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Table 5
Transportation and Land Use Efficiency Subcommittee
Summary List of Recommended Priority Policy Options for Analysis

| Policy Number | Policy Option | GHG Reductions (MMtCO ₂ e) | | | Net Present Value 2008–2020 (Million \$) | Cost-Effectiveness (\$/tCO ₂ e) | Status of Option |
|---------------|---|---------------------------------------|------|-----------------|--|--|------------------|
| | | 2012 | 2020 | Total 2008–2020 | | | |
| TLU-1 | Smart Growth Bundle | <i>Not Quantified</i> | | | | | Pending |
| TLU-2 | GHG Impacts for State and Local Capital Funding | <i>Not Quantified</i> | | | | | Pending |
| TLU-3 | Expand and Improve Transit Infrastructure | <i>Not Quantified</i> | | | | | Pending |
| TLU-4 | Support Passenger Rail Service in Iowa | <i>Not Quantified</i> | | | | | Pending |
| TLU-5 | Adopt Best Workplaces for Commuters in Iowa | <i>Not Quantified</i> | | | | | Pending |
| TLU-6 | Light Duty Vehicle Fuel Efficiency Incentives | <i>Not Quantified</i> | | | | | Pending |
| TLU-7 | Fuel Efficient Operations for Light Duty Vehicles | <i>Not Quantified</i> | | | | | Pending |
| TLU-8 | New Vehicle Standards (Tailpipe GHG and Fuel Economy) | <i>Not Quantified</i> | | | | | Pending |
| TLU-9 | Freight Strategies (Truck and Rail) | <i>Not Quantified</i> | | | | | Pending |
| TLU-10 | Fuel Strategies | <i>Not Quantified</i> | | | | | Pending |

TLU-1 Smart Growth Bundle

Policy Description:

The Smart Growth Bundle includes policies that will align growth and development in Iowa with GHG reduction goals. Developing statewide policies to implement smart growth will have significant economic, social and ecological benefits for communities across Iowa.

This bundle of policies include the following elements:

1. Downtown revitalization, infill and brownfields redevelopment
2. Transit-oriented development
3. Smart growth planning, modeling, and tools
4. Bicycle and pedestrian infrastructure
5. Growth management planning
6. Technical and financial support to local and regional agencies
7. Reforms of local zoning, tax, and building codes

Smart growth policies that affect land use and transportation patterns are proven to reduce Vehicle Miles Traveled. This will enable more Iowans to conveniently travel on foot, by bicycle or transit, or with shorter driving trips. Improving planning tools and software applied in Iowa will enable accurate quantification of VMT reduction of various smart growth policies. The combination of these policies will ensure maximum impact.

Achieving reductions in Vehicle Miles Traveled through smart growth policies will occur through:

- Strategic Growth and Development - Enable local governments to improve community design and direct growth to locations that will result in reduced Vehicle Miles Traveled. The state will establish and maintain a land use policy framework that ensures that local land use planning satisfies both state goals and local interests. This framework will include: greater coordination amongst local governments and state agencies, strategic development areas where metropolitan growth boundaries support reduction of Vehicle Miles Traveled, and focused redevelopment strategies that ensure efficient use of land and existing infrastructure.

- Education and Technical Assistance – Communities will be given flexibility and choices to achieve VMT reduction goals through their growth and development. Local governments and other stakeholders, like developers and private lending institutions, will be provided with technical assistance that will include diverse strategies for communities to consider using in reaching VMT reduction goals. (i.e., model zoning code provisions, local tax code reform to achieve smart growth, etc) Education will be provided to parties involved with implementation, as well as to the general public in order to overcome barriers to accepting smart growth and encourage sustainable lifestyles like biking and walking.
- Incentives and Funding Programs – Existing incentives, funding, and loan programs administered by the state that are applicable to growth and development will be assessed and realigned to support the elements of this smart growth bundle of policies. Rating systems and prioritization of funding will be reviewed and improved to meet smart growth objectives. New programs will be developed and existing programs will be revised to fill in gaps where no program exists to meet needs that can't be achieved, or are far less likely to be achieved, without funding assistance. (i.e., improved brownfields and grayfields incentives, increase technical assistance funding for Iowa Downtown Resource Center.)

Details of specific policies and programs that fall under the above three categories will be outlined in the Implementation Mechanisms category of this document.

