

DRAFT
Transportation Sector
Brief Descriptions of Potential State Actions

T-1 VEHICLE TECHNOLOGY

1.1 Clean Car Program

A clean car program is also known as the “Pavley” standards or the California GHG Emissions Standards. These standards can be adopted to reduce GHG emissions from new light-duty vehicles. New cars and light trucks in all states must comply with Federal emission standards, and, generally speaking, states have the choice of adopting a stronger set of standards applicable in California. A set of standards typically include the gradual increase in the rates of emissions reductions over certain periods of time. Further, a state can include other smog- and soot-forming pollutants in this plan. Manufacturers may meet this standard by utilizing a fleet-wide average.

WA Action: In 2006, Washington adopted the California Clean Car Program standards requiring new cars and light trucks sold in the State to meet strict vehicle emissions standards starting January 1, 2009.

1.2 Fuel-Efficient Tires

Fuel-efficient tires may also be referred to as low rolling resistance tires. Fuel economy can be improved on light-duty vehicles by setting minimum energy efficiency standards for replacement tires. Typically, energy efficient tires are used on new models. But lower rolling resistant replacement tires may not be readily available to consumers and there is little information regarding the fuel economy of replacement tires.

1.3 Freight Truck Fuel Efficiency Improvements

The fuel efficiency of freight trucks can be improved using a variety of equipment modifications (e.g., aerodynamic devices, wide-base tires, fuel efficient lubricants) as well as driver training. Government agencies can promote truck fuel efficiency improvements with incentives and outreach.

1.4 Black Carbon Control for Freight Vehicles

Diesel particulate matter includes black carbon aerosols, which are thought to contribute to global warming through positive radiative forcing. Diesel particulate emissions can be reduced through the use of several types of exhaust retrofit devices.

WA Action: In 2005, the Legislature authorized \$2 million to be used to retrofit diesel engines owned by public entities. The goal is to retrofit 20% of local government diesel engine vehicles to reduce highly toxic diesel emissions. An additional \$2.3 million was authorized by the 2007 Legislature to retrofit public-sector diesel vehicles, and allows a portion of existing diesel retrofit funding to be used for privately-owned diesel vehicles.

1.5 Vehicle Purchase or Registration Incentives

Incentives such as registration fees, feebates, and tax credits can encourage the purchase of more fuel-efficient vehicles, including hybrid electric (plug-in and non-plug-in) vehicles. Higher vehicle registration fees can be charged for vehicles that have lower fuel economy, and/or vehicles that use alternative fuels or hybrid vehicles could be charged a lower vehicle registration fee. Vehicle licensing fees could be based upon vehicle weight, with use of a dollar per vehicle-ton multiplier instead of the present broad categories of vehicle weight. “Feebates” would provide incentives for reduced GHG emissions by creating: (1) fees on relatively high emissions/lower fuel economy vehicles and (2) rebates or tax credits on low emissions/higher fuel economy vehicles. Tax credits can be offered for the first time purchase of a hybrid, alternative fuel vehicle, or other set of specifications that incorporate low-GHG emission standards.

WA Action: Legislature enacted SB 5916 in 2005 providing tax exemptions for new vehicles that use clean alternative fuels. Clean alternative fueled vehicles and hybrid passenger vehicles which have a fuel economy of at least 40 mpg on the highway are exempted from state sales and use taxes starting in 2009.

HB 1303 supports the use of plug-in hybrid vehicles by the state and the provision of plug-in capability at state locations.

1.6 Operational Incentives for Low-GHG Vehicles

Incentives can be offered to drivers of low-GHG vehicles. Depending on effectiveness, these could include preferential access to vehicles on HOV lanes or to metered parking spaces.

