

Mitigation Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2008–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Level of Support
	2012	2020	Total 2008-2020			
SECTOR TOTAL AFTER ADJUSTING FOR OVERLAPS ^a	14.7	34.1				
REDUCTIONS FROM RECENT POLICY ACTIONS	In progress	In progress				
SECTOR TOTAL PLUS RECENT POLICY ACTIONS	In progress	In progress				

^a Sector total = all actions quantified so far *except* VMT fee and PAYD Insurance

TLU 1a Land Development Planning

Mitigation Option Description

Promote land planning and development that supports conservation of high quality natural and cultural resources and supports more compact development, and as a result reduces growth in driving and emissions.

Mitigation Option Design

- **Goals:** Support and promote private and public planning and development practices, including infrastructure provision, that reduce the number, length, or travel mode of trips made in North Carolina.

Reduce projected increase in VMT by 10% statewide by 2020.

- **Timing:** Have policies in place to achieve that VMT goal by 2010.
- **Parties involved:** Include private developers/contractors, local government planning/elected boards, and planning staffs for towns and counties.
- **Other:**

Implementation Mechanisms

Meeting the goal will require diverse implementation tools. Providing many options, statutory changes, and program assistance for smaller communities will be essential.

Mechanism 1: Land use and development legislation to require adoption of a growth plan:

a. Each municipality and county shall develop a land use and development plan. The plan should designate planned growth areas and natural resource areas within that jurisdiction and any extraterritorial jurisdiction for a planning horizon of at least 25 years. The land use and development plan should include standards and criteria for conservation area and/or urban service area designations to accommodate a minimum 20-year growth forecast agreed upon by the each county and municipality, establish development and conservation goals, recognize important natural and human resources, and express appropriate policies, practices and strategies to implement these goals.

Local planning programs should include appropriate public involvement processes to achieve consensus on the development and conservation vision for the community.

b. Require and support integration of transportation with land use plans.

Maryland, Minnesota, and Denver, CO, as well as the non-profit Triangle Land Conservancy have developed “greenprints” of areas that have old-growth forests, productive agricultural lands, water supply watersheds, historic sites or other critical and irreplaceable resources. Adding this as a required element of all transportation plans would be a simple and meaningful step that would greatly enhance the effect and benefits

of NCGS 136-66.2 without requiring new zoning or regulatory powers. The November, 2004 passage of tax increment financing legislation demonstrates that North Carolina can and does make room for new ideas that help achieve economic development goals in concert with infill development objectives. The N.C. Small Town Economic Development (NCSTEP) initiative created grant funds that are being applied to 33 communities to better develop their areas.

c. Regulatory incentives such as withholding transportation funds for non-compliance have worked in Tennessee and should be considered in North Carolina as well.

Mechanism 2: Remove barriers to Smart Growth

Many states have successfully implemented a variety of tools that are unavailable to North Carolina municipalities and counties due to prohibitions imposed by North Carolina statutes or constitution. Modify statutes to permit adequate public facilities ordinances, transfer of development rights programs, and development impact fees to improve the ability of local governments to control their own destinies.

Related Policies/Programs in Place

1. § 136-66.2. Development of a coordinated transportation system and provisions for streets and highways in and around municipalities.

(b1) The Department of Transportation may participate in the development and adoption of a transportation plan or updated transportation plan when all local governments within the area covered by the transportation plan have adopted land development plans within the previous five years. The Department of Transportation may participate in the development of a transportation plan if all the municipalities and counties within the area covered by the transportation plan are in the process of developing a land development plan. The Department of Transportation may not adopt or update a transportation plan until a local land development plan has been adopted. A qualifying land development plan may be a comprehensive plan, land use plan, master plan, strategic plan, or any type of plan or policy document that expresses a jurisdiction's goals and objectives for the development of land within that jurisdiction. At the request of the local jurisdiction, the Department may review and provide comments on the plan but shall not provide approval of the land development plan.

2. § 113A-100. Coastal Area Management Act, § 113A-101. Cooperative State-local program.

This Article establishes a cooperative program of coastal area management between local and State governments. Local government shall have the initiative for planning. State government shall establish areas of environmental concern. With regard to planning, State government shall act primarily in a supportive standard-setting and review capacity, except where local governments do not elect to exercise their initiative. Enforcement shall be a concurrent State-local responsibility.

Types(s) of GHG Reductions

Mainly CO₂, small amounts of others

Estimated GHG Reductions and Costs (or Cost Savings)

First-round estimate:

	Mitigation Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2008–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)
		2012	2020	Total 2008–2020		
	Transportation and Land Use					
TLU-1a	Land Use Strategies	2.6	8.0	In progress	<i>Expected net savings</i>	

- **Data Sources:**

1. *VMT impacts:* literature. Wide variety of literature finds that integrated transportation and land use planning can substantially reduce VMT. Use 30% as a first pass.
2. *Costs:* literature. Wide variety of literature finds that integrated transportation and land use planning produces savings on infrastructure and transportation costs. Building (including land) costs may be higher. Preponderance of literature suggests net savings overall.

- **Quantification Methods:**

Apply reductions to LDV VMT only:

- 15% of total VMT affected by these policies by 2012; 40% by 2020.

- 2012 reduction = Statewide LDV * 15% * 30% = **4%** of total statewide HDV + LDV

- 2020 reduction = Statewide LDV * 40% * 30% = **10%** of total statewide HDV + LDV

- Convert to CO₂

- **Key Assumptions:** [Pending].

Key Uncertainties

[Pending]

Additional Benefits and Costs

[Pending]

Feasibility Issues

[Pending]

Status of Group Approval

[Pending]

Level of Group Support

[Pending]

Barriers to Consensus

[Pending]

TLU – 1b Multimodal Transportation and Promotion

Mitigation Option Description

- **Goals:**
 1. Shift passenger transportation mode choice to lower emitting choices
 2. Ensure that transportation is integrated with and appropriately serves land-use development plans [developed under TLU-1a].
 3. State invests 5% of all state transportation dollars in transit by 2010, and 12% by 2030.