Policy Design:

Goal levels:

- Achieve quantifiable VMT reduction goals of 10% per capita reduction of 2020 the projection off-baseline in urban areas through smart growth - The state of Iowa will enable growth and development to achieve VMT reduction goals through a series of policies, including implementation mechanisms identified below. Scientific research shows that VMT reduction in urban areas is quantifiable through improved planning software. Iowa agencies will assist local and/or regional governments in using the latest planning technology that measures VMT impacts to assist with decision-making on future growth and development. The more aggressively the policies are pursued, the greater the potential reduction in VMT that would be achievable.
- Incorporate unique rural VMT reduction strategies - Although rural areas of the state will have more limited opportunities to reduce reliance on the automobile, smart growth policies will still be implemented to reduce auto dependence within small communities and reduce the need to drive far away for employment, retail goods, or services.

- Integrate with Transit Policy When Applicable - Land use practices are a key component of reducing VMT with expanded and improved transit infrastructure. The implementation of the Smart Growth Bundle, Transit Infrastructure policy (TLU-4), will be coordinated whenever applicable to achieve maximum reduction of greenhouse gases through efficient implementation.
- Integrate GHG Reductions from Other Sectors When Applicable - Policies intended to reduce GHG through other sectors besides transportation, such as from generation or consumption of electricity will be tied to this when implementation mechanisms present an opportunity to achieve maximum GHG emissions from multiple sectors. (i.e., incentives for downtown revitalization will also be tied to green building standards when applicable)

Timing:

2009: Development of metropolitan growth boundaries and involve utility and service providers (water, wastewater).

2009: Administrative policies or actions that do not require new funding sources will begin.

2009: Policies that require state legislation should be considered during the legislative session.

2009-2010: Use of planning tools and software to analyze transit and land use scenarios for VMT reduction.

2009-2012: Adoption of metropolitan growth boundaries, and revisions to those boundaries every three years that will include VMT reduction measurements and goals.

2009-2012: Municipalities will develop and implement policies that support and promote high quality, dense developments at hubs and nodes along identified rapid transit routes. Other local policies will be adopted to reduce VMT through community design. State technical assistance will be provided, where needed, in order to relieve barriers to local implementation.

2012: State funding will be fully realigned to support VMT reduction.

2020: Full implementation with evident VMT reduction results achieved through this policy.

Parties Involved:

Cities, counties, Iowa State University Extension, University of Iowa, Metropolitan Planning Organizations and Councils of Governments, transit service providers and transit agencies, utility providers, water and sewer service providers, Environmental Protection Agency, Iowa Department of Natural Resources, Department of Transportation, Department of Economic Development, Department of Public Health, Iowa Finance Authority, Office of Energy Independence, USDA Rural Development, non-profit organizations with development-related interests (environment, economic development, human services, etc), developers, planners, lenders, school districts, contractors, homebuilders, employers

Implementation Mechanisms

Related Policies/Programs in place:**Estimated GHG Savings and Cost Per Ton:**

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
| Cumulative Reductions (2008-2050) | | | | MMtCO ₂ e |
| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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 GHG Impacts for State and Local Capital Funding (to be a model for climate-friendly development patterns)

Policy Description:

The State of Iowa will be a leader in ensuring that the development of state facilities and that state capital funding programs are helping to meet GHG-reduction goals. This includes encouraging growth and development that reduces Vehicle Miles Traveled.

State government will locate new facilities and agency offices in central business districts or other established core business areas of municipalities. Any state of Iowa office that serves the public in an urban area will be accessible by public transportation within ¼ mile at a frequency rate that supports the needs of Iowans who visit and need that facility. New buildings for state offices located in downtowns will be high density and consider first floor retail to encourage mixed use and pedestrian orientation in downtowns. If these locations are not possible, suburban locations will have good access for bicyclists, pedestrians, and public transit.

Capital funding that Iowa administers will be a model for climate-friendly development. Some of this funding is administered in the form of grants and loans, and other capital funding goes directly to local governments. This policy would improve coordination between state agencies, local and regional governments to provide the technical assistance, incentives, and tools needed to reduce VMT through smart growth implementation and linking infrastructure planning to land use planning.