1.7 Incentives to Retire or Improve Older High-GHG Vehicles

Black carbon emissions can be reduced from heavy-duty diesel vehicles by developing and implementing an incentives program to accelerate the replacement and/or retirement of the highest-emitting diesel vehicles. Starting with the 2007 model year, stringent new federal emission standards for new heavy-duty diesel vehicles take effect. Incentives can be offered to the owners of older vehicles to retire their vehicles early and replace them with vehicles meeting the 2007 emission standards.

Alternatively, incentives can be used to retire older passenger vehicles with poor fuel economy. Because of the energy input required for manufacture of new vehicles, keeping low-GHG emitters in the fleet longer will provide benefits if well maintained.

1.8 Incentives for Low Emission Transit Vehicles

This option would provide incentives for or discounts to transit agencies for the purchase of hybrid and/or other cleaner-technology buses as well as electric trolley buses and electric rail vehicles.

T-2 VEHICLE OPERATION

2.1 Lower and/or Enforce Speed Limits

Reduced vehicle speeds improve fuel economy, reduce CO₂ emissions, and improve safety. This could be implemented by requiring interstates, freeways, and major arterials to be signed with a maximum speed that is lower than the current speed. Significant enforcement resources may be needed for this measure to achieve the expected reductions.

2.2 Driver and Alternative Transportation Education

Better consumer information and education can lead to a gain in fuel efficiency. Education could be geared to encourage energy-efficient driving habits as well as encourage the use of alternative modes of transportation (e.g., how to use public transportation; how to commute to work by bike, etc.). Drivers also need to be aware of maintenance issues that cause an increase in pollution and vehicle operating cost.

2.3 Heavy-Duty Vehicle Idling Regulations and/or Alternatives

Heavy-duty vehicle idling can be reduced by adopting anti-idling ordinances and/or encouraging the use of alternatives. Many states and local governments have adopted idling regulations for trucks and buses. Alternatives to long-term truck idling include the use of technologies such as automatic engine shut down/start-up system controls, direct-fired heaters, auxiliary power units,

and truck stop electrification. Truck idling time can also be reduced through the pre-clearance at highway truck weigh stations and expanded use of weigh-in-motion systems.

WA Action: To minimize idling of heavy duty diesel vehicles, a business and occupation state tax deduction is provided from the sale, lease or rental of auxiliary power to heavy duty diesel vehicles through on-board or stand-alone electrification systems.

HB 1303 supports the provision of incentives to encourage the use of plug-in truck auxiliary power units and truck stop electrification.

T-3 ALTERNATIVE FUELS

3.1 Low Carbon Fuel Standard

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 CO₂ equivalent gram per unit of fuel energy sold. 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. 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.

3.2 Renewable Fuel Standard

The state can adopt standards that require a certain amount or percentage of fuel sold within the state to be a renewable fuel (e.g., ethanol or biodiesel). This percentage can gradually increase over time. States can help facilitate transition to renewable fuels by setting quality standards for fuel blends.

WA Action: In 2006, the Legislature adopted ESSB 6508 establishing minimum renewable fuel content requirements and fuel quality standards. Beginning in November 30, 2008, fuel suppliers must ensure a minimum of 2% of total annual diesel and 2% of total annual gasoline sold in the State must be biodiesel or ethanol.

3.3 Alternative Fuel Mandates for Fleets

Governments can mandate that public and private vehicle fleets include alternative fuel vehicles, typically targeting a certain percentage of penetration within a certain period of time.

WA Action: In 2005 an Executive Order was signed directing agencies to reduce 20% petroleum use in the operation of state vehicles and privately-owned vehicles used for state business, by September 1, 2009. By that date, standard diesel must be replaced with 20% biodiesel blend, and as soon as practical, agencies must begin using a minimum 5% biodiesel blend.

3.4 Alternative Fuel Production Incentives

Various incentives can encourage companies to continue or begin producing alternative fuels. The incentives can come in many different forms, such as granting state tax credits based on the amount of alternative fuel produced, reduced taxes for alternative fuel production facilities, or providing loans or grants to companies that are producing or want to produce alternative fuel. Additionally, the state can organize a public/private fuel-buying consortium that enters a long-term contract with a supplier to help overcome the risk of producing fuel. Application of these incentives should consider the full cycle of energy and GHG impacts.

