



**Transportation and Land Use (TLU) Policy Work Group  
Policy Options**

	Policy Option	GHG Reductions (MMtCO <sub>2</sub> e)			Net Present Value 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)	Level of Support
		2012	2020	Total 2007-2020			
	<b>TRANSPORTATION AND LAND USE</b>						
<b>TLU-1</b>	Smart Growth and Related Planning						<b>TBD</b>
<b>TLU-2</b>	Incentives for Purchase and Operation of Low-GHG Vehicles						<b>TBD</b>
<b>TLU-3</b>	Improve and Expand Transit Service						<b>TBD</b>
<b>TLU-4</b>	Heavy-Duty Vehicle Idle Reduction						<b>TBD</b>
<b>TLU-5</b>	Low Carbon Fuels Standard						<b>TBD</b>
<b>TLU-6</b>	Clean Car Program (Pavley GHG Standards for Autos)						<b>TBD</b>
<b>TLU-7</b>	Transit Marketing, Promotion, and Pricing Incentives						<b>TBD</b>
<b>TLU-8</b>	Fuel Tax and Variable-Priced Insurance						<b>TBD</b>
<b>TLU-9</b>	Parking Management						<b>TBD</b>
<b>TLU-10</b>	Commuter Benefits Programs						<b>TBD</b>
<b>TLU-11</b>	Driver and Consumer Education						<b>TBD</b>
	<b>SECTOR TOTAL AFTER ADJUSTING FOR OVERLAPS</b>						
	<b>REDUCTIONS FROM RECENT ACTIONS (table to be added below)</b>						
	<b>SECTOR TOTAL PLUS RECENT ACTIONS</b>						

TBD – To be determined

## TLU-1. Smart Growth and Related Planning

### Policy Description

Implement land use planning, development, and analysis that supports protection of natural and cultural resources, strengthens communities, creates more compact development, and reduces growth in driving and emissions.

### Policy Design

#### Goals:

- Support and promote public and private planning and development practices, including smart growth planning and infrastructure provision that reduce the number and length of trips and expand travel modes in Colorado.
- Reduce light-duty VMT by 2% statewide by 2020.<sup>1</sup>
- Require that Colorado Department of Transportation (CDOT and metropolitan planning organizations (MPOs) quantify and report GHG emissions from long-range transportation plans by 2010.

**Timing:** See above.

**Parties Involved:** Municipal elected officials; local and regional planning commissions and staffs; state agencies which have programs/projects that have land use impacts; private developers and contractors; planning, land use, and engineering professionals; public and private organizations with land use, transportation, and environmental interests.

### Implementation Mechanisms

TBD

### Related Policies/Programs in Place

TBD

### Types(s) of GHG Reductions

Net reduction in CO<sub>2</sub> emissions.

### Estimated GHG Savings and Costs per MtCO<sub>2</sub>e

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e

<sup>1</sup> VMT reduction goal of 2% is based on DRCOG modeling of “compact urban footprint” scenario.

Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

#### **Key Uncertainties**

TBD

#### **Additional Benefits and Costs**

TBD

#### **Feasibility Issues**

TBD

#### **Status of Group Approval**

TBD

#### **Level of Group Support**

TBD

#### **Barriers to Consensus**

TBD

## TLU-2. Incentives for Purchase and Operation of Low-GHG Vehicles

### Policy Description

This option includes several policies and programs to encourage purchase of low GHG emission vehicles through monetary and convenience rewards and incentives throughout the state.

- **Feebates** – A schedule of fees/rebates for poor/good fuel economy vehicles; this monetary correction to be settled at the time of initial registration/licensing/titling at the State DMV and is applicable to both new and used equipment. The program would be essentially revenue-neutral, although the schedule of fees/rebates would be set so as to produce a small surplus revenue to be used for a public awareness campaign. If possible, the feebate program would be pursued as a multi-state approach for greater impact and could be implemented through the recently formed 5-state Western Regional Climate Action Initiative;
- **Tax Credits for Low-GHG Vehicles** – Amend the current income tax credit program for hybrid, alternative fuel, and low-emission vehicles so that it continues in its present form beyond 2010.
- **Operating Incentives for Low-GHG Vehicles** – Maintain current preferential state-controlled infrastructure (HOV lanes) access for alternative fuel vehicles (natural gas, propane, 100% electric).

