T-12: Zero Emission Vehicle (ZEV) Standard**

*Not in original Transportation Catalog*

### **Mitigation Option Description**

The Zero Emission Vehicle (ZEV) standard is a component of the California vehicle emission standards. It is a technology-forcing regulation that requires large vehicle manufacturers to produce zero emitting vehicles. The expected technology is either battery electric or fuel cell vehicles. The standards are phased to allow technology development and have been periodically adjusted to provide needed time and flexibility. Currently, the fully phased-in requirements are:

- In 2018, 16% of vehicles produced for CA must be ZEVs or partial ZEVs (PZEVs).
- Large numbers of efficient partial ZEVs can be substituted for the “true” ZEVs.
- In 2018, 1.7% of the vehicles produced must be “true” ZEVs
- Under the substitution ratios, in 2018, 43% of the fleet will be ZEVs, partial ZEVs or alternative technology PZEVs (conventional or plug-in hybrids).

The ZEV requirements are separate from the Pavley GHG standards and can be adopted in Washington regardless of the fate of California’s GHG standards. ZEV requirements were first developed to reduce ozone pollution. They are not part of California’s recent GHG standards. They can be adopted even if California’s GHG standards are overturned in court.

### **Mitigation Option Design**

**Goals:** Washington would adopt the ZEV standards.

**Timing:** ZEV standards adopted by 2010.

**Parties Involved:** Department of Ecology

### **Implementation Mechanisms**

TBD

### **Related Policies/Programs in Place**

- The 2005 legislature adopted the California vehicle emission standards for use in Washington, ESHB 1397.
- In response to opposition by the auto manufacturers and dealers, the legislature did not enact the ZEV component of the CA standards.

- The combination of the Washington’s commitment to a GHG reduction strategy and the promise of new battery technologies that could enable zero emission vehicles and partial zero emission vehicles could be the catalyst to overcome the previous opposition.
- Large automakers are embracing the new developments in battery technology. Ford and California Edison just agreed to a multi-million dollar effort to “figure out how to commercialize plug-in hybrids”. GM has a target of producing a plug-in hybrid electric vehicle by 2010.
- Washington is the only one of the 11 opt-in states that does not have ZEV.