WA Action: In 2003, the Legislature passed four bills (HB 1240 to 1243) which provide various tax and use incentives to encourage the development, distribution, and sale of biodiesel and ethanol fuels.

3.5 Alternative Fuel Infrastructure Development

The development of an alternative fuel infrastructure can aid in the promotion of alternative fuel usage. The expense of equipment and installation costs can be offset by creating an infrastructure. The convenient locations of stations offering alternative fuels at competitive prices can increase the usage of the fuel.

WA Action: The 2006 Legislature established the Energy Freedom Program in the State Department of Agriculture and appropriated \$17 million for the Energy Freedom Loan Program to develop a viable bioenergy industry, promote research and development in bioenergy sources and markets and to support an agriculture industry to grow bioenergy crops. The 2007 Legislature authorized a bill to create a vehicle electrification grant program. The bill also authorizes state agencies to provide electricity at state facilities for operation of state electric vehicles and privately-owned electric vehicles used for state business.

T-4 SMART GROWTH

4.1 Promote Infill and Brownfield Development

Residential and commercial development on infill typically results in less vehicle travel and emission as compared to development on lower density exurban or “greenfield” locations. Households and workers in areas with higher density and mixed uses typically take shorter trips and have more alternatives to automobile travel. “Brownfields” are one type of infill location –

commercial or industrial properties that are abandoned or are not being fully used because of actual or perceived environmental contamination.

WA Actions: Washington's Brownfield Coalition, a partnership of the Department of Ecology, King County, the Environmental Coalition of Seattle (ECOSS), Seattle, Spokane, Tacoma and CTED, offers low-interest loans to local governments and property owners to clean up brownfields through the Brownfield Loan Fund: <http://www.cted.wa.gov/site/789/default.aspx>

4.2 Increase Residential Densities within Urban Areas

Residents living in neighborhoods with higher population density tend to drive less than those living in lower density neighborhoods. This is a result of both shorter trips (because housing and commercial uses are in closer proximity to one another in higher density neighborhoods) and use of alternative travel models (because higher density neighborhoods tend to offer better walking, bicycling, and transit options). Governments can promote increases in residential density through a number of planning activities, incentives, and/or regulatory changes.

4.3 Promote Transit-Oriented Development

Transit oriented development enables shifts to lower emitting transportation modes by building compact, mixed-use development clustered around transit stops. This option would promote transit oriented development through incentives and/or regulation. Governments could require that planning/zoning for transit oriented development accompany new high capacity transit investments.

4.4 Designate Employment and Housing Centers for Investment Planning

The state could encourage or require local governments to designate centers for employment and housing, and then encourage or require that new infrastructure planning and investments reflect these growth nodes.

WA Action: The Legislature adopted the Growth Management Act in 1990 that requires state and local governments to manage Washington's growth by identifying and protecting critical and natural resource areas, designating urban growth areas, preparing comprehensive plans, and implementing them through capital investments and development regulations:

<http://www.gmhb.wa.gov/index.html>

4.5 Targeted Open Space & Rural Land Protection

Targeted open space protection includes programs designed to protect and conserve State lands and other open spaces, and develop and improve neighborhood, community, and regional parks in ways that encourage location-efficient growth and broader mode choice. This option could

also include policies to discourage the expansion of urban growth areas or urban growth boundaries. Policies that increase the value of rural resource lands for agricultural or forestry uses to serve local markets can promote these objectives.

4.6 VMT/GHG Mitigation Requirements for Large Developments

Emissions from automobiles, freight trucks, and heavy machinery during development can be offset by a plan that reduces emissions. These offsets can include preserving open spaces, purchasing emission credits, or converting to alternative fuel energy sources, for example. States could require identification of GHG emissions and mitigation measures as part of the environmental review process for large developments.