Tax-funded, non-tax paying entities (state and municipalities) shall be required to purchase the lowest GHG vehicle suitable for their usage.

### Policy Design

#### Goals:

- Feebate program would affect 100% of vehicle registrations or renewals. Feebate schedule to be determined during policy development.
- Income tax credits as defined in state statute but would continue at present levels beyond 2010.
- Access to HOV lanes for alternative fuel vehicles would continue as current policy.

**Timing:** The feebate program and extension of tax credits would require legislative approval. Goal of implementation before 2010.

**Parties Involved:** State legislature, state and municipal fleet managers, Governor (and administration), tax-paying Colorado motor vehicle owners (residents and business, especially if subject to TABOR).

### Implementation Mechanisms

TBD

**Related Policies/Programs in Place**

TBD

**Types(s) of GHG Reductions**

Net reduction in CO<sub>2</sub> emissions.

**Estimated GHG Savings and Costs per MtCO<sub>2</sub>e**

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

**Key Uncertainties**

TBD

**Additional Benefits and Costs**

TBD

**Feasibility Issues**

TBD

**Status of Group Approval**

TBD

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD

## TLU-3. Improve and Expand Transit Service

### Policy Description

Improvements to existing transit service and expansion of transit routes can shift passenger transportation from single-occupant vehicles to public transit, thereby reducing emissions. This mitigation option involves a number of actions to be undertaken by state government, local government, and transit agencies.

### Policy Design

**Goals:** Implement transit investments that encourage greater use of public transportation, such as the following:

- Improve service frequency on selected existing transit routes.
- Support and encourage improvements in intercity bus service.
- Reduce travel times on selected existing transit routes (signal prioritization, exclusive lanes, etc.).
- Improve service quality on selected existing transit routes (safety, cleanliness, improvements to shelters/stations).
- Expand transit service and infrastructure (commuter rail, light rail, bus, BRT).

In conjunction with TLU-7, reduce light-duty urban VMT by 6% compared to baseline scenario.<sup>2</sup>

### Timing:

- Many programs are in place and are therefore immediately expandable/implementable. Enhancement and continuation can begin short-term.
- Infrastructure improvements will take 3-5 years at a minimum.

**Parties involved:** CDOT, transit agencies, Metropolitan Planning Organizations, municipalities, counties

### Implementation Mechanisms

TBD

### Related Policies/Programs in Place

TBD

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<sup>2</sup> VMT reduction goal of 6% based on recent modeling by Robert Johnston of University of California, Davis.

**Types(s) of GHG Reductions**

Net reduction in CO<sub>2</sub> emissions.

**Estimated GHG Savings and Costs per MtCO<sub>2</sub>e**

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

**Key Uncertainties**

TBD

**Additional Benefits and Costs**

TBD

**Feasibility Issues**

TBD

**Status of Group Approval**

TBD

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD

## TLU-4. Heavy-Duty Vehicle Idle Reduction

### Policy Description

This options focuses on reducing idling from diesel and gasoline heavy-duty vehicles, buses, and other vehicles through a combination of statewide anti-idling regulations and by promoting and expanding the use of technologies that reduce heavy-duty vehicle idling. These technologies include truck stop electrification as well as vehicle equipment modifications such as auxiliary power units, direct fired heaters, and automatic engine shut down/startup system controls.

### Policy Design

Colorado would develop and implement a statewide regulation banning extended idling by heavy-duty vehicles in most situations. The anti-idling regulation should be designed to be easily enforceable by state and local agencies and supported with dedicated state funding for enforcement for this measure to be successful in reducing vehicle idling and GHG emissions. The regulation should limit exemptions as much as possible for easy enforcement. However, idling that occurs for public health and safety reasons (such as emergency vehicles) should be exempted from these requirements.

Colorado would encourage and support the establishment of truck stop electrification stations at key truck stops and rest areas throughout the state. Such efforts would include working with the U.S. EPA, DOE, truck stop owners, and equipment vendors to securing funding for truck stop electrification.

Colorado would also promote reduced idling through programs aimed at increasing voluntary adoption of idling reduction technologies. Components of such an effort should include collaborative outreach and education timed with the implementation and enforcement of a statewide anti-idling regulation and seeking funding for pilot projects and demonstrations as well as funds available through any federal or other programs to evaluate the effectiveness of various idle reduction technologies.