Mitigation Option Design

- **Goals**

Implement policies that increase use of public transportation, producing a shift to lower emitting mode choices, by the following policies:

- Improve Transit Service (frequency, convenience, quality)
- Expand Transit Infrastructure (rail, bus, BRT)
- Focus new development on transit-served corridors (Transit-Oriented Development)
- Expand Transit Marketing and Promotion (including tax-free and employer-paid Commuter Benefits, and Parking Cash Out)
- Expand Transportation System Management and Design, which speeds both transit and other traffic
- Improve bike and pedestrian infrastructure both as feeders and as stand-alone modes.

- **Timing:**

- Many programs are in place and are therefore immediately expandable/implementable – enhancement and continuation can begin short-term.
- Infrastructure improvements will take 1-5 years at a minimum.

- **Parties involved:** NC DOT, Regional Transportation Districts, Metropolitan Planning Organizations, Regional Planning Organizations, municipalities, counties.

- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

1. Aggressively support and aid the creation of Regional Transportation Districts (RTDs). RTDs can sell bonds for capital projects, and member governments can levy taxes for operation and maintenance subject to voter approval.
2. Make planning and funding rules more flexible to allow transit operators to provide service to places outside of their municipal jurisdictions.
3. Abolish or reduce minimum parking requirements in zoning codes, and allow localities to establish parking maximums.
4. Create a best practice guide and recognize developers who adhere to best practice when designing and locating new private (and public) development.
5. Require planning to extend beyond 5 years (20 years recommended) for all systems.
6. Incentivize or require the purchase of biodiesel fuel (minimum: B20) as a part of all public bus replacement programs. Conover has already done so with great results.
7. Location of State Facilities – Locate state facilities near transit facilities. Where/when appropriate all state government offices should be located downtown when possible (per Executive Order from NC Governor James Holshouser).
8. State Targeting of Infrastructure Investments – Legislatively appropriated capital outlay funds, state public revolving loan fund, and other state-funded infrastructure initiatives should be used for projects that encourage walkable and traditional communities, and are supportive of transit.
9. Make maintenance of infrastructure a priority – Fix it First. Revise any state infrastructure programs (transportation, water, sewer) that fund new systems but not maintenance or upgrades for existing systems.
10. Replace “average cost pricing” for utilities services with rate structures that charge full marginal costs for both new infrastructure and for water, sewer, electricity, and telephone service delivery.
11. Fund the transportation-related programs in this mitigation option with monies generated by other mitigation options such as feebates and/or gas tax.

Related Policies/Programs in Place

1. Statewide Transportation Demand Management Program (TDM) – NCDOT-PTD supports the formation and ongoing activities of local TDM programs across the state by funding up to 50% of the cost of administering and marketing the services of the local TDM programs. We also provide training for the TDM Coordinators operating the TDM programs. Currently there are programs in the Charlotte, Asheville, Triad, Triangle and Wilmington areas of the state. In support of the TDM programs, the state funded, with local areas support, a ridematching program that is available statewide which individuals can access through the internet to find or form carpools or vanpools for their daily commuter trips. We are looking into adding a module to the program that allows individuals to enter trip needs that vary by day of the week, instead of the usual Monday through Friday work trip. The

new module would allow part time workers, workers with variable work schedules and college students to find rides even though their trips are not regular throughout the week.

2. Intermodal Transportation Centers – NCDOT-PTD works with municipalities in the states larger cities to develop intermodal transportation centers that allow for seamless movement between intercity passenger rail, intercity bus and city bus services. Currently Greensboro has an intermodal center in operation which spurred double digit increases in ridership on the city’s bus system and the intercity bus operator after it opened. Rocky Mount has a successful intermodal center in operation. Additional projects are being developed in the following areas: Charlotte, Durham, Fayetteville, Greenville, Raleigh, Wilmington and Winston-Salem.

The state assists the municipalities in getting Federal Transit Administration funding, provides a 10% match to the 80% FTA funding and participates in the planning, land acquisition and design processes leading to construction of the centers.

3. Technology on Transit Vehicles and Facilities – NCDOT-PTD supports the installation of new technologies on transit buses and in transit facilities that make transit services more safe and efficient and that provide a higher level of information on the services for riders and potential riders. The state funds 90% of the cost of the technologies. Examples of such technologies include installation of cameras on buses (safety), real time transit service information signage at transit facilities (more information), compatible electronic fareboxes for systems in one region (ease of transit systems use) and installation of AVL/GPS systems on buses (more efficient operation and more information to passengers).

Types(s) of GHG Reductions

Mainly CO₂, small amounts of others

Estimated GHG Savings and Costs per MTCO₂e

	Mitigation Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2008–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Level of Support
		2012	2020	Total 2008-2020			
	Transportation and Land Use						
TLU-1b	Multi-modal Transportation & Promotion	2.8	3.0	In progress	In progress	In progress	TBD

- **Data Sources:**

VMT impacts: literature. Wide variety of literature finds that integrated transportation and land use planning can substantially reduce VMT. Use 30% as a first pass.

- **Quantification Methods:**

Apply reductions to urban LDV VMT only.