4.7 Multimodal Concurrency

The State Growth Management Act requires that adequate street capacity is provided concurrently with development to handle the projected increased traffic. Multimodal concurrency would allow developers to meet concurrency requirements through investments in a range of other actions that reduce GHG emissions, including transit capital and operating investments, demand management tools to promote alternative travel modes, mixed-use development, and non-motorized enhancements to encourage pedestrian and bicycle connections.

T-5 SYSTEM EFFICIENCY AND DEMAND MANGEMENT

5.1 Transportation System Management

Transportation system management improves vehicle flow on the roadway system, which can reduce fuel use and GHG emissions. Coordinated operation of the regional transportation network can improve system efficiency, reliability, and safety. Tools to reduce traffic congestion include HOV lanes, synchronized signals, incident management, variable message signs, and other firms of intelligent transportation systems (ITS).

5.2 Ridesharing

Ridesharing programs are designed to reduce vehicle trips and vehicle miles traveled by providing assistance and encouragement to individuals and employers to use carpools and vanpools. Government agencies can establish and expand ridesharing programs, provide incentives or assistance for others to do so, and provide supportive infrastructure (e.g., park and ride lots).

WA Action: The Legislature passed SB 5412 in 2007, requiring Washington to develop a plan to reduce per capita vehicle miles traveled. The State must commit to a series of aggressive VMT reduction goals.

5.3 Expand Transit Infrastructure and/or Improve Existing Service

Greater use of public transit and reduction in automobile travel can be achieved by expanding public transit infrastructure (e.g., rail lines, bus rapid transit routes) and improving existing transit service (e.g., expanded hours or coverage of bus service, higher frequency bus routes).

5.4 Transit Marketing, Promotion, and Pricing Incentives

Greater use of public transit and reduction in automobile travel can be achieved by enhanced promotion and marketing of transit, or through reduction in transit fares.

5.5 Bike and Pedestrian Infrastructure Improvements

Improving, adding, and promoting sidewalks and bikeways can increase the pedestrian and bicycle activity and reduce automobile use. Infrastructure improvements could include bicycle parking and shower/locker amenities at places of employment. Local government “complete streets” policies would help to achieve these improvements.

WA Action: Seattle’s “Complete Streets” ordinance establishes principals for street design to support and encourage walking, bicycling, and transit use while promoting safe operations for all users. The ordinance design includes street and sidewalk lighting, pedestrian and bicycle safety improvements, public transit facilities accommodation, and street trees.

5.6 Additional Financing Tools to Invest in Local Transportation Infrastructure

Local governments have few remaining tools for funding local infrastructure needs like sidewalks, bike lanes, potholes, and other neighborhood improvements. Local governments should be granted additional revenue sources, and that authorization should prioritize low-GHG uses including those investments that would fund the retrofit of existing infrastructure for all users, including transit, bicycles, and pedestrians. This option could also include revision to formulas for revenue distribution in order to fund transportation projects and services that are more likely to reduce GHGs.

5.7 Commuter Choice Programs

Commuter Choice Programs encourage employers to provide options such as telecommuting, transit subsidies, pre-tax transit fare program, parking cash-out, and guaranteed ride-home service in order to reduce automobile commutes. The telecommuting option includes the

development and utilization of neighborhood telecommuting centers that offer office-type services in locations close to commuters' residences. As an incentive to develop and provide such services, a tax credit can be offered to companies.

WA Action: In 2006, the Legislature passed the Commute Trip Reduction Efficiency Act that uses partnerships among employers, local jurisdictions, transit systems and the State to discourage traveling by single-occupant vehicles to the work place.

5.8 Expand Roadway Pricing

Roadway tolling can be used to discourage single-occupant automobile use and provide revenue for alternative modes. If tolls or other user charges vary with congestion levels (congestion pricing), they can also be particularly effective at reducing congestion. Various forms of VMT-based user fees can also help to discourage unnecessary automobile use. Roadway pricing revenues can help fund needed highway improvements and help manage system-wide demand. In addition, pricing revenues can be used to fund transit and other transportation alternatives within a corridor or region.