### Goals:

- Adopt statewide regulation on extended heavy-duty vehicle idling by 2009.
- Development of truck stop electrification at 2 locations by 2012 and all major CO truck stops by 2020.
- Implement state incentives for purchase of heavy-duty vehicle auxiliary power units (APUs) by 2012.

- Reduce fuel consumption from extended (overnight) idling of heavy-duty vehicles 50% by year 2012 and 95% 2020.<sup>3</sup>

**Timing:** See above.

**Parties Involved:** Trucking industry, Colorado Motor Carriers Association, CDOT, Truck Stop Owners/operators, School District, Municipalities and Counties

### Implementation Mechanisms

TBD

### Related Policies/Programs in Place

TBD

### Types(s) of GHG Reductions

Net reduction in CO<sub>2</sub> emissions.

### Estimated GHG Savings and Costs per MtCO<sub>2</sub>e

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

### Key Uncertainties

TBD

### Additional Benefits and Costs

TBD

### Feasibility Issues

TBD

### Status of Group Approval

TBD

<sup>3</sup> Goals assume that alternatives to extended engine idling (like truck stop electrification and APUs) are not widely available in 2012 but are widely available by 2020.)

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD

## TLU-5. Low Carbon Fuels Standard

### Policy Description

This option seeks to utilize a broader fuel neutral strategy to reduce GHG emissions by decreasing the carbon intensity of all passenger vehicle fuels sold in Colorado. This fuel neutral, market- and performance-based strategy would culminate into a “Low Carbon Fuels Standard.” 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 elements of a strategy to reduce carbon intensity in motor fuels would include:

- Fuel Quality Standards
- State Government Fleet ‘Leadership’ Programs for adoption of Low Carbon Fuels
- Low Carbon Fuel Infrastructure Development
- Options for Compliance

The Low Carbon Fuel Standard (LCFS) will require all fuel providers in Colorado to ensure the mix of fuel they sell into the Colorado 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 standard will also 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.

### Policy Design

**Goal levels:** Create a Low Carbon Fuel Standard for transportation fuels sold in Colorado that would reduce carbon intensity of Colorado’s passenger vehicle fuels by at least 10 percent by 2020.

**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, Agriculture, State Department of Revenue, State Department of Public Health and Environment.

### Implementation Mechanisms

TBD

**Related Policies/Programs in Place**

TBD

**Types(s) of GHG Reductions**

Net reduction in CO<sub>2</sub> emissions.

**Estimated GHG Savings and Costs per MtCO<sub>2</sub>e**

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

**Key Uncertainties**

TBD

**Additional Benefits and Costs**

TBD

**Feasibility Issues**

TBD

**Status of Group Approval**

TBD

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD

## TLU-6. Clean Car Program (Pavley GHG Standards for Autos)

### Policy Description

Colorado would adopt the State Clean Car Program (also known as the “Pavley” standards or California GHG Emission Standards) in order to reduce GHG emissions from new light-duty vehicles. This policy assumed the standards, which must still be approved by US EPA, would take effect in Colorado beginning with Model Year 2011 (calendar year 2010). Other Clean Car Program elements can include standards requiring reductions in smog- and soot-forming pollutants, and promoting introduction of very low-emitting technologies into new 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. In 2005, California finalized a set of GHG standards for new light duty vehicles, phased in from 2009 to 2016. Eleven states already have adopted the California Clean Car Program standards: California, Connecticut, Maine, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont and Washington.

### Policy Design

**Goal levels:** Adopt GHG emission standards for light duty cars and trucks equivalent to those established by the California Air Resources Board. The California standards phase in during the 2009 through 2016 model years. When fully phased in, the near term (2009-2012) standards will result in about a 22 percent reduction per-mile GHG emissions as compared to the 2002 fleet, and the mid-term (2013-2016) standards will result in about a 30 percent reduction.

**Timing:** To meet federal compliance, a rule writing process would take place by the appropriate agencies so that Colorado can implement the California standards. Regulatory program could begin with vehicle model year 2011.

**Parties Involved:** Applies to model year 2011 new cars and light trucks. The law would directly affect automobile manufacturers, car dealers, and consumers.

**Other:** The California standards currently are being litigated. The timing may be affected by the date of enactment of legislation, likely litigation, and the regulatory process.