Existing infrastructure and community development funding sources will be reviewed to assess their potential to facilitate smart growth, and new funding programs will be developed to fill in needed funding gaps. Comprehensive planning and site planning information from local and regional governments will be submitted to the state for review specific state funding applications. The state will significantly reduce capital investments that result in VMT increase. Technical assistance and planning tools will be developed and disseminated in conjunction with the realignment of state funding assistance and approval processes.

Capital funding that can enable greenhouse gas reductions from other sectors than transportation, such as encouraging energy efficient buildings, will be included in this policy as well.

Policy Design:

Goal levels:

- Establish and adopt a statewide “complete streets” policy and design guidelines that incorporate transit, bicycle and pedestrian facilities in state, or state-facilitated and federally funded transportation projects.
- Establish a reliable source of capital funding for public transportation within the Iowa DOT that is able to serve increased demands and opportunities for transit infrastructure.
- Pass a state administrative policy regarding the location and accessibility of state offices and agencies.
- Transportation, water and sewer funding will be targeted toward maintenance needs in central locations and areas with the ability to reduce VMT through community design.
- Development projects that are designed to serve higher density, more compact, pedestrian friendly development will be prioritized for state capital funding.
- Adopt a state-level amendment to the NEPA process for roadway studies to include GHG impacts including VMT.

Timing:

2009 Adopt complete streets policy, compilation of maintenance needs of infrastructure in central locations and areas with the ability to reduce VMT through community design, compile data on existing state capital funding programs, begin technical assistance and education to stakeholders and applicants for state funding.

2010 New infrastructure policy applied to selected state capital funding, create a state-level source of capital funding for public transportation, state NEPA policy development, pass state administrative policy on location of state facilities, begin applying community design principles to state or state-administered federal capital funding.

2010 – 2020 Full Implementation

Parties Involved: Department of Transportation, Department of Management, Department of Administrative Services, Iowa Finance Authority, the Department of Economic Development, the Department of Natural Resources, transit agencies, and local governments. Every state agency will be complying with the policy relating to the location of offices.

Implementation Mechanisms**Related Policies/Programs in place:****Estimated GHG Savings and Cost Per Ton:**

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
| Cumulative Reductions (2008-2050) | | | | MMtCO ₂ e |
| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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 Expand & Improve Transit Infrastructure

Policy Description:

Improvements and expansion of existing transit service and implementation of new, innovative transit services can shift more passenger transportation to public transit, thereby reducing Vehicle Miles Traveled (VMT). Public transportation improvements are critical to support Smart Growth initiatives (as referenced in TLU-1) and are essential to an ongoing effort to reduce VMT. This policy includes four components of change that are needed on the state level to expand and improve transit infrastructure.

- Funding - The current levels and allocation formulas of state funding for transit are inadequate to substantially expand and improve transit infrastructure to reduce VMT. This proposal outlines several funding levels and potential sources to meet these needs, although other funding sources not listed in this proposal will also be considered in the years to come.
- Studies and Planning - While a few local metropolitan areas have completed rapid transit (i.e., Bus Rapid Transit, commuter rail) studies, the state will provide the technical assistance and leadership needed to assist or help initiate future studies with local and regional governments. Transit projects and local transit agency goals will be reflected in the State Transportation Plan and will be considered in any inventory of funding needs for traffic mitigation and studies of specific roadway capacity. Currently, travel demand models in Iowa are not able to directly consider the impacts of additional or expanded transit service on total VMT in an area. This ability needs to be researched further and implemented along with other tools that can provide quantifiable estimates of VMT reduction due to additional or expanded transit service along with land use patterns.
- Technical Assistance - The state will provide technical assistance, where needed, to promote transit oriented development around transit nodes or hubs. Land use and transportation coordination will be improved to increase ridership through land use changes that support transit use in urban areas.
- Transit Marketing and Promotion – Incentives and marketing strategies aimed at increasing transit use will be pursued as a means to shift more passenger transportation from cars to the existing transit systems and increase demand for transit.

Policy Design

Goals:

The state will expand and improve transit infrastructure to reduce Vehicle Miles Traveled and achieve an annual ridership increase of 100% by the year 2020. This will be measured on a per

capita basis in order to prevent population demographics from affecting the transit ridership goal. The goal of this set of activities is for the state to provide the leadership and resources necessary to help create expanded transit and ridesharing networks throughout the state that will provide Iowans with choices and will reduce VMT.

Funding goals - Current state transportation financing policy emphasizes maintenance and capacity improvements to the road network to meet projected future VMT increases. The state will adopt revised transportation financing policies that meet the state's emission and greenhouse gas reduction goals by reducing VMT through support of public transit operating and capital investment. Goals for funding include:

- Direct more funding to help cover a significant percentage of annual operating costs for transit systems
- Support transit capital investments
- Designate state funding specifically for the purposes of transit services designed to reduce VMT
- Sources of this funding will be dedicated, reliable, predictable, and able to grow with inflation.

Funding, studies/ planning, technical assistance, and transit marketing/promotion will address the needs to:

- Improve service frequency on selected existing transit routes.
- Offer more forms of transit services and infrastructure (e.g. commuter rail, urban streetcars, bus, BRT, passenger stations, facilities, suburban park and ride lots).
- Reduce travel times on selected existing transit routes (signal prioritization, exclusive lanes, technology improvements, etc.).
- Improve service quality on selected transit routes (safety, cleanliness, enhanced bus stops/shelters, real-time schedule communications).
- Expand longer distance ridesharing activities by promoting carpool and vanpool services throughout the state.
- Reduce or eliminate transit fares paid by riders that hinder ridership growth, by implementing other funding strategies (e.g. employer subsidies, state incentive funds, etc.).

Timing

2009: Administrative policies or actions that do not require new funding sources will begin.

2009: Policies that require state legislation will be considered during the legislative session.

2009-2010: Use of planning tools and software to analyze transit and land use scenarios for VMT reduction.

2010-2020: Full Implementation.

**Implementation Mechanisms
Related Policies**

Estimated GHG Savings
TBD

TLU-4 Support Passenger Rail Service in Iowa

Policy Description:

Increasing passenger rail will reduce single occupant vehicle travel which reduces emissions of pollutants and greenhouse gases (GHG). The following is from the report “Vision for the future – U.S. intercity passenger rail network through 2050” prepared by the Passenger Rail Working Group:

“Traveling by public transportation is less carbon intensive than traveling in a single occupant vehicle. Partially or fully loaded rail coaches are more environmentally friendly than lower occupancy single vehicles. The average intercity passenger train produces 60 percent fewer CO2 emissions per passenger-mile than the average auto and half the GHG emissions of an airplane.”

Iowa is currently served by two Amtrak long distance routes. The California Zephyr runs east-west through southern Iowa from Omaha to Burlington and the Southwest Chief cuts across the southeastern tip of Iowa through Fort Madison. Total ridership on these routes in FY 2006 was 61,377 which is a 33 percent increase from FY 2002. These long-distance routes are important to connect Iowa with the rest of the nation and should continue.

The Iowa Department of Transportation (DOT) has participated in a study of the development of a Midwest Regional Rail System which would provide high-speed service (up to 79 mph) across Iowa from Omaha to the Quad-Cities ultimately connecting with Chicago. This service would provide an estimated user benefit to Iowa of \$500 to \$700 million. This system would require a significant investment to upgrade track and an operational subsidy the first few years of service.

The DOT is now partnering with Amtrak to study regional passenger service in Iowa. Initial feasibility studies have been completed for service from Chicago to Dubuque and Chicago to the Quad Cities. Studies are underway to look at extending the Chicago to Quad Cities service on to Iowa City and then on to Des Moines. Estimated ridership for the Chicago to Dubuque service is 74,500 and would require capital upgrades (primarily in Illinois) and an annual operating subsidy of \$2.9 million. Estimated ridership for the Chicago to Quad Cities service is 102,700 and would require capital upgrades (primarily in Illinois) and an annual operating subsidy of \$6 million.

The DOT, along with other interested partners and agencies, will develop and implement a statewide passenger rail system in Iowa. This will involve identification and implementation of funding to support capital and operating costs. The plan will identify a phased implementation of service and appropriate funding support based on type of service provided (i.e. long-distance vs. regional vs. commuter service). In the short-term this effort should result in regional passenger rail service from Chicago to Dubuque and from Chicago to the Quad Cities to Iowa

City. In the long-term, this will result in statewide passenger rail service consistent with yet to be developed long-range passenger rail plans.

Policy Design:

Goal levels: Establish a statewide passenger rail system in Iowa to supplement existing long-distance service and that provides connections to other modes of transportation.

Timing:

By 2010, the Iowa Department of Transportation and other interested parties and agencies will:

- Support the initiation and development of passenger rail feasibility studies.
- Develop and implement education, marketing, and promotion activities that support passenger rail service.
- Develop a Passenger Rail Advisory Committee.
- Identify and seek state funding for passenger rail capital and operating assistance.
- Seek federal funding to support passenger rail service.
- Develop a long-range passenger rail plan that identifies both short-term and long-term passenger rail service in Iowa along with an implementation strategy.

By 2012, the Iowa Department of Transportation and other interested parties and agencies will:

- Support implementation of regional rail service from Chicago to Dubuque and Chicago to the Quad Cities and on to Iowa City and Des Moines by 2012.
- Work with local governments through the planning process to link passenger rail service with other modes of transportation including public transit, intercity bus service, bicycle, pedestrian, and aviation.
- Support implementation of other regional service including service extending from Des Moines to Omaha as deemed feasible and consistent with the passenger rail plan.

By 2015, the Iowa Department of Transportation and other interested parties and agencies will:

- Support implementation of other regional service including service extending from Des Moines to Omaha as deemed feasible and consistent with the passenger rail plan.

By 2030, The Iowa Department of Transportation, in coordination with other interested parties, will:

- Support full implementation of passenger rail service as envisioned in the passenger rail plan and connect all metropolitan areas of the state by 2030.
- This will be higher speed service that results in significant ridership.

Parties Involved: Iowa Department of Transportation, Passenger Rail Advisory Committee (yet to be created), Iowa Legislature, Amtrak, Midwest Interstate Passenger Rail

Commission, Illinois Department of Transportation, local governments, and regional/metropolitan planning organizations, Iowa Department of Economic Development, Iowa League of Cities, Iowa Chamber Alliance, railroads, Congressional delegation and environmental organizations.

Implementation Mechanisms

Related Policies/Programs in place:

Estimated GHG Savings and Cost Per Ton:

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
| Cumulative Reductions (2008-2050) | | | | MMtCO ₂ e |
| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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-5 Adopt Best Workplaces for Commuters in Iowa

Policy Description:

According to the 2001 National Household Travel Survey, 27 percent of total vehicle miles traveled are to and from work, equivalent to 734 billion miles nationally. Assuming that same percentage applies to Iowa, over 8.5 billion miles of travel in 2006 was from Iowans going to and from work. Of those trips, 78 percent are done by single occupant vehicles (2000 census).

Many actions can be taken to reduce single occupant vehicle commuting. These include increasing the number of employees that telework, carpool, vanpool, ride transit, ride bicycles, and walk. In May, 2001, a new government-industry partnership was created and sponsored by the United States Environmental Protection Agency and the United States Department of Transportation titled, **Best Workplaces for Commuters**. This program recognizes employers and districts (e.g. downtown districts, malls, business parks) that subsidize employee transit/vanpool use, implement telework programs, and/or other activities that reduce traffic and air pollution. Benefits of designation include public recognition, training, access to web-based tools, one-on-one technical assistance, and networking opportunities. A 2005 survey of program participants found that programs that included a comprehensive benefits package (i.e. guaranteed ride home, on-site services, financial incentives, etc.) resulted in a 15 percent reduction of trips, pollutants, and fuel consumption. More information is available at www.bestworkplaces.org.

The state of Iowa and interested organizations should take action to reduce single-occupant vehicle commuting by encouraging and incentivizing participation in activities such as Best Workplaces for Commuters.

Policy Design:

Goal levels: Major employers and districts in all nine of Iowa's metropolitan areas will be designated as 'Best Workplaces for Commuters.'

Timing:

By 2012, the state of Iowa and other interested parties will:

- Educate, inform and market to employers and communities in Iowa's metropolitan areas regarding the Best Workplaces for Commuters program.
- Identify existing funding programs and make funding available to assist employers and commuters to take actions that will assist qualifying for designation (i.e. funding for van pools, subsidization of transit fees, etc.)
- Identify and implement public incentives (e.g. tax credits, deductions, etc.) to support actions that will assist qualifying for designation (i.e. funding for van pools, subsidization of transit fees, etc.)

- Evaluate opportunities to expand the goal level beyond Iowa's metropolitan areas into smaller communities and rural areas.

Parties Involved: Local governments, state agencies, environmental organizations, United States Environmental Protection Agency, United States Department of Transportation, metropolitan planning organizations, local governments, chambers, Iowa Chamber Alliance, Iowa League of Cities, transit providers, Transportation Management Associations, major employers, downtown development groups, etc.

Implementation Mechanisms

Related Policies/Programs in place:

Estimated GHG Savings and Cost Per Ton:

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
| Cumulative Reductions (2008-2050) | | | | MMtCO ₂ e |
| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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 Light Duty Vehicle Fuel Efficiency Incentives

Policy Description:

Iowa can reduce its greenhouse gas emissions by improving the fuel economy of the light duty vehicle fleet. The first policy option is to charge a state agency with tracking the fuel economy of Iowa's entire fleet. Once a baseline for Iowa's fuel economy is established, the state could then establish goals for improving the fuel economy of the entire fleet. For example, if the current fuel economy is 20 miles per gallon (mpg), goals of 21 mpg by 2012 and 25 mpg by 2020 could be adopted. All other things equal, increasing fuel economy from 20 mpg to 25 mpg would reduce fuel consumption and greenhouse gases by 20 percent. Further reductions beyond 2020 are also likely. Iowa could establish a goal of 40 to 200 mpg by 2050, reflecting the climate council's goals of reducing emissions by 50 to 90 percent.

Policy options to meet a goal of higher fuel economy include consumer education about vehicle purchases, monetary incentives through a feebate system or tax credits, investment in a plug-in hybrid infrastructure, and a state policy for scrapping older vehicles that do not have good fuel economy. Information about vehicle fuel economy and consumer benefits of higher fuel economy are available at www.fueleconomy.gov. As the federal agencies responsible for that website explain, "The difference between a car that gets 20 mpg and one that gets 30 mpg amounts to \$775 per year (assuming 15,000 miles of driving annually and a fuel cost of \$3.10)."

Another policy option to achieve improved fuel economy would be adopting California car standards, as recommended by the Office of Energy Independence. This option is problematic because, at present, the U.S. Environmental Protection Agency has not approved the waiver required for California's car standards. In addition, a policy limited to new vehicles would not affect the fuel economy of existing vehicles, potentially leading to a "jalopy effect" whereby owners retain their existing and less efficient vehicles for longer periods of time. In addition, state level adoption of car standards that differ from those in other states in our region would create an uneven vehicle market and would likely create barriers to dealer trades within that market.

Policy Design:

Goal levels/Timing: Improve fuel economy by 5% by 2012, 20% by 2020, and 100% or more by 2050.

Parties Involved: Iowa Department of Transportation, Iowa Department of Revenue, County Treasurers, Iowa Automobile Dealers Association, and Iowa Independent Automobile Dealers Association.

Implementation Mechanisms**Related Policies/Programs in place:****Estimated GHG Savings and Cost Per Ton:**

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
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| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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-7.1 Fuel Efficient Replacement Tires Program

Policy Description:

Improve the fuel economy of the LDV fleet by setting minimum energy efficiency standards for replacement tires and requiring that greater information about low-rolling resistance (LRR) replacement tires, including all season/all weather LRR tires, be made available to consumers at the point of sale. Snow and mud LRR tires are currently available, and tire manufacturers, such as Michelin, are currently researching and developing fuel efficient all weather replacement tires.

Vehicle manufacturers currently use LRR tires on some new vehicles, but they are not easily available to consumers as replacement tires. When installing original equipment tires, carmakers sometimes use LRR tires to meet federal corporate automobile fuel economy standards (CAFE). When replacing the original equipment tires, consumers often purchase less fuel-efficient tires and potentially more costly tires (depending on annual vehicle miles traveled [VMT]). Currently, tire manufacturers and tire retailers are not required to provide information about the fuel efficiency of replacement tires.

An appropriate state agency would initiate a fuel efficient tire replacement program. The program would include consumer education, product labeling, and minimum standards elements.

These programs would be developed under a rule development process. All programs would incorporate the best scientific information, including the test results of tires conducted by the tire manufacturers, the Tire Industry Association, and the National Academy of Sciences and others.

Policy Design:

This policy is designed to encourage consumer choice and example by state government.

Goal Levels: Establish voluntary energy efficiency standards that achieve an average % gain in fuel economy.

Timing: By , the state or appropriate agency would initiate a fuel efficient tire replacement program for the state fleet if all season/all weather tires are available and are incorporated into legislatively approved rental rates, establish voluntary energy efficiency standards for replacement tires, and develop a marketing program for fuel efficient replacement tires.

By , the state or appropriate agency would ensure that a proportion of tires replaced on state-owned and -leased vehicles will be LRR tires (if they are available for the vehicle type and are rated for all season/all weather service) and would consider legislation or administrative regulation to set LRR standards for tires with mandatory manufacture labeling.

Parties Involved: Iowa Department of Transportation, Iowa Department of Natural Resources, Iowa Energy Center, LRR manufacturers, tire distributors.

Implementation Mechanisms

Related Policies/Programs in place:

Estimated GHG Savings and Cost Per Ton:

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
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| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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-7.2 Consumer Information on Vehicle Miles Per Gallon (MPG)

Policy Description:

Provide consumers with information about the fuel efficiency and cost in relation to the purchase, maintenance, and operation of their vehicles. Consumers would receive real-time information on MPG while their vehicles are in operation and alerts when their tire pressure is too low (i.e., devices such as Air Alert Valve Caps). Generally, a set of four light-emitting diode (LED) self-calibrating tire pressure valve caps such as Tire Alert cost about \$22.00, and real time MPG monitoring systems such as ScanGauge are about \$100.00. In addition, consumers would receive public education and information relating to the impact that vehicle maintenance practices have on the operation of their vehicles. Finally, consumers would be encouraged to consider a vehicle's MPG before and at the time of purchase of their vehicles.

Policy Design:

This policy is designed to impact consumer choice and behavior.

Goals: Greatly increase the awareness and availability of consumer information on MPG to result in greater fuel efficiency across the state.

Timing: Program would begin in <date>, with program expansion as resources are made available.

Parties Involved: Iowa Department of Transportation, product manufacturers, product distributors, Iowa Automobile Dealers Association, Iowa Independent Automobile Dealers Association, independent repair shops, Iowa Energy Center.

Implementation Mechanisms

Related Policies/Programs in place:

Estimated GHG Savings and Cost Per Ton:

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
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| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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 New Vehicle Standards

Policy Description:

Iowa can reduce its greenhouse gas emissions by improving the fuel economy of the light duty vehicle fleet. The first policy option is to charge a state agency with tracking the fuel economy of Iowa's entire fleet. Once a baseline for Iowa's fuel economy is established, the state could then establish goals for improving the fuel economy of the entire fleet. For example, if the current fuel economy is 20 miles per gallon (mpg), goals of 21 mpg by 2012 and 25 mpg by 2020 could be adopted. All other things equal, increasing fuel economy from 20 mpg to 25 mpg would reduce fuel consumption and greenhouse gases by 20 percent. Further reductions beyond 2020 are also likely. Iowa could establish a goal of 40 to 200 mpg by 2050, reflecting the climate council's goals of reducing emissions by 50 to 90 percent.

Policy options to meet a goal of higher fuel economy include consumer education about vehicle purchases, monetary incentives through a feebate system or tax credits, investment in a plug-in hybrid infrastructure, and a state policy for scrapping older vehicles that do not have good fuel economy. Information about vehicle fuel economy and consumer benefits of higher fuel economy are available at www.fueleconomy.gov. As the federal agencies responsible for that website explain, "The difference between a car that gets 20 mpg and one that gets 30 mpg amounts to \$775 per year (assuming 15,000 miles of driving annually and a fuel cost of \$3.10)."

Another policy option to achieve improved fuel economy would be adopting California car standards, as recommended by the Office of Energy Independence. This option is problematic because, at present, the U.S. Environmental Protection Agency has not approved the waiver required for California's car standards. In addition, a policy limited to new vehicles would not affect the fuel economy of existing vehicles, potentially leading to a "jalopy effect" whereby owners retain their existing and less efficient vehicles for longer periods of time. In addition, state level adoption of car standards that differ from those in other states in our region would create an uneven vehicle market and would likely create barriers to dealer trades within that market.

Policy Design:

Goal levels/ Timing: Improve fuel economy by 5% by 2012, 20% by 2020, and 100% or more by 2050.

Parties Involved: Iowa Department of Transportation, Iowa Department of Revenue, County Treasurers, Iowa Automobile Dealers Association, and Iowa Independent Automobile Dealers Association.

Implementation Mechanisms

Related Policies/Programs in place:

Estimated GHG Savings and Cost Per Ton:

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
| Cumulative Reductions (2008-2050) | | | | MMtCO ₂ e |
| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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-9 Freight Strategies (Truck and Rail)

Policy Description:

The movement of freight on Iowa's transportation system plays a critical role in our economy. Iowa also serves as a cross-road for the movement of freight across the country. In fact, it is estimated that 43 percent of all freight movements in Iowa is just passing through the state. There has been tremendous growth in freight traffic with truck traffic having grown over 50 percent in the last 15 years and expected to grow another 50 percent by 2020. National freight forecasts estimate an 89 percent increase in tons of freight by 2035 (AASHTO – Transportation Invest in our Future, America's Freight Challenge, May 2007). To meet this increased demand while minimizing greenhouse gas emissions (GHG) will require many actions. This policy option focuses on infrastructure activities to support a greater increase in freight hauled on rail while considering federal EPA emissions reduction changes that are currently being implemented with over-the-road diesel truck engines.

The use of rail to haul freight is more efficient from an energy consumption and GHG emission perspective. According to EPA data, freight railroads account for just under two percent of U.S. GHG emissions from transportation sources. The American Association of Railroads (AAR) estimates that for every ton-mile of freight that moves by rail instead of truck reduces GHG by two-thirds or more. AAR also estimates that if 10 percent of long-haul freight now moving by truck moved by rail instead, annual GHG emissions would fall by more than 12 million tons.

The Iowa Department of Transportation (DOT) and all other involved parties will assure the most efficient movement of freight while reducing GHG emissions. This also has the effect of delaying large investment needs to add capacity to the state highway system. With such large growth in freight forecast it is unlikely that freight movements by truck could ever be reduced but shifting more of the growth to rail would minimize the growth of GHG emissions. This effort will require activities within Iowa, within the Midwest and nationally.

Policy Design:

Goal levels: Reduce overall greenhouse gas emissions generated by freight movement through a combination of the following actions:

Timing:

By 2010, the Iowa Department of Transportation and other interested parties, will:

- Through regional, statewide and national planning activities, seek to remove bottlenecks (both physical and operational) for the efficient movement of freight by all modes of transportation.

- Establish a Statewide Freight Advisory Committee of public and private parties to identify actions to support the efficient movement of freight and opportunities for intermodal freight movement.
- Support initiatives to encourage railroad capital investment to increase capacity (e.g. tax credits).
- Assist the identification of opportunities for increased intermodal freight movements (e.g. the development of the ethanol terminal in Manly, IA where ethanol is brought in by truck from multiple plants and shipped by rail).
- Seek continued and increased legislative appropriations for the Rail Revolving Loan and Grant Program. This funding supports rail improvements including the construction of rail spurs to industry to encourage use of rail.
- Continue to utilize federal Congestion Mitigation and Air Quality funding to support rail freight improvements.
- Seek opportunities to support truck stop electrification including the utilization of federal Congestion Mitigation and Air Quality. This could also include incentives (e.g. tax credits) to encourage installation of equipment.
- Provide incentives to trucking firms and truck owners to equip their vehicle(s) with devices that eliminate the need to idle including battery-electric auxiliary power systems, vehicle battery systems, thermal energy storage systems, fueled auxiliary power systems, etc.
- Provide incentives to trucking firms and truck owners including local and State municipalities to invest in hybrid truck technology as it becomes available in class 7 and 8 trucks over the next three years and beyond.

Parties Involved: Iowa Department of Transportation, local governments, Iowa Legislature, regional/metropolitan planning organizations, Iowa Department of Economic Development, Iowa's Motor Truck Association, railroads, shippers, developers, U.S. Department of Transportation, and other state DOTs.

Implementation Mechanisms

Related Policies/Programs in place:

Estimated GHG Savings and Cost Per Ton:

| | 2012 | 2020 | 2050 | Units |
|-----------------------------------|------|------|------|------------------------|
| GHG Emission Savings | | | | MMtCO ₂ e |
| Net Present Value (2008-2050) | | | | \$ Million |
| Cumulative Reductions (2008-2050) | | | | MMtCO ₂ e |
| Cost-Effectiveness | | | | \$/MtCO ₂ e |

- Data Sources: **TBD**
- Quantification Methods: **TBD**
- 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 Fuel Strategies

Under Development