WA Action: PSRC recently conducted a pilot test of an in-vehicle taxi-like metering device to assess roadway user charges. This Traffic Choices Study involved 500 vehicles from more than 300 households.

The Legislature passed SB 5412 in 2007, which requires WSDOT to consider efficiency tools including system-wide pricing. The Washington State Transportation Commission also conducted a thorough tolling study which outlines their vision for the role of tolling and pricing in the near future.

<http://www.leg.wa.gov/pub/billinfo/2007-08/Pdf/Bills/Senate%20Passed%20Legislature/5412-S.PL.pdf>

http://www.wstc.wa.gov/Tolling/WS_TollStudy_FinalReport_V1.pdf

5.9 Increase Motor Fuel Taxes

Increasing the state tax on conventional fuels can reduce consumption and travel while encouraging the use of lower emissions vehicles, alternative fuels, and public transit.

5.10 Parking Management

Automobile use is strongly influenced by the location, supply, and pricing of parking. Local governments can encourage reduction in automobile use by eliminating minimum parking supply requirements, establishing parking supply caps, encouraging higher parking prices, and other mechanisms.

5.11 VMT Reduction Goals

The State and local governments can set goals for reduction in VMT per capita.

WA Action: The Legislature passed SB 5412 in 2007, which would commit the state to development of a plan to gradually reduce per capita vehicle miles traveled.

5.12 Quantification of GHG Impacts of Transportation Plans and Programs

Transportation agencies (WSDOT and MPOs) could be required to quantify the GHG emissions resulting from long-range transportation plans and transportation programs. This could include very long-term (e.g., 50-year) forecasting in order to assess the long terms implications of transportation and land use planning decisions.

T-6 NON-ROAD OPTIONS

6.1 Intermodal Rail Improvements for Freight

Transport of freight goods can be shifted from the roadway system to rail. Carrying freight by railroads rather than truck can reduce emissions and fuel consumption while reducing congestion on major roadways.

6.2 Intercity Rail or High-Speed Rail Corridors

Intercity rail provides express train passenger services covering longer distances than commuter trains (e.g., from Vancouver, BC to Portland, OR), which can reduce automobile use and possibly aircraft activity.

6.3 Aircraft GHG Reductions

More efficient operation of aircraft could reduce GHG emissions. This can include idle time at the gate, on the runway, and research and development of emission-reducing technologies.

6.4 Airport Operations and Ground Equipment

Airports can reduce emissions from ground equipment by using alternative fuels and electrification of gates. This option could also include better runway management.

6.5 Harbor Craft GHG Reductions

Emissions from harbor craft (including tugs, dredges, and ferries) can be reduced by improving vessel fuel efficiency, use of alternative fuels such as biodiesel, or electrification.

6.6 Port Electrification

Shore power, or cold ironing, enables ships to shut down their (diesel) auxiliary engines and run off electrical power supplied at the dock for refrigeration, electricity, and other needs. To enable shore power, the port or terminal operator must install the necessary shore-side infrastructure, while ship owners must retrofit their ships to accommodate shore power. Other options for port electrification include expanded use of electric powered equipment such as cranes and forklifts.

WA Action: HB 1303 supports port electrification through the use of plug-in shore power and cargo and cruise ship terminals, shipside technology, and use of electric power alternatives for port-related operations and equipment.

6.7 Off-Road Vehicle GHG Reductions

Off-road vehicles include of construction vehicles, machinery used for mining and agriculture, recreational vehicles such as all-terrain vehicles, snowmobiles, jet skis, and boats. Incentives could be provided to companies and individuals to encourage retrofits, alternative fuel use, and replacing old, highly polluting equipment with new equipment.