### Implementation Mechanisms

Institute a regulatory program beginning with vehicle model year 2011.

### Related Policies/Programs in Place

None.

### Estimated GHG Savings and Costs per MtCO<sub>2e</sub>

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	3.2	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	17.7	MMtCO <sub>2</sub> e
Cost-Effectiveness	-\$100	-\$100	\$/MtCO <sub>2</sub> e

**Data Sources:**

- CCS, Draft Colorado Greenhouse Gas Inventory and Reference Case Projections
- Diane Brown and Elizabeth Ridlington, Cars and Global Warming: Policy Options to Reduce Arizona’s Global Warming Pollution from Cars and Light Trucks, AZ PIRG Education Fund: February 2006, <http://www.arizonapirg.org/AZ.asp?id2=22371>.
- Elizabeth Ridlington, Tony Dutzik, and Christopher Phelps, Cars and Global Warming: Policy Options to Reduce Connecticut’s Global Warming Pollution from Cars and Light Trucks, Spring 2005.

**Quantification Methods:**

- The California Air Resources Board (CARB), the Public Interest Research Groups (PIRGs), and a coalition of New England States have all calculated the impact of the Pavley standards on GHG emissions. CCS reviewed and compared results of these analyses of clean car programs, and found all three modeling efforts to be reasonable and valid. The PIRG model has been applied in Connecticut, Arizona, and New Mexico. The model estimated a 13.7% reduction in GHG emissions from passenger vehicles by 2020 in Arizona and a 12% reduction in Connecticut. Both CARB and the New England states estimated higher reductions, in the range of 18-19%. The primary sources of variation in these modeling efforts are: (1) the future mix of VMT by passenger vehicle type, and (2) the fleet penetration rate.
- CCS assumes the effects of the Clean Car Program in Colorado will be greater than the PIRG model results for Connecticut and Arizona, and less than the results of the California and New England modeling efforts. CCS estimates the effect on Colorado GHG emissions in 2020 to be the median of the lower and upper bounds of prior modeling efforts, or 15.5%.

**Key Assumptions:**

- The prior modeling efforts have established a valid and reasonable method of projecting GHG emissions reductions from this policy. The CCS comparison of the three modeling methods provides some independent professional validation of the models and their results. The key assumption of the emissions reduction projected by CCS is that the most likely scenario for emissions reductions is one that would fall between the more

conservative scenario projected by the PIRG model and the more optimistic scenario projected by the California and the New England models.

### **Key Uncertainties**

The net emissions impact of this policy depends on fleet turnover rates for light duty vehicles and future patterns of consumer purchase choices between passenger cars and light duty trucks.

### **Additional Benefits and Costs**

TBD

### **Feasibility Issues**

TBD

### **Status of Group Approval**

TBD

### **Level of Group Support**

TBD

### **Barriers to Consensus**

TBD

## TLU-7. Transit Marketing, Promotion, and Pricing Incentives

### Policy Description

This option would promote greater use of public transit and a reduction in automobile travel through various forms of marketing and pricing incentives. Travel patterns are affected by public knowledge and attitudes; therefore marketing becomes an important tool in order to increase transit usage. Instead of merely advertising its availability, transit marketing could be an ongoing dialogue between community partners and transit agencies. Employer-provided transit benefit programs encourage commuting by transit (see TLU-10). Public transit can be made more affordable by offering other price incentives, such as group discounts or discounted pricing for multi-modal purchases.

### Policy Design

#### Goals:

- Expand participation in employer-sponsored annual transit passes (Eco Pass, PassFort, etc.). By 2012, 10% of employees in Colorado's urban areas would be offered annual transit passes; by 2020, 25% of urban area employees would be offered annual transit passes.
- Expand number of employers offering Commuter Checks (pre-tax transit fare program). Goal of 25% transit commuters in state metropolitan areas will use Commuter Checks by 2012 and 50% by 2020.
- Work with transit agencies to develop and implement new transit marketing programs in metropolitan areas.
- In conjunction with TLU-3, reduce light-duty urban VMT by 6% compared to baseline scenario.

**Timing:** New marketing programs and discounted fare programs implemented by 2009.

**Parties Involved:** Transit agencies, CDOT, MPOs.

### Implementation Mechanisms

TBD

### Related Policies/Programs in Place

TBD

### Types(s) of GHG Reductions

Net reduction in CO<sub>2</sub> emissions.