1. Reductions from transit improvements:

50%	Percent of travel (by VMT) that is potentially transit servable
2%	Current pax miles traveled share for transit trips
50%	Percentage decrease in transit fares
25%	Percentage increase in service
0.4	Elasticity of transit demand wrt price
0.8	Elasticity of transit demand wrt service
2.40%	Expected percent reduction in VMT (based on fare decrease)
2.40%	Expected percent reduction in VMT (based on service increase)

- 2012 reduction = **2.4%** of total statewide HDV + LDV

- 2020 reduction = **2.4%** of total statewide HDV + LDV

2. Reductions from TDM and transit promotion

30%	Multiply urban LDV VMT by the percent of travel that is associated with commuting
12%	Effectiveness of TDM measures for reducing daily commute VMT (through 2012)
20%	Effectiveness of TDM measures for reducing daily commute VMT (through 2020)
4%	Calculate expected percent reduction in commute VMT through 2012
6%	Calculate expected percent reduction in commute VMT through 2020

- Convert to CO2

- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU - 3 Feebates: to raise revenue

Mitigation Option Description

Motor vehicle registration fees that vary with vehicle emissions and fuel economy as rated by U.S EPA. Could be designed to be a ‘feebate’ by providing a small refund instead of surcharge for vehicles that achieve low scores.

Mitigation Option Design

Goals:

1. To raise funds for State of North Carolina to provide funds for transportation related projects that reduce GHG.
2. To raise funds through a mechanism that is directly tied to a significant source of GHG emissions (our cars and trucks).

Timing: Should be implemented as soon as possible.

Parties involved: DMV, and agencies that distribute and spend the revenue.

Other: [Insert text if/as appropriate]

Implementation Mechanisms

This could be ordered through legislation.

For light duty vehicles, the appropriate emissions/efficiency factor is identified from the table below (this will be done by a DMV computer). This factor is based on the vehicle’s Green Vehicle Guide rating, as published by EPA (www.epa.gov/greenvehicles)

. By incorporating the vehicle’s Green Vehicle Guide rating, both fuel economy and emissions are accounted for.

Combined Score from EPA Green Vehicle Guide	Emissions/Efficiency Factor
19-20	10,000
17-18	9,000
15-16	8,000
13-14	7,000
11-12	6,000
9-10	5,000
7-8	4,000
5-6	3,000
3-4	2,000
<3	1,000

Then to calculate the surcharge, vehicle miles traveled (VMT) is divided by the emissions/efficiency factor, as shown in the example below.

Vehicle	Vehicle Miles Traveled	Combined Score from EPA Green Vehicle Guide	Factor from Table Above	Fee (VMT/Factor)
Toyota Prius	15,000	20	10,000	\$1.50
Volkswagen Jetta Diesel, Manual	21,000	13	7,000	\$3.00
Chevy Cavalier	49,000	14	7,000	\$7.00
Toyota Land Cruiser	15,000	2	1,000	\$15.00

Generally the feebate design needs to: be simple, minimize the number of pivot points, be well-documented, be designed to maximize not minimize consumer attention.

Related Policies/Programs in Place

During the past 2 legislative sessions, variations of a motor vehicle surcharge have been introduced.:

NC SB 1038/HB 1595- Mobile Source Emission Reduction Program

***Establishes variable motor vehicle registration fees based on vehicle’s pollution and fuel economy score to generate funds for public and private sector use of alternative fuel and advanced transportation technologies.** Funds would be distributed through the State Energy Office for transportation projects that support clean air renewable energy objectives.

****Proposed committee substitute will set vehicle surcharge from \$2-\$14 annually***

Types(s) of GHG Reductions

[Insert text as appropriate]

Estimated GHG Reductions and Costs (or Cost Savings)

3.7 million NC LDV registrations / yr.

@ \$10/vehicle = \$37 million / yr for programs to reduce emissions from travel.

Regional commuter programs can reduce VMT @ 2 cents/mile.

\$37 million / yr / \$0.02/mile = 1,850,000,000 VMT = 2% of total statewide VMT; 3% of total urban LDV VMT.

NOT (yet) converted to GHG and reported separately in reductions table; TWG needs to discuss what program this option should fund; need to avoid double-counting.

• Data Sources:

VMT reductions/\$ from:

ICF, Commuter Connections Strategic Review: Final Report, For Maryland Department of Transportation, Office of Planning and Capital Programming, November 7, 2004.

- **Quantification Methods:**

- **Key Assumptions:**

\$2-\$14 surcharge has no direct effect on behavior. All reductions come from supporting other programs.

Key Uncertainties

Additional Benefits and Costs

Feasibility Issues

Status of Group Approval

[Pending]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU - 3 Feebates to change fleet mix

Mitigation Option Description

'Feebates' charge or rebate a sliding scale of fees and rebates for new cars based on their emissions of greenhouse gases, fuel consumption, and/or some other measure of a vehicle's environmental impacts. These programs provide an incentive for manufacturers to sell cost-effective efficiency technologies, and for consumers to buy lower-emitting vehicles.

Mitigation Option Design

Goals: To reduce overall GHG emissions from new automobiles purchased in the state.

- By creating incentives and disincentives to change consumer behavior. The 'Rebate' creates an incentive for consumers to buy cleaner, more fuel efficient vehicles while the 'fee' on vehicles with lower fuel economy and higher emissions creates a disincentive for consumers to purchase them.
- By sending a signal to manufacturers to produce increasingly efficient vehicles for the market (*this is less prominent at the individual state level*).
- By creating a dedicated revenue stream for promotion of low- or no-GHG transportation alternatives. E.g. hybrid tax credits, transit infrastructure??

Timing: Should be implemented as soon as possible.

Parties involved: All new vehicles registered in North Carolina.

Other: [Insert text if/as appropriate]

Implementation Mechanisms

This could be ordered through legislation.

The feebate can be linked to several parameters;

1. The simplest may be to set the fee or the rebate in proportion to the amount of fuel consumed by the vehicle per mile driven.
2. The consumption could be considered relative to other vehicles within each class or across classes.
3. Then administrators specify the rate (in dollars per mile) and the "pivot point" between those who pay and those who are paid. The location of this pivot point will determine the net revenue flow between consumers and the government.
4. The feebate could be set as a multiplier for an excise tax so that the fee or rebate is determined not only by the emissions rate of the vehicle but by its price as well.

Generally the feebate design needs to: be simple, minimize the number of pivot points, be well-documented, be designed to maximize consumer attention.

Related Policies/Programs in Place

Feebates have been proposed in many forms over the last fifteen years but have not yet been implemented in the United States. There have been notable efforts in California and Maryland in the early 1990s.

Types(s) of GHG Reductions

Mainly CO2

Estimated GHG Reductions and Costs (or Cost Savings)

[Insert text as appropriate]

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Pending]

Additional Benefits and Costs

[Pending]

Feasibility Issues

[Pending]

Status of Group Approval

[Pending]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU-4 VMT Fee

Mitigation Option Description

Vehicle miles traveled fee to reduce greenhouse gas emissions from motor vehicles by reducing growth in miles traveled. [Fee to be determined: draft for discussion at 5 cents/mile.

Mitigation Option Design

- **Goals:**
 1. To reduce greenhouse gas emissions from motor vehicles by reducing VMT.
 2. Secondly, revenue could be used in a variety of GHG-reduction-related transportation initiatives.
- **Timing:** Phased in; at full strength within five years.
- **Parties involved:** Coverage can be varied to include all motor vehicles, including motorcycles. Usual policy option design is to charge a fee only on miles over a pre-determined annual level of miles.
- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

Several possibilities, including

- Electronic;
- Odometer at annual inspection.

Oregon is developing and testing a wireless system.ⁱ

Related Policies/Programs in Place

None in NC or in US. Under consideration in Oregon.

Congestion Tax and Road use tax programs, both truck and auto, with funding being directed toward clean energy public transport and improved roads in several countries: London, England; Germany, Austria, Switzerland. Continued analysis & implementation on programs being conducted throughout Eastern & Western Europe.

Types(s) of GHG Reductions

Mainly CO2

Estimated GHG Reductions and Costs (or Cost Savings)

At 5 cents/mile:

	Mitigation Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2008–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)
		2012	2020	Total 2008-2020		
	Transportation and Land Use					
TLU-4	VMT pricing (5 cents/mile)	5.6	9.8	In progress	In progress	In progress

Apply fee to urban + rural VMT, and LDV + HDV

100%	Multiply VMT by the percent of travel subject to VMT fee
\$0.10	Average (baseline) marginal cost of travel (\$/vmt)
35	Average daily vmt
\$0.50	Average (baseline) daily discrete costs of travel (parking, tolls)
\$4.00	Calculate total (baseline) out-of-pocket daily cost
\$0.15	Average (with strategy) marginal cost of travel (\$/vmt)
\$5.75	Calculate total (with strategy) out-of-pocket daily cost
44%	Calculate percentage increase in out-of-pocket daily travel cost
0.2	Elasticity of daily VMT wrt price (through 2012)
0.3	Elasticity of daily VMT wrt price (through 2020)
9%	Calculate expected percent reduction in VMT (based on increase in price and elasticity) through 2012
13%	Calculate expected percent reduction in VMT (based on increase in price and elasticity) through 2020

- Convert to GHG

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU – Truck Stop—and Places Where Trucks Stop—Electrification

Mitigation Option Description

Reduce idling-induced emissions from heavy-duty diesel trucks by providing electrical hook-ups to power heating, cooling, and other needs while stopped.

Mitigation Option Design

- **Goals:**
 1. To reduce the engine emissions from diesel trucks (typically, tractor trailers) by allowing truck drivers to “plug in” engine heaters, HVAC, and other electrical devices
 2. To use Truck Stop Electrification to support Idle Reduction/Elimination (IR/E) policies.
- **Timing:** Conduct pilot projects at major truck stops on Interstate highways (principally, I-40 and I-85) and other places where trucks stop; progress to include all major truck stops statewide with at least one electrified stop in each of the 17 urban areas in North Carolina.
- **Parties involved:** Affects all long-haul truck drivers of tractor/semi-trailers and combination trailers. USDOT requires all truck drivers to rest for at least 10 continuous hours after an 11-hour driving stint within every (24) hour day and 34 continuous hours once per week.
- **Other:** Note that Truck Stop Electrification may entail all off-board (shore power system) or some on-board/some off-board systems. The all off-board option may be owned by the proprietor of the truck stop. On-board equipment is owned by the driver/owner or trucking company.

Implementation Mechanisms

Third-party vendors, truck stop owners, and trucking companies will play key roles in the advancement and absorption rate of this option. A state-shared responsibility for funding and promotion, coupled with a strong, phased-in Idle Reduction/Elimination policy, is one possible approach. Acquiring feedback during the initial projects (some of which are already in place in N.C.; see map on following page) and modifying the program accordingly will be critical as well.

Related Policies/Programs in Place

[In progress] Could not locate policies or laws to enforce participation; TSE is typically discussed during anti-idling legislation. Pennsylvania, Oregon, and Washington¹¹ appear to have an existing program, for example—as do certain city, and perhaps county or other such, jurisdictions.

Location Map of Existing Electrified Truck Stops in N.C. (FHWA and NREL, 2006)



Types(s) of GHG Reductions

[Pending]

Estimated GHG Reductions and Costs (or Cost Savings)

For round 1 analysis, see TLU-9. May analyze separately in second round.

- **Data Sources:** [Pending].
- **Quantification Methods:** [Pending].
- **Key Assumptions:** [Pending].

Key Uncertainties

[Pending]

Additional Benefits and Costs

[Pending]

Feasibility Issues

[Pending]

Status of Group Approval

[Pending]

Level of Group Support

[Pending]

Barriers to Consensus

[Pending]

TLU-6 Tailpipe GHG Standards

Mitigation Option Description

Adopt the California GHG tailpipe emission standards (also known as the “Pavley” standards), that would set GHG emissions standard for passenger vehicles, standards that are substantially below current levels.

Mitigation Option Design

- **Goals:** Go beyond the federal emissions standards for cars and light trucks within the parameters of the California standards. Note: States can choose between the federal standard or go with the more stringent California standards.
- **Timing:** The General Assembly could enact legislation in 2007 so that NC can implement the California standards—these standards would take effect in the 2010* calendar year.
- **Parties involved:** Applies to MY 2011* new cars and light trucks. The law would directly affect automobile manufacturers, car dealers, and consumers. Compliance concerns would affect manufacturers and dealers.
- **Other:** The California standards currently are being litigated and have not been approved by the EPA. The timing may be affected by the date of enactment of legislation, likely litigation, and the regulatory process.

Implementation Mechanisms

New regulation.

Related Policies/Programs in Place

[Insert text as appropriate]

Types(s) of GHG Reductions

[Insert text as appropriate]

Estimated GHG Reductions and Costs (or Cost Savings)

[Insert text as appropriate]

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU-7 Biofuels Bundle [Option #1: marketers credit]

Mitigation Option Description

Reduce/eliminate motor fuels tax on biodiesel and ethanol (E85) to incentive biofuels use relative to fossil fuels. Develop mechanism for monthly credit for biodiesel and E85 blended fuel that would be equivalent to the state motor fuels tax owed on the biofuels portion of the fuel blend.

Mitigation Option Design

[Insert text as appropriate]

- **Goals: Stimulate availability/sales of biofuels to the motoring public by providing incentive to fuel marketers. Timing: Immediate**
- **Parties involved: This would stimulate use of biofuels in the private sector. (State and local government fuels sales are not subject to state motor fuels tax)**
- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

- Monthly tax credit would be claimed on same form (Biodiesel and Fuel Alcohol Providers Form) as marketers currently file with NC DOR Motor Fuel Tax Division to pay fuel tax. This would reduce pump price of Biofuels as marketers would pass bulk of credit on to consumer in order to be competitive. Credit could be paid for out of General State Revenues, DOT highway funds. Credit would be revenue neutral as it would be equal to the tax that would have been paid by marketers for biofuel portion of blend.

Related Policies/Programs in Place

[Insert text as appropriate]

Types(s) of GHG Reductions

[Insert text as appropriate]

Estimated GHG Reductions and Costs (or Cost Savings)

For the first round of analysis, bundle all three biofuels options (a, b, c) together. Without clearer definition of some aspects, difficult to quantify. But for purposes of ballparking possible emissions reductions, make the following assumptions:

5%	Percent of travel converted to bio by 2012
5%	Percent of vehicles converted to bio by 2012
10%	Percent of travel converted to bio by 2020
10%	Percent of vehicles converted to bio by 2020
80%	VMT-equivalency of bio to baseline vehicles in 2012.
80%	VMT-equivalency of bio to baseline vehicles in 2020.
6.00%	Calculate expected percent reduction in VMT-equivalency of conventional vehicles for 2012.
12.00%	Calculate expected percent reduction in VMT-equivalency of conventional vehicles for 2020.

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU-7 Biofuels Bundle [Option #2: end-use credit]

Mitigation Option Description

Implement a .25 cent per gallon credit (incentive) for biodiesel and ethanol used in North Carolina vehicles.

Mitigation Option Design

- **Goals:** Stimulate availability/sales of biofuels to all transportation fuel users by providing incentive to fuel marketers.
- **Timing:** Immediate
- **Parties involved:** This would stimulate sales and use of biofuels by all transportation fuel users in North Carolina.
- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

- Monthly tax credit would be claimed on same form (Biodiesel and Fuel Alcohol Providers Form) as marketers currently file with NC DOR Motor Fuel Tax Division to pay fuel tax. This would reduce price of Biofuels as marketers would pass bulk of credit on to consumer in order to be competitive. Credit could be paid for out of General State Revenues, DOT highway funds. Credit would NOT be revenue neutral as the state would be providing incentive for fuel sold to non-taxable entities (local and state government) as well as sales to taxable entities. However, only the biofuel portion of blended fuel would be eligible for .25 cent credit. For example a B20 blend would get a .05 cent credit.

Related Policies/Programs in Place

[Insert text as appropriate]

Types(s) of GHG Reductions

[Insert text as appropriate]

Estimated GHG Reductions and Costs (or Cost Savings)

[Insert text as appropriate]

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU-7 Biofuels Bundle [Option #3: producer credit]

Mitigation Option Description

Tax credit to incentivize biodiesel production.

Mitigation Option Design

- **Goals: Stimulate production and use of biodiesel by providing income tax credit incentive to fuel producers/marketers.**
- **Timing: effective date Jan 1, 2008**
- **Parties involved: This will stimulate production and use of biodiesel in NC**
- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

A provision was included in the 2006 NC budget. See budget text in following section. Not clear how this will be implemented but it appears to be an income tax credit that's related to the amount the taxpayer paid during the previous year in motor fuels taxes on the biodiesel.

Related Policies/Programs in Place

**GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2005**

SESSION LAW 2006-66

SENATE BILL 1741 (Budget Bill) signed by Gov Easley 7-10-06

<http://www.ncleg.net/Sessions/2005/Bills/Senate/PDF/S1741v8.pdf>

TAX CREDIT FOR BIODIESEL PRODUCER

SECTION 24.8.(a) Article 3B of Chapter 105 of the General Statutes is amended by adding a new section to read:

"§ 105-129.16F. Credit for biodiesel producers.

(a) Credit. – A biodiesel provider that produces at least 100,000 gallons of biodiesel during the taxable year is allowed a credit equal to the per gallon excise tax the producer paid under Article 36C of this Chapter on the biodiesel. For the purposes of this section, 'biodiesel' is liquid fuel derived in whole from agricultural products, animal fats, or wastes from agricultural products or animal fats. The credit does not apply to tax paid on diesel fuel included in a biodiesel blend. The credit may not exceed five hundred thousand dollars (\$500,000) and is subject to the limitations of G.S. 105-129.17.

(b) Sunset. – This section is repealed for taxable years beginning on or after January 1, 2010."

SECTION 24.8.(b) This section is effective for taxable years beginning on or after January 1, 2008.

Types(s) of GHG Reductions

[Insert text as appropriate]

Estimated GHG Reductions and Costs (or Cost Savings)

[Insert text as appropriate]

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU 8 – Procurement of Efficient Fleets

Mitigation Option Description

Reduce GHGs by increasing the efficiency of government fleets; increase fleet use of alternative fuels and of more efficient engines.

Mitigation Option Design

- **Goals:**
Increase government fleet use of low-GHG fuels and more efficient vehicles to reduce greenhouse gas emissions from fleets, principally carbon dioxide (CO₂), but also including other emissions affecting ozone, sulfur, and carbon monoxide loadings.
- **Timing:** Statewide GHG reduction targets for fleets phased in over period of probably 8 – 10 years to allow fleet turnover to absorb most of the costs of replacing existing fleets. Other measures regarding more frequent maintenance and part specifications could be phased in much faster.
- **Parties involved:** All government fleet vehicles. (An additional state procurement policy could touch private fleet operators as well.) On-road passenger cars and light-duty trucks would be the principal units being targeted. (Bus fleets and heavy-duty trucks are also existing and future targets.)
- **Other:** It should be noted that some places in North Carolina are already implementing green vehicle fleets in whole or part.

Implementation Mechanisms

Although hybrid cars and higher-fuel efficiency cars comprise the biggest part of the potential market for creating greener vehicle fleets, better purchasing decisions on tires and maintenance schedules can also contribute significantly to higher fuel efficiencies and lower emissions. A statewide policy specifying target adoption rates would need to come with an incentive or enforcement package.

To assure the use of cleaner fuels and more efficient vehicles the State can set up a system to accrue “alternative fuel use credits”. Credit can be accrued through the use of biodiesel, ethanol, CNG, propane, hydrogen, electricity and the purchase of advanced technology vehicles such as hybrid electric vehicles. Such legislation was introduced during the 2005 session (SB1148). Text from bill:

The State fleet shall accrue a total of 2,000,000 alternative fuel use credits during each calendar year 2006 and 2007. The State fleet shall accrue a total of 5,000,000 alternative fuel use credits during each calendar year 2008 and 2009. The State fleet shall accrue a total of 10,000,000 alternative fuel use credits during the calendar year 2010 and each calendar year thereafter.

(e) Formulas for Calculating Credits. – Alternative fuel use credits are calculated as follows:

(1) Subject to subdivision (2) of this subsection, one alternative fuel credit accrues for each one gallon of one hundred percent (100%) alternative fuel utilized by a State fleet vehicle. When alternative fuel is blended with petroleum-based fuel, the alternative fuel credit accrues for each one gallon of alternative fuel utilized by a State vehicle at a rate that is based on the percentage of alternative fuel that is utilized by a State fleet vehicle. (For example, one alternative fuel use credit accrues for every five gallons of B20 that is utilized by a State fleet vehicle.)

Thus, in 2012, the goal of the state bill is to move 10,000,000 gallons of fuel from fossil to bio.

Related Policies/Programs in Place

Seattle, OR; Houston, TX; Washington, DC; and many other cities, including Raleigh, Durham, Greensboro, Hickory, Conover, Charlotte and others have converted part or all of their fleets to cleaner-burning fuels such as B20, compressed natural gas (CNG), ethanol, and electric hybrids. Maine, Massachusetts, Washington, New York and California have all passed Executive Orders specifying certain target percentages of alternative fuel vehicles by a certain date. North Carolina has vigorously acquired flexible fuel vehicles (FFVs) and uses E85, E10, and biodiesel on more than 3,000 vehicles.ⁱⁱⁱ

Budget provision 19.5 of the 2005 NC budget requires the displacement of 20% petroleum from state fleet vehicles by 2010. These mandated goals affecting state fleets greater than 10 vehicles will result in more expanded use of Biodiesel (B20) and ethanol (E85). For example NC DOT has already announced expansion of B20 refueling to over 100 state refueling facilities in NC.

Types(s) of GHG Reductions

Mainly CO2

Estimated GHG Reductions and Costs (or Cost Savings)

	Mitigation Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2008–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)
		2012	2020	Total 2008-2020		
	Transportation and Land Use					
TLU-8	Procure Efficient Fleets	In progress	In progress	In progress	In progress	In progress

10,000,000 gallons is (very roughly) 0.2% of North Carolina transportation fuel consumption.

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Pending]

Additional Benefits and Costs

[Pending]

Feasibility Issues

[Pending]

Status of Group Approval

[Pending]

Level of Group Support

[Pending]

Barriers to Consensus

[Pending]

TLU 9 – Idle Reduction/Elimination Policies

Mitigation Option Description

Implement state and local policies to reduce hours of operation and thus emissions from idling trucks and buses (principally), perhaps off-road engines as well.

Mitigation Option Design

- **Goals:**
 1. To reduce greenhouse gas emissions from heavy vehicles.
 2. Reinforce Truck Stop Electrification (TSE) support.
- **Timing:** Phased in; at full strength within five years of initiation.
- **Parties involved:** All heavy truck and bus fleets, public and private.
- **Other:** Exemptions for emergency vehicles, maintenance tasks, and similar cases. Note that “idling” here does not cover idling while stopped in traffic.

Implementation Mechanisms

This would require working with trucking groups, truck stops, and places where trucks stop as well as with government to formulate an agreeable policy approach, phasing schedule, and legislative content.

Related Policies/Programs in Place

About 15 states and a number of local governments have adopted anti-reduction legislation.^{iv} More are sure to follow or are already being discussed at some level. Toronto has had a law in place since 1996. Many North Carolina counties and the State Board of Education (Policy No. EEO-M-003) have adopted school bus idling policies already.^v The Clean School Bus USA program (USEPA) should also be consulted.^{vi}

Types(s) of GHG Reductions

Mainly CO₂, some carbon black

Estimated GHG Reductions and Costs (or Cost Savings)

Mitigation Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2008–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)
	2012	2020	Total 2008-2020		

	Mitigation Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2008–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)
		2012	2020	Total 2008-2020		
	Transportation and Land Use					
TLU-5	Truck-stop Electrification	In progress	In progress	In progress	In progress	In progress
TLU-9	Anti-idling	.1	0.2	In progress	In progress	In progress

Rough estimation:

10%	Percent of heavy duty travel (by VMT) by public sector.
50%	Percent of public sector heavy duty VMT observing anti-idling through 2012
40%	Percent of private sector heavy duty VMT observing anti-idling through 2012
80%	Percent of public sector heavy duty VMT observing anti-idling through 2020
70%	Percent of private sector heavy duty VMT observing anti-idling through 2020
95%	VMT-equivalency conversion factor of idling to non-idling vehicles in 2012.
95%	VMT-equivalency conversion factor of idling to non-idling vehicles in 2020.
2.05%	Calculate expected percent reduction in VMT-equivalency of conventional vehicles for 2010.
3.55%	Calculate expected percent reduction in VMT-equivalency of conventional vehicles for 2040.

- **Data Sources**

Idle-reduction technologies and policies could reduce per-vehicle fuel use by 3% to 9% annually:

J. Ang-Olson and W Schroeer, “Energy Efficiency Strategies for Freight Trucking: Potential Impact on Fuel Use and Greenhouse Gas Emissions”, *Transportation Research Record*.

- **Quantification Methods:**

- **Key Assumptions:**

Key Uncertainties

[Pending]

Additional Benefits and Costs

[Pending]

Feasibility Issues

[Pending]

Status of Group Approval

[Pending]

Level of Group Support

[Pending]

Barriers to Consensus

[Pending]

TLU-10 Diesel Retrofits / Retirement

Mitigation Option Description

Reduce diesel emissions from older diesel engine/emission systems through retrofit and/or retirement. Incentivize and encourage retrofits through a combination of funding and education/promotion.

Mitigation Option Design

- **Goals:**
 1. **Retrofit NC school buses with DOC pollution control devices.** Reduce children’s exposure to diesel emissions by retrofitting school buses in North Carolina with diesel oxidation catalyst (DOC) pollution control devices, and diesel particulate filters; auxiliary benefit of reducing some GHGs and carbon black.
 2. **Speed retirement and/or retrofit of all older diesels through information and incentives.**
- **Parties involved:**
 1. **NC school buses.**
 2. **All NC diesel truck owners**
- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

- Utilize various funding mechanisms to purchase DOC pollution control devices for school buses that are not equipped with pollution control devices.
- Information and education: An information and education component will be needed to provide truck and bus owners, school districts, and municipal organizations with information regarding the significant emission reductions that could be achieved by retrofitting or retiring certain truck or bus engines with high annual emissions and replacing them with vehicles meeting the new emission standards. Provide information on potential funding partners, grants, or loans available from a number of organizations for this purpose.
- Funding mechanisms or incentives: Develop a loan or grant program allow truck owners to accelerate new vehicle purchases or to apply retrofit technologies to their fleets.

Related Policies/Programs in Place

School buses: Currently in North Carolina there is an ongoing effort to retrofit school buses across the State with diesel pollution control devices. An estimated 15% of the school buses in the State are already equipped with some type of pollution control device. Sources of funding

include Federal and State grants, local funding and gifts from private industry. The primary purpose of these diesel pollution control devices is to reduce particulate matter.

Types(s) of GHG Reductions

[Pending]

Estimated GHG Reductions and Costs (or Cost Savings)

[Insert text as appropriate]

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU-11 Fuel Tax / Fee

Mitigation Option Description

A per-gallon fee or tax charged per gallon of liquid fuel sold at the pump.

Amount to be determined.

- Small amounts (~5-10 cents) would have some demand impact, but would be more appropriately seen as a way to fund transportation-related policies than to reduce consumption and emissions directly.
- Larger amounts would have a more meaningful direct impact on consumption and emissions. Revenue could still be used to fund transportation-related policies, but could also be used to reduce other taxes and fees.

For this draft, using 50 cents / gallon.

Mitigation Option Design

- **Goals:**
 1. Reflect [some of] the health and environmental (sep. GHG) costs of carbon combustion in the fuel being sold.
 2. Fund options other than SOV driving.
 3. By reflecting the costs of combustion, reduce the growth in use.
- **Timing:** Phase in over [4] years.
- **Parties involved:** All fuels. Could be adjusted by carbon content.
- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

Use existing gas tax collection mechanisms. Revenue may flow to same or different end use than current gas tax.

Related Policies/Programs in Place

[Insert text as appropriate]

Types(s) of GHG Reductions

[Insert text as appropriate]

Estimated GHG Reductions and Costs (or Cost Savings)

		GHG Reductions (MMtCO ₂ e)	Net Present Value	Cost-

		2012	2020	Total 2008-2020		
Transportation and Land Use						
TLU-11	Fuel tax (50 cents/gallon)	6.4	13.9	In progress	In progress	In progress

Rough analysis:

LDVs

\$2.00	Baseline fuel price
20	Average LDV fuel economy
\$0.10	Average cost/mile for fuel, baseline
\$0.50	Fuel tax
0.125	Average cost/mile for fuel, with tax
0.4	Elasticity of fuel consumption wrt price (through 2012)
0.75	Elasticity of fuel consumption wrt price (through 2020)
25%	Increase, %
10%	Calculate expected percent reduction in fuel consumption, 2012
19%	Calculate expected percent reduction in fuel consumption, 2020

HDVs

\$2.00	Baseline fuel price
2.5	Average HDV fuel economy
\$0.80	Average cost/mile for fuel, baseline
\$0.50	Fuel tax
1.00	Average cost/mile for fuel, with tax
0.4	Elasticity of fuel consumption wrt price (through 2012)
0.75	Elasticity of fuel consumption wrt price (through 2020)
25%	Increase, %
10%	Calculate expected percent reduction in fuel consumption, 2012
19%	Calculate expected percent reduction in fuel consumption, 2020

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU-12 Pay-as-you-drive Insurance

Mitigation Option Description

Pay-As-You-Drive pricing converts insurance to a variable cost with respect to vehicle travel, so premiums are directly related to annual mileage. This type of pricing makes vehicles insurance more actuarially accurate and gives motorists an opportunity to save money when they reduce their mileage. The vehicle's insurance premium is based directly on how much it is driven. The more you drive the more you pay and the less you drive the more you save.

Mitigation Option Design

- **Goals:** To reduce GHG emissions from automobiles by influencing individual drivers to reduce their annual VMT.
- **Timing:** A pilot project could be implemented first on a smaller scale as soon as possible. The program could also be optional thus allowing drivers to choose this program and insurance companies choose whether to offer it or not.
- **Parties involved:** optional/mandatory for insurance companies, government incentives, available to all motorists insured in NC.
- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

- Remove barriers: the legislature could explicitly make it possible for insurance companies to offer this type of insurance as an option.
- Legislation to encourage insurers to offer PAYD pricing.
- Public private projects can help pilot and promote the pricing option.
- Insurance companies could charge motorists in lump sum e.g. 10,000-12,000 first and charge for additional payments as needed with the total premium calculated at the end of the term based on recorded mileage (motorists credited or charged for extra mileage).
- Insurance companies could bill motorists based on their monthly vehicle mileage similar to other utilities.

Related Policies/Programs in Place

- Oregon HB 3871 – provided tax credits to insurers that offer Pay-As-You-Drive pricing. Endorsed by the National Association of Independent Insurers.
- Value Pricing Program PAYD Pilot projects (www.fhwa.dot.gov/policy/13-hmpg.htm). This Federal Highway Administration's Value Pricing Pilot Program is now providing funding for PAYD insurance simulation projects in GA and MA.

- Progressive Insurance Autograph (www.progressive.com), a distance-based insurance program in Texas. The program uses GPS to track vehicle location and use.

Types(s) of GHG Reductions

CO2

Estimated GHG Reductions and Costs (or Cost Savings)

1. *VMT impacts*: literature. Pilot studies and empirical experience with other marginal costs of use find that PAYD can reduce VMT by 20%. If phase in / ramp up, then:

Apply reductions to LDV VMT only:

- 2012 reduction = Statewide LDV * 10% reduction = **9%** of total statewide HDV + LDV

- 2020 reduction = Statewide LDV * 20% reduction = **18%** of total statewide HDV + LDV

- Convert to CO2

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Pending]

Feasibility Issues

[Pending]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

TLU-13 Advanced Technology Incentives

Mitigation Option Description

Technology will play a vital role in dramatically reducing carbon emissions from the cars of the future. Fuel cells, plug-in hybrid, low weight carbon-fiber bodies, and other technologies will require research, development, and commercialization. Because of its strong research university and both its high-tech and auto parts manufacturing, there may be an opportunity for North Carolina (esp. through the Department of Commerce) to encourage advanced automobile technology research and recruit the new generation of manufacturers.

The study would evaluate if there is an economic opportunity around the development and commercialization of advanced technology vehicles and suggest possible models for the Department of Commerce to take advantage of such opportunities.

Mitigation Option Design

- **Goals:**
 1. To enable North Carolina's economy to establish itself in the research, development, and commercialization of advanced automotive technologies.
 2. To grow North Carolina's capacity to recruit sustainable industry.
- **Timing:** long range e.g. 10 year investment plan
- **Parties involved:** NC Department of Commerce, NC Economic Development Board
- **Other:** [Insert text if/as appropriate]

Implementation Mechanisms

Tax incentives; education of industrial recruiters, possible formation of a NC Advanced Technology Institute

Related Policies/Programs in Place

Existing sustainable business recruiting efforts by the Department of Commerce.

Types(s) of GHG Reductions

[Insert text as appropriate]

Estimated GHG Reductions and Costs (or Cost Savings)

[Insert text as appropriate]

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

[Pending or Completed]

Level of Group Support

[Insert text as appropriate]

Barriers to Consensus

[Insert text as appropriate]

ⁱ <http://www.oregon.gov/ODOT/HWY/OIPP/mileage.shtml>

ⁱⁱ http://www.treehugger.com/files/2005/10/truck_stop_elec.php

ⁱⁱⁱ <http://www.eere.energy.gov/afdc/pdfs/37133.pdf#search=%22green%20vehicle%20fleet%2C%20NC%22>

^{iv} <http://atri-online.org/research/idling/Cab%20Card%20July%202006.pdf>

^v <http://www.ncbussafety.org/idling.html>

^{vi} <http://www.epa.gov/cleanschoolbus/>