

Catalog of State Actions Transportation and Land Use (TLU) Working Group

A catalog of state-level, greenhouse gas (GHG)-reducing actions and policy options prepared by the Center for Climate Strategies (CCS), Iowa Department of Natural Resources, and others based on actions undertaken or considered by Iowa and other states, including regional, state, local, and private actions.

Important Note: The GHG Reduction Policy Options below are numbered solely for convenience in referencing them. Their numbers do NOT reflect a ranking or prioritization of the policy options.

Key to Future Rankings of Options in the Tables that Follow:

Potential Emission Reductions <u>1/</u>	Potential Cost Effectiveness <u>1/ 2/</u>
High (H): At least 1.0 Million Metric Tons (MMT) carbon dioxide equivalent (CO ₂ e) per year by 2020	High (H): Less than \$15/tCO ₂ e
Medium (M): From 0.1 to 1.0 MMT CO ₂ e per year by 2020	Medium (M): \$15-40/tCO ₂ e
Low (L): Less than 0.1 MMT CO ₂ e per year by 2020, or 1 MMT CO ₂ e by 2050	Low (L): \$40 per Metric Ton CO ₂ e (MTCO ₂ e) or above
Uncertain (U): Not able to estimate at this time	Uncertain (U): Not able to estimate at this time
<p><small>1/ Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.</small></p> <p><small>2/ Costs are denoted by a positive number. Cost savings (i.e., “negative costs”) are denoted by a negative number.</small></p>	

Definition of “Priorities for Analysis”:

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low:** Low priority options will be analyzed last, time and resources permitting.

Notation of Options:

Options will be marked with an asterisk (*) at a later date to indicate options that are at least partially “base case” policies, i.e., that have been considered or undertaken at some level in Iowa.

Option No.	GHG Reduction Policy Option	Priority for Analysis	Potential GHG Emissions Reduction	Potential Cost Effectiveness	Ancillary Impacts, Feasibility Considerations	Notes
TLU-1	PASSENGER VEHICLE GHG EMISSION RATES					
TLU-1.1	VEHICLE TECHNOLOGY					
1.1.1	Tailpipe GHG emission standards: California Clean Car		H	H		Often called “Pavley” after the California legislative sponsor. Will need to be structured to be stricter than new federal CAFÉ standards to be effective.
1.1.2	ZEV/LEV-2 implementation		L	H/M		
1.1.3	Research and development (R&D) on low-GHG vehicle technology (e.g., fuel cell)		L	U		
1.1.4	Add-on technologies (low friction oil, low-rolling resistance tires) – light-duty vehicles		H	H		
1.1.5	Hybrid buses – (Plug-In Hybrid Buses)		L	H		
1.1.6	Support new corporate automobile fuel economy (CAFÉ) standards		N/A	N/A		This is within federal jurisdiction.
1.1.7	Require GHG emission stickers on new cars		L	M		
1.1.8	Develop Infrastructure for Plug-In Vehicles		L	L		
TLU-1.2	VEHICLE OPERATION					

1.2.1	Enforce speed limits – speed cameras and police		H	M		
1.2.2	Vehicle maintenance, driver training/eco-driving, including tire pressure maintenance		H	H		
1.2.3	Transportation system management (intelligent transportation systems, signal synchronization)		L	U		
1.2.4	Driver feedback technology with pay-as-you-drive insurance		L	M		Provides feedback on driving habits.
1.2.5	Require tune-up services including tire pressure checks		M	H		
1.2.6	School bus idling restrictions		L	H		
1.2.7	School education programs		L	M		
1.2.8	Enforcement of auto anti-idling reduction requirements		L	L		
1.2.9	Public Education		L	M		
TLU-1.3	INCENTIVES AND DISINCENTIVES					
1.3.1	Procurement of efficient fleet vehicles		M	H		Includes government and large private sector fleets
1.3.2	Feebates (state-specific or regional)		H	H		Measure is revenue-neutral. Note that this overlaps with tailpipe GHG standards and fuel economy standards
1.3.3	CO ₂ -based registration fees		H	H		Note that this overlaps with tailpipe GHG standards and fuel economy standards

1.3.4	Tax credits for efficient vehicles (vouchers for these vehicles were also suggested as an option)		H	H		
1.3.5	Vehicle scrappage		L	H/M		This is an incentive to replace low fuel economy vehicles sooner.
1.3.6	Emission-based tolling (discount for clean vehicles)		L	H		This is an incentive to replace light-duty vehicles sooner.
1.3.7	Establish a carbon emission tax like the Clean Air Discount Bill introduced in California		L/M	H		
1.3.8	Establish a fleet replacement grant program, like that of Los Angeles		L	M		
1.3.9	Provide tax incentives for adult bicycles		L	H		
1.3.10	Push alternative travel into the advertising mainstream		M/H	H		
TLU-2	LAND USE AND LOCATION EFFICIENCY					
TLU-2.1	GENERAL					
2.1.1	Adopt statewide growth management plan & GHG cap guiding conforming regional transportation and land use plans/programs that meet state-determined GHG budgets and vehicle miles traveled (VMT) per capita targets		H	H		

2.1.2	Ensure state policies and capital funding programs evaluate GHG implications to be a model for climate-friendly and energy efficient development patterns		M	M		
2.1.3	Shape public and private investment to maximize GHG reductions and growth management, including Indirect Source Rule to hold development accountable for GHGs, Transfer of Development Rights, Open Space Protection, Coastal Zone Management, and Adequate Public Facilities initiatives (impose transportation impact fees on developments to fund public transit service)		H	H		
2.1.4	Provide technical and financial support to local and regional agencies, enhancing technical tools, capacity, and fund Blueprint Planning Grant program		L	H		
2.1.5	Modify and fund liberalizations/reforms of state and local tax and zoning/building codes and policies to support GHG reductions and implementation of State growth plans		H	H		

2.1.6	Ensure State congressional delegation works for federal highway, transportation, and land use–related legislation and programs supporting timely climate change action		N/A	N/A		
2.1.7	Use of flexible federal transportation funding		N/A	N/A		
2.1.8	Downtown revitalization		L	M		
2.1.9	Brownfield redevelopment		H	H		
2.1.10	Traffic calming		L	L		
2.1.11	Infill Redevelopment		H	H		
2.1.12	Transit-Oriented Development		H	H/M		
2.1.13	Smart Growth Planning, Modeling, Tools		H	H		
2.1.14	Targeted Open Space Protection		M	M		
TLU-2.2	INCREASING LOW-GHG TRAVEL OPTIONS					
2.2.1	Make full use of Congestion, Mitigation, and Air Quality (CMAQ) funds—with application reviews considering GHG reductions		L	H		
2.2.2	Improve transit service (frequency, convenience, quality)		L	L		

2.2.3	Transit marketing and promotion, (including individualized transit marketing)		L	H		
2.2.4	Bike and pedestrian infrastructure		L	M		
2.2.5	Expand transit infrastructure (rail, bus, bus rapid transit [BRT]) (more emphasis on retail destinations)		M	M/L		
2.2.6	Take a lead in promoting the Midwest Regional High Speed Rail Network		L	L		
2.2.7	Establish Omaha/Des Moines/Iowa City/Davenport leg of Midwest Regional High Speed Rail Network. Include Ankeny/Ames and Waterloo/Cedar Rapids/Iowa City legs to the system		L	L		
2.2.8	Routinely run significant number of game trains to Iowa City and Ames in cooperative venture with scenic railroads to provide engines. Expand to include concerts and other events		L	L		
2.2.9	Establish high frequency "trolley" system for Des Moines downtown attractions and satellite areas		L	L		
2.2.10	High-occupancy vehicle (HOV) lanes – re-striping of existing lanes		L	H		

2.2.11	Enhance current “fix-it-first” policy		L	H		Repair before expansion
2.2.12	Transit prioritization (signal prioritization, HOV lanes)		L	H/M		
2.2.13	Telecommute, live-near-your-work and tele-education		L	H		
2.2.14	Require that government agencies use telecommuting		L	M		
2.2.15	Promote car-sharing		L	H		
2.2.16	E-commerce		L	H		
2.2.17	Carbon dioxide (CO ₂) conformity type program capping CO ₂ emissions in some form of a mobile budget		H	H		If the region/ state doesn't hit the budget then transportation dollars swing from road construction to transit
2.2.18	Park-and-ride lots		L	L		
2.2.19	Guaranteed ride home for transit users		L	H		
2.2.20	Telecommuting support and incentives		L	H		
2.2.21	Have the State of Iowa adopt “Best Workplaces for Commuters” policies (http://www.bwc.gov)		H	H		
2.2.22	Provide incentives to communities to become “Best Workplaces for Commuters” districts		H	H		
2.2.23	Provide incentives to employers to become “Best Workplaces for Commuters”		H	H		

2.2.24	Issue free bus passes to downtown workers		L	M		
2.2.25	Issue free bus passes to students and retired people		L	M		
2.2.26	Create regional transportation centers where various types of public transportation meet		M	L		
2.2.27	Commuter bus from Iowa City to Cedar Rapids		L	M		
2.2.28	Van pooling and car pooling		M	M		
2.2.29	Amtrak studies (1) Quad Cities to Davenport, (2) Davenport to Iowa City, (3) Iowa City to Des Moines		L	L		
TLU-2.3	INCENTIVES AND DISINCENTIVES					
2.3.1	Commuter choice/parking cash out		H	H		
2.3.2	VMT tax (revenue neutral replacing motor fuel tax)		H	H		
2.3.3	Pay-as-you-drive insurance		H	H		
2.3.4	Increased fuel tax (w/ targeted use of revenue towards travel alternatives) (it was suggested that this be used to increase the differential between fossil and renewable fuels)		M	H		
2.3.5	Location-efficient mortgages		L	H		
2.3.6	Congestion pricing (or tolls) (with targeted use of revenue toward travel alternatives)		L/M	H		

2.3.7	Parking pricing, excise tax, and/or supply restrictions		H	H		
2.3.8	Provide free downtown parking to carpoolers		M	H		
2.3.9	Transit repositioning		L	L		
2.3.10	Transit pricing incentives		L	L		
2.3.11	VMT/GHG offset requirements for large developments		L/M	H		
2.3.12	Benefits for low GHG vehicles (preferential parking, use of HOV lanes)		L	H		
2.3.13	Reserved parking spaces for high-occupancy vehicles and car-sharing programs		M	H		
2.3.14	Cordon pricing and intercity tolls		M	H		
TLU-2.4	FUEL MEASURES					
2.4.1	Low-GHG fuel standard (e.g., renewable) (it was suggested that this increase over time)		H	U		Also known as a low-carbon fuel standard. Cost-effectiveness varies significantly depending on particulars of fuels, etc.
2.4.2	Low-GHG fuel for State fleets (e.g., compressed natural gas [CNG], biodiesel)		H	H		
2.4.3	Biofuel expansion (biodiesel, CNG, liquefied petroleum gas [LPG], cellulosic ethanol)		H	U		Cost-effectiveness varies depending on fuel and program particulars

2.4.4	Alternative fuel infrastructure development (build electric vehicle charging facilities and conveniently located fueling stations.)		L	L		
2.4.5	State government E85 use plan		L	L		Executive Order 3 (2007)
2.4.6	Biodiesel market plan		M	L		
2.4.7	Build electric vehicle charging facilities at conveniently located fueling stations		L	L		
TLU-3	FREIGHT					
TLU-3.1	VEHICLE TECHNOLOGY					
3.1.1	Vehicle technology improvements (e.g., aerodynamics – tractor and trailer)		M	H		
3.1.2	R&D on low-GHG vehicle technology		L	L		
3.1.3	Black carbon control technologies (e.g., use of particulate traps, other complementary technologies)		L	L		Black carbon can affect climate by absorbing sunlight and heating the air, thereby altering large-scale atmospheric circulation and the hydrologic cycle.
3.1.5	Facilitate adoption of new clean technologies—rail and marine engines		L	M		
3.1.6	Single-wide tires, low resistance radials, automatic tire inflation		H	H		

TLU-3.2	VEHICLE OPERATION					
3.2.1	Freight logistics improvements/geographic information system (GIS)/Reduced empty backhaul		L	H		
3.2.2	Enforce speed limits		M	M		
3.2.3	Improve traffic flow		L	M		
3.2.4	Increased size and weight of trucks		L	H		
3.2.5	Increase the number of rest areas		L	L		
3.2.6	Pre-clearance at scale houses		L	H		
3.2.7	Truck stop electrification/Idle- aire (suggestion was made to provide alternatives to diesel engine idling at truck stops and terminal sites)		M	H		
3.2.8	Enforce anti-idling		M	H		
3.2.9	Clean freight operating improvements		L	L		Example: particulates from freight, including coal train coal dust
3.2.10	Freight villages/consolidation centers		L	M		
TLU-3.3	INCREASING LOW-GHG TRAVEL OPTIONS					
3.3.1	Intermodal freight initiatives: railyard capacity		L/M	L		
3.3.2	Feeder barge container service		L	L		
3.3.3	Increase rail capacity, and address rail freight system bottlenecks		M	M		

3.3.4	Shift freight movements from truck to rail		L/M	L		
TLU-3.4	INCENTIVES AND DISINCENTIVES					
3.4.1	Procurement of efficient fleet vehicles (public, private, or other); fleet right-sizing		L	H/M		
3.4.2	Incentives to retire or improve older less efficient vehicles – standards for drayage trucks		L	H/M		
3.4.3	Maintenance and driver training – speed governors, tire pressure maintenance		L/M	H		
3.4.4	Increased emission-based truck tolls or highway user fees – a la Germany		L/M	H		
TLU-4	INTERCITY TRAVEL: AVIATION, HIGH-SPEED RAIL, BUS					
4.1	High-speed rail – as per 2.2		L/M	L		
4.2	Integrated aviation, rail, bus networks (planning, governance, and investment) – improved intermodal passenger connections		L	M/L		
4.3	Aircraft emissions – ATC improvements, efficient ground operations (tractor to taxi-way)		L	H		
4.4	Airport ground equipment – updating to more efficient equipment, minimum standards		L	H		
4.5	Iowa specific carbon offsets		N/A	N/A		
4.6	Intercity bus incentives and subsidies		L	M		

TLU-5	OFF-ROAD VEHICLES (CONSTRUCTION EQUIPMENT, OUT-BOARD MOTORS, ATVS, ETC.)					
5.1	Incentives for purchase of efficient vehicles and equipment		L	H/M		
5.2	Improved operations, operator training		L	M		
5.3	Maintenance improvements		L	H		
5.4	Increased use of alternative fuels or low-sulfur diesel		L	M		
5.5	Adopt green port strategy (port land-side: clean up port dwelling and cargo handling equipment operations)		L	M		
5.6	Low-carbon fuel (off road and recreational marine)		L	M		
5.7	Locomotive idling reductions		L	H		
5.8	Inclusion of Idling reduction requirements		L	H		
5.9	Diesel cranes at river ports—electrification or other GHG-reducing alternatives		L	M		
5.10	"Shore power" at port sites		L	M		
5.11	Phase-out the use of two-stroke engines		L	M		