### Estimated GHG Savings and Costs per MtCO<sub>2e</sub>

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

#### **Key Uncertainties**

TBD

#### **Additional Benefits and Costs**

TBD

#### **Feasibility Issues**

TBD

#### **Status of Group Approval**

TBD

#### **Level of Group Support**

TBD

#### **Barriers to Consensus**

TBD

## TLU-8. Fuel Tax Increase and Variable Priced Insurance

### Policy Description

This option would seek to reduce automobile travel and emissions by increasing the real or perceived cost of driving. This would be accomplished by (1) raising the gasoline tax, and (2) encouraging the offering automobile insurance with premiums that vary with vehicle use.

**Gasoline tax increase.** The state would increase the gasoline tax, thereby increasing the cost of driving and encouraging vehicle owners to drive less. A portion of the gas tax revenues could be used to fund improvements in alternative travel options or other GHG mitigation strategies.

**Variable priced insurance.** Variable priced insurance transfers some of the fixed annual auto insurance premium to a variable basis, thereby encouraging vehicle owners to drive less. One form of this concept is “pay-at-the-pump insurance,” whereby insurance premiums are paid as a fuel tax surcharge. Another form is Pay-As-You-Drive (PAYD) insurance, whereby a portion of vehicle insurance payments as assessed on a per-mile basis. Variable priced insurance has been promoted by a variety of groups for reasons that include emissions reductions, safety (through decreased driving) and fairness (by changing insurance costs to more closely track the portion of individuals' risk that is created by miles driven).

Several companies in the U.S. offer PAYD insurance today:

- Progressive Insurance is running an initial 5,000-car pilot in Texas, which has seen reductions in driving of about 20%.<sup>4</sup> A similar pilot in Minnesota filled up its 4,800 spots quickly, and Progressive has since rolled out the program in Michigan and Oregon.<sup>5</sup>
- GMAC Insurance and OnStar vehicle services have designed a new mileage discount program that will allow motorists who own GM Vehicles with OnStar service to earn an extra discount based on the miles they drive. This program is currently available in Arizona, Indiana, Illinois and Pennsylvania with plans to expand the program to additional states in the near future.
- King County Metro (Seattle) is in negotiations with an insurance company to run a five-year pilot program offering PAYD insurance to some of its 150,000 Transit Pass holders. King County is seeking \$2.2 million from the government and partner agencies to fund a statewide PAYD pilot program.

Any of these programs or pilots could be useful sources of models for a Colorado pilot project.

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<sup>4</sup> For mid-program summaries of the Texas initiative, see: [www.nctcog.org/trans/air/programs/payd/index.asp](http://www.nctcog.org/trans/air/programs/payd/index.asp).

<sup>5</sup> See <https://tripsense.progressive.com/>

**Policy Design**

**Gasoline tax increase.** The state would increase the gasoline tax by \$0.15 per gallon, to \$0.37 per gallon. This would effectively raise the retail price of gasoline by approximately 5%. Implementation no later than Jan 1, 2010.

**Variable priced insurance.** Colorado would change insurance regulations to allow PAYD insurance, and initiate and promote an aggressive pilot of PAYD. Successful adoption of PAYD could happen either through competitive pressure whereby increasing numbers of companies offer it in order to stay competitive or through a change in state policy mandating PAYD at some point after it has been demonstrated to effectively reduce VMT.

Rates can be set—as most insurance rates are—for classes. PAYD rates would be charged within classes, so that a driver in that class (for example, “rural”) traveling the average distance would pay the same under PAYD as before.

The necessary equipment for remote mileage readings is standard on GM OnStar-equipped vehicles. Add-on equipment to relay mileage automatically has been added in several pilot projects for several hundred dollars. All model year 1996 vehicles and newer have on-board diagnostics ( OBD ) that already electronically monitor mileage. This data can be quickly downloaded via transponders. Also, current odometers are sufficiently tamper-proof to support yearly mileage readings with no additional technology. A system would need to be set-up to manually read odometers where VMT cannot be monitored electronically.

**Goals:** Assuming a pilot program is successful and the State mandates PAYD, market penetration could increase to 100% by 2020. If the State promotes PAYD rather than issuing a mandate, a penetration of 5% could be achieved by 2020.

**Timing:** See above.

**Parties Involved:** Insurance companies, State Legislature, Colorado citizens, Governor.

**Implementation Mechanisms**

TBD

**Related Policies/Programs in Place**

TBD

**Types(s) of GHG Reductions**

Net reduction in CO<sub>2</sub> emissions.

**Estimated GHG Savings and Costs per MtCO<sub>2</sub>e**

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e



## TLU-9. Parking Management

### Policy Description

The location, supply, and pricing of parking can have a major impact on travel decisions, including choice of mode. *Parking management* refers to policies and programs that result in more efficient use of parking resources. Managing parking by restricting parking availability or encouraging market rate pricing can encourage more transit usage, ridesharing, bicycling, and walking. Reducing requirements for parking supply can also encourage infill and transit-oriented development by lowering the cost of such projects.

### Policy Design

This option would encourage innovative parking management by local governments as a way to reduce automobile use and encourage infill and transit-oriented development. Local governments influence the supply and/or management of most public and private parking. When appropriately applied, parking management can significantly reduce the number of parking spaces required in a particular situation, providing a variety of economic, social, and environmental benefits. Specific action items are listed below.

#### Employer-to-Commuter Parking Incentives to Encourage Mode Shift (see TLU-10)

- *Parking cash-out* – Commuters who are offered subsidized parking can choose cash instead.
- *Discounted or preferential parking* for rideshare (carpool and vanpool) vehicles.
- *Bicycle parking and changing facilities* increase the convenience and security of bicycle transportation.

#### Market Based Incentives

*Unbundled Parking* means that parking is rented or sold separately, rather than automatically included with building space. Developers can make some or all parking optional when selling buildings.

Example: An apartment that normally rents for \$1,000 with two parking spaces could be unbundled to \$800 plus \$100 per parking space.

#### Policies/Regulations:

- *Parking tax reform* includes various tax policies that support parking management, including *commercial parking taxes* (a tax on parking rental transactions) and *per-space parking levies* (a special property tax applied to parking facilities).
- *Improve Enforcement and Control* – Ensure that parking regulation enforcement is efficient, considerate and fair.

- *Address spillover parking* – Use management, enforcement and pricing to address spillover problems, such as undesirable use of nearby parking facilities.
- *Parking requirements* – Reduce or eliminate requirements for minimum number of parking spaces at new development; establish parking caps for new development.

**Goals:**

- By 2010, establish a state program to encourage local governments to voluntarily revise parking policies in accordance with the actions outlined above.
- By 2010, state lead by example by adopting parking incentives to encourage mode shift (as outlined above) for state-owned parking facilities.

**Timing:** As described above

**Parties Involved:** Local governments, public and private sector businesses, developers.

**Implementation Mechanisms**

TBD

**Related Policies/Programs in Place**

TBD

**Types(s) of GHG Reductions**

Net reduction in CO<sub>2</sub> emissions.

**Estimated GHG Savings and Costs per MtCO<sub>2</sub>e**

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

**Key Uncertainties**

TBD

**Additional Benefits and Costs**

TBD

**Feasibility Issues**

TBD

**Status of Group Approval**

TBD

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD

## TLU-10. Commuter Benefits Programs

### Policy Description

Employers can significantly reduce automobile travel by their employees when they offer commuter benefits programs. Such programs often include free or low cost transit passes, strong telework programs, carpooling matching and vanpool subsidies, guaranteed ride home services, parking cash-out, amenities for bicyclists, and other benefits. State and local government agencies can offer these programs to their employees and can encourage private employers to offer such programs. The state can also require that large employers to participate in an employee trip reduction program.

### Policy Design

The ultimate goal of this option is to shift commuters from single occupancy vehicles (SOVs) to alternative modes of transportation. Commuter benefits programs should be part of a larger Colorado Corporate Climate Challenge, which would tie in with the Residential/Commercial/Industrial (RCI) sector program(s) to also encourage energy conservation and minimize waste. It could be a stand alone program or serve as a menu item in the Corporate Climate Challenge.

- Ensure employer support and participation.
- Have state commit \$10M dollars to the program by 2010 (possible funding through creation of Clean Energy Fund, if approved in 2007).
- Could seek legislation to create a multi-modal capital transportation fund and require the transfer of excess state revenues up to \$50 million into the fund through FY 2011-16. Fifty percent of the funding would be allocated to state projects, 27 percent to counties, and 23 percent to municipalities.

### Goals:

- By 2010, all employers in Colorado served by a transportation authority or district with more than 100 employees will offer a commuter benefits program.
- By 2010, 300 employers in Colorado will participate in the national Best Workplaces for Commuters program. (Currently, approximately 160 Colorado employers participate.)
- By 2010, all state agencies, all colleges and universities, and all local governments (over 100 employees) who are served by a transportation authority or district will offer a commuter benefits program with benefits no less than those established for the national Best Workplaces for Commuters program.
- By 2010, the state would adopt an employee trip reduction act and require that employers with more than 100 worker (per location) participate in an employee trip reduction program.

**Timing:** Full implementation by 2010. 2008 for legislation for a potential vote in 2008 or 2009 to be effective sometime in 2010.

**Parties Involved:** CDOT, MPOs, municipalities, regional transportation districts or authorities, employers, state legislature.

#### Implementation Mechanisms

TBD

#### Related Policies/Programs in Place

TBD

#### Types(s) of GHG Reductions

Net reduction in CO<sub>2</sub> emissions.

#### Estimated GHG Savings and Costs per MtCO<sub>2</sub>e

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

#### Key Uncertainties

TBD

#### Additional Benefits and Costs

TBD

#### Feasibility Issues

TBD

#### Status of Group Approval

TBD

#### Level of Group Support

TBD

**Barriers to Consensus**

TBD

## TLU-11. Driver and Consumer Education

### Policy Description

Education is the first step to successful implementation. Drivers will voluntarily reduce fuel use and GHG emissions from their activities when they have the information necessary to make proper decisions.

The option would involve development and implementation of a curriculum that addresses the limiting of GHGs in transportation through:

- Improved vehicle maintenance – regular vehicle tune-ups; fuel efficient tires; coolest temperature fueling; etc.
- Improved vehicle operation – turn off vehicle while parked; speed limit observation; elimination of ‘jack-rabbit’ starts
- Improved transportation choice – low- GHG emitting vehicles; right size vehicle; car-pooling; use of alternative fuels; walking; biking; telecommuting; mass transit

This curriculum would be a requirement for all driver training programs with questions pertinent to training included on the written/driving portion of private and commercial driver licensing tests. (There are currently driver training programs in Utah and Arizona incorporating this type of curriculum in classroom settings.) In addition, programs including this curriculum are to be mandated for both state and municipal fleet operators. All GHG saving application methods included in the curriculum would be enforced at state and municipality fleet levels.

In the interest of time and expense, it is recommended that existing curriculum from such entities as DOE or National Energy Foundation be examined for application and modified as needed.

### Policy Design

#### Goals:

- Reduce transportation GHG emissions through education to promote intelligent transportation purchasing choices and vehicle operation.
- Consumer information program would begin in 2008, with program expansion as resources are made available.
- By 2009, the State or appropriate agency would develop a marketing program for fuel efficient replacement tires and energy efficient driving practices and devices.
- By 2010, the State or appropriate agency would ensure that a training be delivered for all state and municipal fleet operators.
- By 2010, private and commercial driver licensing tests would be modified to incorporate information about fuel saving driving practices.

**Timing:** See above.

**Parties Involved:** Driver training programs; DMV; State, Commercial and Municipal Fleets

**Implementation Mechanisms**

TBD

**Related Policies/Programs in Place**

TBD

**Types(s) of GHG Reductions**

Net reduction in CO<sub>2</sub> emissions.

**Estimated GHG Savings and Costs per MtCO<sub>2</sub>e**

	<u>2012</u>	<u>2020</u>	<u>Units</u>
GHG Emission Savings	TBD	TBD	MMtCO <sub>2</sub> e
Net Present Value (2006-2020)	TBD	TBD	\$ Million
Cumulative Emissions Reductions (2006-2020)	TBD	TBD	MMtCO <sub>2</sub> e
Cost-Effectiveness	TBD	TBD	\$/MtCO <sub>2</sub> e

**Data Sources:** TBD

**Quantification Methods:**

**Key Assumptions:** TBD

**Key Uncertainties**

TBD

**Additional Benefits and Costs**

TBD

**Feasibility Issues**

TBD

**Status of Group Approval**

TBD

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD