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**Transportation and Land Use
Technical Work Group**

Summary List of Pending Priority Policy Options for Analysis

	Policy Option	GHG Reductions (MMtCO ₂ e)			Net Present Value 2008–2025 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Level of Support
		2015	2025	Total 2008–2025			
TLU-1	Improved Land Use Planning and Development Strategies						Pending
TLU-2	Expand Transit, Bicycle, and Pedestrian Infrastructure						Pending
TLU-3	Low GHG Fuel Standard (Potential Overlap With AFW-7)						Pending
TLU-4	Infrastructure Management						Pending
TLU-5	Climate-Friendly Transportation Pricing						Pending
TLU-6	Adopt California Clean Car Standards						Pending
TLU-7	“Fix-it-First” Transportation Investment Policy and Practice						Pending
TLU-8	Update Road Standards—[Now part of TLU-4]						Pending
TLU-9	Workplace Tools to Encourage Carpooling, Bicycling, and Transit Ridership						Pending
TLU-10	Congestion Pricing (or Tolls) With Targeted Use of Revenue Toward Travel Alternatives—[Now Part of TLU-5]						Pending
TLU-11	Truck Stop Electrification						Pending
TLU-12	Mobile Source Emissions Reduction						Pending
TLU-13	Reduce Maximum Speed Limits						Pending
[TLU-14	Freight mode shifts: intermodal and rail						Pending]
	Sector Total After Adjusting for Overlaps						
	Reductions From Recent Actions						
	Sector Total Plus Recent Actions						

NOTES as of Monday, November 19, 2007

Captured from the Friday, Nov. 16 informal meeting:

Some agenda items for the call on Tuesday, November 20, 3:00-5:00:

- TLU-2: Discuss the extent of including ancillary benefits
- TLU-3: Discuss 50% reduction goal. Discuss double-counting issues (what % reductions are already accounted for in forecast?)
- Discuss new freight options

Also noted during today's meeting:

- Fix 2012 and 2015 discrepancy under policy design in TLU-3. *Done.*
- Fix discrepancy in numbers in tables on pg. 2 of document. *Done.*
- Provide citations for data assumptions. *In progress.*
- Jan to provide language re: two options – assume technology (e.g., cellulosic ethanol) will be in place vs. technology not available; address both possibilities when recommending goals
- Update/include “non-auto industry” language for Clean Car Standards (TLU-6)

From Barb:

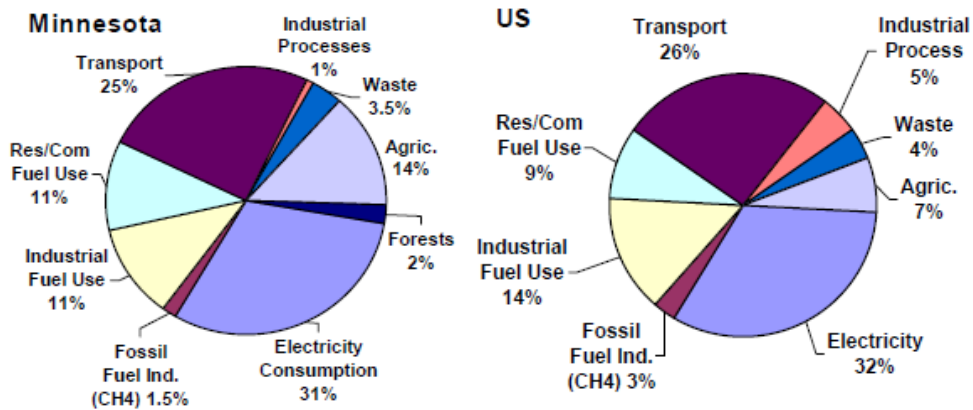
I spent a fair amount of time today going over most of the TLU strategies (see attached with underline and strikeout in green). I attempted to streamline some of the wording, delete repetition, make the language more active, combine TLU-5 and TLU-10 per a decision at a previous meeting, and put questions where I think we need more discussion. I would like to propose several agenda items for Tuesday including:

1. If GHG reductions required by MN law come from the transportation sector in same percentage as they are generated today, what is our target amount?

A:

1. “Statewide greenhouse gas emission reduction goals of 15 percent by 2015, 30 percent by 2025, and 80 percent by 2050, using 2005 emissions as a benchmark.”
2. “In 2005, activities in Minnesota accounted for approximately 151 million metric tons (MMt) of CO₂e emissions.”
3. Transportation is 25% of MN emissions.

Figure 2. Gross GHG Emissions by Sector, 2000: Minnesota and US



4. So:

151,000,000	MMtCO ₂ e in 2005
30%	reduction by 2025
45,300,000	MMtCO ₂ e reduction in 2025
25%	T share
11,325,000	MMtCO ₂ e reduction from T in 2025

- Review, edit, and approve combined TLU-5 and 10
- Request for clarity and more detail for TLU-12.
- Review changes to TLU-1 (land use) proposed by me and TLU-6 (clean car) proposed by others
- Request for someone to draft a policy related to reducing VMT for freight and/or encouraging more freight rail (looks like AASHTO has a big report that could be helpful)
- TLU-4 (Infrastructure management). What happened to previous language before complete streets was added? I think compete streets should still be a stand-alone strategy in the VMT reduction category not TLU-4 infrastructure management which is about reducing emissions.
- Schedule another meeting pre-MCAG

Overall TLU Analysis Framework

Transportation carbon emissions = **Miles driven** × carbon per mile.

Carbon per mile = **vehicle efficiency** × carbon per unit of fuel.

So, reduce green house gas emissions by:

1. Reducing the number of **miles driven**
 - TLU-1 Land Use Planning & Development
 - TLU-2 Transit, Bike & Pedestrian Infrastructure
 - TLU-5 Climate-Friendly Transportation Pricing [in part]
 - TLU-7 Fix-It-First
 - TLU-8 Update Road Standards [in part]
 - TLU-9 Commuter Choice
 - TLU-10 Congestion Pricing

Estimated GHG Reductions

	MMtCO ₂ e		
	2007	2015	2025
No action—trend (Light-duty + heavy duty)	22.97 + 7.07 = 30.04	24.10 + 8.82 = 32.92	25.44 + 11.34 = 36.78
Proposed action—reduce to 1990 VMT		21.38 + 7.9 = 29.28	17.32 + 4.46 = 21.78
Reduction		3.64	15.0

Alternative:

	2007	2015	2025
Proposed action—reduce to 1990 levels of VMT <u>per person</u>	22.97 + 7.07 = 30.04	23.35 + 7.19 = 30.54	21.05 + 6.48 = 27.53
Reduction		2.38	9.25

IF Light-Duty VMT only, not heavy-duty:

	MMtCO ₂ e		
	2007	2015	2025
No action—trend (Light-duty + heavy duty)	22.97	24.10	25.44
Proposed action—reduce to 1990 VMT		21.38	17.32
Reduction		2.72	8.12

Alternative:

	2007	2015	2025
Proposed action—reduce to 1990 levels of VMT <u>per person</u>	22.97	23.35	21.05
Reduction		0.75	4.39

Q: We have to illustrate what this will mean. To X people and to Y people. A range is a good idea. Instate and outstate. Put it in daily VMT.

- Level per capita metro-area VMT is already a Met Council goal, and is currently being met, at 25.9 VMT/capita/day. (<http://www.metrocouncil.org/planning/framework/benchmarks.pdf>). With increasing fuel prices, level Metro-area VMT/capita is probably not an aggressive goal.
- Outstate requires attention:
- [From Blankenship:]

Metro and Non-Metro Trend Data

Per capita Index - State, existing trend

	1990	1995	2000	2005	2025	% change: 1990-2025	% 1
Population	4,375,099	4,626,500	4,919,479	5,197,200	6,135,060	40%	
VMT trend, no action	38,940,000,000	44,072,000,000	52,601,000,000	56,570,000,000	81,880,000,000	110%	
Annual VMT Per Capita	8,900	9,526	10,692	10,885	13,346	50%	

Population sources: 2000 U.S. Census Bureau, 2005 estimates from U.S. Census Bureau. Modified by Minnesota Housing Finance Agency
 VMT sources: Federal Highway Administration

Per Capita Index - Seven County Metro Area, existing trend

	1990	2005	2025	% change: 1992-2005	% change: 2005-2025
Population	2,288,721	2,810,179	3,579,750	22.78%	27.39%
% of state population	52%	54%	58%		
VMT trend, no action	17,710,006,902	22,598,182,950	29,233,300,775	27.60%	29.36%
% of state total VMT	45%	40%	36%		
Annual VMT Per Capita	7,738	8,042	8,166	3.92%	1.55%

Population sources: 2000 U.S. Census Bureau, Metropolitan Council
 Source: MN Dept. of Administration, Office of Geographic & Demographic Anal., MN Population Projections: 2000-2030, <http://www.demography.state.mn.us>
 VMT Source: Federal Highway Administration, <http://www.fhwa.dot.gov/ohim/hs92/roads.pdf>, Metropolitan Council Transportation Planning

Per Capita Index - Non-Metro Area, existing trend

	1990	2005	2025**	% change: 1992-2005	% change: 2005-2025
Population	2,086,378	2,387,021	2,555,310	14.41%	7.05%
% of state total	48%	46%	42%		
VMT trend, no action	21,229,993,098	33,971,817,050	52,646,699,225	60.02%	54.97%
% of state total	55%	60%	64%		
Annual VMT Per Capita	10,176	14,232	20,603	39.86%	44.77%

See above table for more sources, notes

Discuss implications. Decreases in VMT can come from mode shift, not just decreased (auto) driving.

2. Reducing **carbon per unit of fuel** [Cleaner Fuels]

- o TLU-3 Low Greenhouse Gas Fuel Standard

Estimated GHG Reductions

	MMtCO ₂ e		
	2007	2015	2025
No action—trend (Light-duty + heavy duty)	22.97 + 7.07 = 30.04	24.10 + 8.82 = 32.92	25.44 + 11.34 = 36.78
TWG proposed action—25% by 2015, and 50% by 2025		18.07 + 6.61 = 24.68	12.72 + 5.67 = 18.39
Reduction		8.24	18.39

For comparison

CA LCFS—10% by 2020		29.63	33.1
Reduction		3.29	3.68

Q: does this baseline include the MN 20% by 2012? NO:

From CCS, “DRAFT Minnesota Greenhouse Gas Inventory and Reference Case Projections 1990-2020” (<http://www.mnclimatechange.us/ewebeditpro/items/O3F13507.pdf>)

For forecasting GHG emissions, growth in fuel consumption is also needed along with VMT. Onroad gasoline and diesel fuel consumption were forecasted by developing a set of growth factors that adjusted the VMT projections to account for improvements in fuel efficiency. Fuel efficiency projections were taken from AEO2006.

The 2005-2006 growth factors for onroad diesel were also adjusted to account for increased consumption of biodiesel. The recent biodiesel mandate, which requires that 2% of diesel fuel sold at filling stations is blended with biodiesel, took effect in late September of 2005. Since the 2% mandate was in effect for approximately one quarter of the year, 2005 consumption of biodiesel was assumed to be 0.5% of diesel consumption. Biodiesel consumption was assumed to increase to 2% in 2006 and to remain at this level through 2030.

The Minnesota Legislature also recently passed an ethanol mandate that would require the state's gasoline supplies to contain 20% ethanol (E-20). This standard, which is to take effect in 2013, would double the current ethanol consumption. Since Minnesota must obtain federal approval to use E-20 blends, and this approval has not yet been granted, increased ethanol consumption was not included in the business as usual projection. If, following further review of these draft emission estimates, the standards are determined to be likely to take effect, the resulting emission reductions should be incorporated into the BAU projection.

3. Reducing per vehicle energy consumption [Improved **Vehicle Efficiency**]

- TLU-4 Infrastructure Management
- TLU-5 Climate-Friendly Transportation Pricing [in part]
- TLU-6 Adopt CA Clean Car Standards

Estimated GHG Reductions: TLU-6

	MMtCO ₂ e		
	2007	2015	2025
No action—trend (Light-duty)	22.97	24.10	25.44
Proposed action: CA Clean Car		Not estimated: phase-in unclear	18.44
Reduction		--	7.0

- TLU-8 Update Road Standards [in part]
- TLU-11 Anti-Idling
- TLU-12 Mobile Source Emissions Reduction
- TLU-13 Reduced Speed Limits

Area 1: TLU strategies to reduce vehicle miles traveled

Overarching Goal: Vehicle miles traveled (VMT) in Minnesota are equal in the aggregate to the amount driven in 1990 by 2025, with a benchmark year of reducing to the 2000 level by 2013.

	2007	2013	2025	<u>% change 2007 to 2025</u>
No action—continue according to trends	60 billion	67 billion	82 billion	+37%
Proposed action—reduce to 1990 VMT	60 billion	53 billion	39 billion	-35%

Alternative goal: Establish goals at a *per capita level* as opposed to a gross reduction in VMT.

	2007	2013	2025	<u>% change 2007 to 2025</u>
No action—continue according to trends <u>per person</u>	60 billion (11,285 / person)	67 billion (11,939 / person)	82 billion (13,346 / person)	+37%
Proposed action—reduce to 1990 levels of VMT <u>per person</u>	60 billion (11,285 / person)	61 billion (10,692 / person)	55 billion (8,900 / person)	-8%

All numbers are estimates based on available data and subject to further refinement.

Options:

- TLU-1 Land Use Planning & Development
- TLU-2 Transit, Bike & Pedestrian Infrastructure
- TLU-5 Climate-Friendly Transportation Pricing [in part]
- TLU-7 Fix-It-First
- TLU-8 Update Road Standards [in part]
- TLU-9 Commuter Choice
- TLU-10 Congestion Pricing

Are intended to *together* achieve these VMT goals.

Types(s) of GHG Reductions

Primarily CO₂; small amounts of others, esp. CH₄ and N₂O.

Estimated GHG Reductions

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Reduction		2.72	8.12

Alternative:

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Reduction		0.75	4.39

TLU-1 Improved Land Use Planning and Development Strategies

[From Jeanette’s team - 11/14]

Policy Description

Implement land use planning and development strategies that reduce the number of vehicle miles traveled and corresponding greenhouse gas emissions. Strategies include more compact development, transit-oriented development and other tools which encourage people to drive fewer miles.

Policy Design

Goals:

1. Vehicle miles traveled in Minnesota will be reduced in an amount equal to the total miles driven in 1990 by the year 2025. Vehicle miles traveled since 1990 have increased statewide by 45 percent, one of the fast growth rates in the nation, far outpacing the state population growth of 19 percent in the same time period. This trend is indicative of a development pattern that does not efficiently use land and encourages auto-dependency. Strategic land use planning and more compact development is crucial to reducing greenhouse gas emissions through trip length reduction, as measured in vehicle miles traveled.
2. Establish land use and development requirements and incentives that will encourage 1) higher density, mixed-use, pedestrian- friendly development and 2) well-connected streets with the goal of increasing the number of trips by walking, bicycling, and transit, and reducing the number and distance of vehicle trips.

Timing: Statewide and regional planning goals developed in 2008-2009. Best practices technical assistance to be prepared in 2008-2009. To achieve VMT goals, policy implementation should commence as soon as possible.

Parties Involved: All layers of government: local, county, school districts, regional, state, including elected officials, commissions and staff; developers & contractors; employers; home buyers

Other: None.

Implementation Mechanisms

1. Infill and Brownfield Development

- Provide financial incentives to encourage brownfield and infill redevelopment with a priority for mixed-income developments.

2. Transit-Oriented Development

- Build compact, mixed-use, mixed-income development clustered around transit stops.
- Governments could require that planning/zoning for transit oriented development accompany new high capacity transit investments.
- Improve street connectivity to reduce the need for overly large urban arterial roads and to make walking, and walking to transit, safer and more convenient.

3. Smart Growth Planning, Modeling and Tools

- Institute statewide and municipal planning requirements to encourage the majority of new development and redevelopment to occur in existing town centers, regional centers, neighborhood centers, and transit accessible locations. (Similar to Oregon, Maryland, Seattle).
- Institute statewide municipal planning requirements that encourage a balance of regional residential, commercial and industrial needs.
- Require state and municipal plans to include goals and strategies for reducing greenhouse gas emissions.
- Revise siting requirements for new schools (state law) to make it easier for children, teachers, and parents to get to school on foot, bicycle, and transit.
- Provide technical assistance to communities for Comprehensive Plans on best practices in zoning, parking, and street design to improve planning and development.
- Provide financial incentives for communities to plan ahead for mixing housing at a variety of income levels close to job centers.

4. Targeted open space protection

- Preserve key natural areas, agricultural land, and park land which will help to guide development and redevelopment into targeted growth areas.

5. Priority Areas Designated For Planned Growth

- Target transportation, housing, state general obligation bonding, and other state and federal dollars to those projects that help meet these land use and development goals.

Related Policies/Programs in Place

Recent Actions in MN:

1. Metropolitan Livable Communities Program Tax Base Revitalization Account grants have funded projects throughout the metropolitan area to clean up polluted land and buildings for redevelopment, creating new jobs and affordable housing, and directing growth to central cities and older suburbs where costly infrastructure is already in place.
2. Metropolitan Livable Communities Program provides Livable Communities Demonstration Account grants to metropolitan area communities for projects that result in connected development patterns that link housing, jobs and services, and use regional infrastructure efficiently. Many projects served by bus and LRT infrastructure have been funded.
3. Minnesota Housing has a priority for housing development located near transportation, including regional and interregional transportation corridors and transit-ways.
4. The MC's 2030 Regional Development Framework and the policy plans that implement it are intended to help accommodate the region's growth in an orderly, efficient manner and guide the expansion of four regional systems: transportation; aviation; water resources (inc. wastewater collection and treatment) and regional parks and open space.
5. Minnesota Housing has a priority for housing development in proximity to existing development and services, protecting environmental resources and promoting compact development.
6. Some counties have sold bonds to protect open spaces. MC plans to increase regional park and open space system from 53,000 acres to 80,000 acres.
7. Minnesota Housing supports new development that is not located near wetlands, steep slopes, critical habitat, or on prime farmland or park land.

Types(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

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

Key Uncertainties

Reducing the number of miles that a vehicle travels through more strategic land use planning and development is a policy approach that works primarily in urban areas where jobs and commercial services are more likely to be closer to residential growth areas. While the Seven-County Metro area held 52% of the state population in 1990, it produced only 45% of the annual state Vehicle Miles Traveled (VMT). In 2005, the Seven-County Metro area had 54% of the statewide population and 40% of the state VMT. By 2025, the percentages only continue to diverge to 58% of the statewide population in the metro area, yet only 36% of the state VMT. Per capita VMT is expected to grow very little in the metro area by 2025, yet it is projected to increase dramatically statewide.

Reducing the number of miles traveled is a crucial component to reducing harmful greenhouse gas emissions, even with increased clean fuel and efficiency. The burden of reducing the number and lengths of trips taken will be concentrated on the Seven-County Metro area and the population growth centers in greater Minnesota and should be considered when recommending policies. Whether we strive to achieve the number of annual vehicle miles traveled overall or based on per capita as we did in 1990, policies for reducing the number and length of travel trips will be targeted to the metro area and greater Minnesota growth centers.

This area needs more analysis and is a key uncertainty to pursue.

Additional Benefits and Costs

1. Other benefits: Greatly reduce infrastructure costs (A 2002 report prepared by a consultant to the Metropolitan Council hired to study regional growth development options showed a \$2 billion savings in infrastructure costs over 20 years under a compact development scenario for the TC metropolitan area.) Make transit service more feasible and cost effective (need a minimum of 8 residential units per acre for minimum level bus service, 15 units per acre for frequent bus service, and 30 units per acre for rail service). Improve public health by making it easier and safer for people to walk. Reduce the number and severity of vehicle crashes by reducing the number of high-speed, high-traffic arterial streets. Encourage social interaction with more people walking, bicycling, and riding public transit.

Feasibility Issues

TBD

Status of Group Approval

Pending

Level of Group Support

TBD

Barriers to Consensus

TBD

TLU-1. Improved Land Use Planning and Development Strategies **[from Barb –11/19]**

Policy Description

Improve land use planning and development, and investment practices to target growth in ways that greatly increase the number of trips by bicycling, walking, and transit and reduce the number and length of vehicle trips; thus reducing greenhouse gas emissions. (Part of VMT reduction goal along with TLU strategies 1,2,5,7,8,9,10).

Policy Design

Goals:

2. Establish land use and development requirements and incentives that will encourage higher density, mixed-use, pedestrian-friendly development across Minnesota.
3. Target X percent (50%, 60%, 70%) of the Minnesota's new residential growth and X percent (how about 60%, 70%) of new job growth into priority growth areas where walking, bicycling, and/or transit can become viable transportation options and where vehicle trip length will be reduced.
4. Encourage well-connected streets to reduce traffic congestion on arterial streets, to shorten trip distances, and to make transit use, bicycling, and walking feasible.
5. Identify lands for preservation as open space, natural areas, parks, and agricultural areas.

Timing: Statewide and regional planning goals developed in 2008–2009. Best practices technical assistance to be prepared in 2008–2009. To achieve VMT goals, policy implementation should commence as soon as possible.

Parties Involved: All levels of government including local, county, school districts, regional, state, also developers and contractors; employers; homeowners.

Other: None.

Implementation Mechanisms

1. Priority Areas Designated For Planned Growth

Establish a process to designate types of priority growth areas within the state such as town centers, downtowns, regional centers, transit corridors, and transit station areas. Establish a process to encourage higher density housing and employment growth, mixed-use development, and bicycle, pedestrian, and transit-friendly development within these areas. Priority growth areas could include brownfields (old commercial or industrial sites).

2. Transit and Pedestrian-Oriented Development

Encourage transit and pedestrian oriented development (higher density, mixed-use development) along bus corridors, and at rail station locations.

3. Complete Streets and Well Connected Streets.

Improve street connectivity statewide to shorten trip distances, to make walking, and walking to transit, safer and more convenient, to reduce the need for overly large urban arterial roads, and to encourage higher density development.

4. Smart Growth Planning, Modeling and Tools

Institute statewide and municipal planning requirements to implement this strategy and require state and municipal plans to include goals and strategies for reducing GHG emissions.

Provide technical assistance to communities on best practices in zoning, parking, and street design to increase walking, bicycling and transit use, and to encourage higher density, transit and walking oriented, development. .

5. Targeted open space protection

Establish programs and/or requirements to preserve key forestlands, natural areas, agricultural land, and parkland, which will help to guide development and redevelopment into targeted growth areas.

6. School Siting.

Review and make recommendations to revise school siting laws in Minnesota to encourage the development or rehabilitation of schools in priority growth areas and to make it easier for children, teachers, and parents to get to school on foot, bicycle, and transit.

7. Funding.

Target new and existing transportation, housing, regional, state, and federal dollars to those projects that help meet these land use and development goals.

Related Policies/Programs in Place

Relevant Actions in Minnesota:

1. Metropolitan Livable Communities Program Tax Base Revitalization Account grants have funded projects in the metropolitan area to clean up polluted land and buildings for redevelopment, creating new jobs and affordable housing, and directing growth to central cities and older suburbs. . How much money over what time period?
2. Metropolitan Council provides Livable Communities Demonstration Account grants to metropolitan area communities for projects that result in connected development patterns that link housing, jobs and services, and use regional infrastructure efficiently. How much money over what time period?
3. Minnesota Housing has a priority for housing development located near regional and interregional transportation corridors and transit-ways, in proximity to existing development and services, and Minnesota Housing supports new development that is not located near wetlands, steep slopes, critical habitat, or on prime farmland or parkland.
4. Some counties have sold bonds to protect open spaces. The Metropolitan Council plans to increase regional park and open space system from 53,000 acres to 80,000 acres Over what time period?

Types(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources:

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

1. Greatly reduce infrastructure costs. A report prepared in 2002 by a consultant to the Metropolitan Council hired to study regional growth development options showed a \$3 billion savings in infrastructure costs over 20 years under a compact, transit oriented development scenario for the TC metropolitan area. (Blueprint 2030 Appendices, item E, page 9.)
2. Make transit service more feasible and cost effective (need a minimum of 8 residential units per acre for minimum level bus service, 15 units per acre for frequent bus service, and 30 units per acre for rail service).
3. Improve public health by making it easier and safer for people to walk.
4. Reduce the number and severity of vehicle crashes by reducing the number of high-speed, high-traffic arterial streets and by making walking and bicycling safer.
5. Encourage social interaction with more people walking, bicycling, and riding public transit.

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-2. Expand Transit, Bicycle, and Pedestrian Infrastructure

Policy Description

Expand infrastructure and programs to increase transit ridership, carpooling, bicycling and walking. This strategy will reduce GHG emissions by reducing vehicle miles traveled (fewer vehicle trips and shorter trip distances). (Part of VMT reduction goal along with TLU strategies 1, 5, 7, 8, 9, 10)

Policy Design

Goals:

1. Implement the Metropolitan Council's transit plan to double transit ridership by 2020 (from 75 million rides annually to 150 million), ten years sooner than the current target date of 2030. The Council's transit plan calls for investment in light rail, commuter rail, bus rapid transit and expanded bus service.
2. Improve/expand transit (rail and bus) service between regional centers in Greater Minnesota and the Twin Cities region including Rochester, Marshall, Winona, Bemidji, Duluth, Detroit Lakes, Mankato, Grand Rapids, East Grand Forks, Others? Provide/ensure (twice daily, 4 times daily?) service between these communities and the Twin Cities region.
3. Increase bike and pedestrian infrastructure in cities across Minnesota including sidewalks, trails, bike lanes, and other amenities that make walking and bicycling safer and more convenient.

Timing: Begin implementation by 2008 and complete implementation by 2020.

Parties Involved: Legislature, Metropolitan Council, MNDOT, Metropolitan Transitways Development Board, counties, cities, freight rail, private sector businesses.

Other: TBD

Implementation Mechanisms

Expand Transit Service

1. The Metropolitan Council transit plan calls for adding light rail, commuter rail, dedicated busways and increasing regular route bus service by 80% (more routes and more frequent service) This expansion would also include additional marketing, promotion, and pricing incentives (including tax incentives for nonprofits).
2. Expand transit service between Greater MN and the TC Metropolitan Area. Could say connect with Amtrak.

Expand Bike and Pedestrian Infrastructure

1. Add and improve sidewalks, trails, bike lanes, and other amenities including lighting, landscaping, bike parking, lockers, etc.

Related Policies/Programs in Place

Recent Actions in Minnesota:

1. MC/TAB programmed \$95.6 million in Enhancement and STP funds between 1992 and 2007 for public transit, bicycling, and walking which is x percent of total. Transit for Livable Communities is implementing a four year \$25 million federal pilot program for bicycling/walking targeted to Minneapolis.
2. In 2006 Minnesota voters approved a constitutional amendment requiring dedication of motor vehicle sales tax funds to transit which will result in increased funding.
3. Twin Cities region has two HOV lanes (I-394 and I-35W). I-394 is a HOT lane which allows single occupant vehicles to use the HOV lane for a fee. MOU between Metropolitan Council and MNDOT to consider additional HOT lanes in future highway improvements.

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

Additional cost for Met Council plan implementation is estimated to be \$210 million per year for 13 years or nearly \$3 billion. Cost savings include a reduced need for parking, lower household costs for transportation, reduced traffic congestion, improved air quality, reduced costs for roadway expansion, and improved health for new transit riders who walk to transit.

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-3. Low GHG Fuel Standard [From Greg]

Policy Description

Implement a low greenhouse gas fuel standard (LGFS) that would create a market-based program to reduce the GHG emissions from transportation fuels and diversify transport fuel options for consumers.

The LGFS would be designed to require fuel providers to reduce the greenhouse gas (GHG) intensity of the fuels they sell in Minnesota. “Fuel providers” are identified as producers, importers, refiners, and blenders. The GHG intensity is specified as a CO₂ equivalent¹ per BTU. The LGFS would not be designed to encourage the use of any particular fuel: it would include fossil and renewable fuels.²

The LGFS is not a tailpipe standard for GHGs as it considers GHG emissions on a full fuel cycle basis, which includes not only tailpipe emissions, but also emissions associated with the production and distribution of fuels. This will result in varying carbon impact values for fuels that would ostensibly be the same to customers.³ This would have a significant impact to Minnesota in that E10, the current maximum ethanol blend percentage for non flex-fuel vehicles, is the state mandated standard for all gasoline blends.

Policy Design

Goals: Implement policy that requires the average carbon intensity of on-road transportation fuel to be reduced 25% by 2015 and 50% by 2025 from 2007 levels. (Note that California’s LCFS requires a 10% reduction by 2020.) Other policies seek to reduce consumption of motor fuels, while this approach changes the fuel mix to reduce GHGs.

Timing: TBD

Parties Involved: All layers of government, fuel providers

Implementation Mechanisms

1. Partnership with the University of Minnesota and the Department of Transportation to create the framework for the LCFS.
2. Market-based mechanisms for fuel providers to choose how they wish to meet LGFS.

¹ Each GHG has a global warming potential that allows it to be expressed in terms of CO₂. This notation is referred to as carbon dioxide equivalent (CO₂e). For example, methane, CH₄, has a GWP of 23. Therefore, 1 Mt of CH₄ can be expressed as 23 MtCO₂e.

² Alternative fuels are defined in the Energy Policy Act of 1992 and include biodiesel, electricity, ethanol, hydrogen, natural gas, and propane.

³ For example, E10 where the ethanol is derived from cellulose has the potential to reduce the full fuel cycle carbon impact as compared to E10 where the ethanol is derived from corn. How the ethanol is made affects its life-cycle GHG profile and not all corn ethanol is exactly the same. Cellulosic while potentially better in its GHG profile than sugar based (corn) ethanol, will also vary depending on feedstock(s) and thermal heat input source(s).

5. Full life cycle basis of measuring GHG impact of transportation fuels. Implemented by a cap and trade system for fuel providers.
6. Financial incentives for refueling station creation and retrofitting based on LGFS.
7. Certification process

Related Policies/Programs in Place

Recent Actions in Minnesota:

1. Current state policy for fossil diesel displacement is 2% biodiesel blend. For gasoline displacement, current policy is 20% ethanol displacement by 2013; with a carve-out goal for 5% derived from cellulosic material. Current petroleum displacement goal is 20% of the liquid fuel sold in the State will come from renewable sources by the year 2015 and 25% by 2025.
2. Metro Mobility uses the highest level of biofuel allowable by operating conditions and vehicle manufacturers.
3. B5 (5% biodiesel) used by Metro Transit and Metro Transit is testing B20 (20% biodiesel). Metro Transit is considering use of B10 (10% biodiesel) by mid-2007 pending B20 test results. The agency is also looking for other engine technology that uses other types of renewable fuels.
4. Formation of the NextGen Energy Board to determine how state can invest most efficiently to achieve energy independence—\$90 million from 2010 to 2020.
5. Ethanol: Minnesota established an ethanol production incentive to provide payment to producers to help develop a new market for Minnesota’s agricultural products. On the market side, Minnesota requires that all gasoline sold in the state be blended with a 10% ethanol mix. In addition, Minnesota began efforts in 1997 to develop a network of fueling stations for flex fuel vehicles that could run on an 85% ethanol blend. Today Minnesota has over three hundred E85 fueling stations around the state that together sold a total of \$18,160,000 gallons of E85 blended gasoline during 2006. <http://www.pca.state.mn.us/programs/ethanol.html>; <http://www.pca.state.mn.us/programs/ethanol.html#links>
6. Biodiesel: According the US DOE, biodiesel has the most favorable energy balance of any transportation fuel. For every unit of energy needed to produce a gallon of biodiesel, 3.2 units of energy are gained. As of September 29, 2005, Minnesota requires nearly all diesel fuel sold in the state to contain at least a 2% biodiesel blend. It is estimated that the 2% fuels use requirement for Minnesota will replace 16 million gallons of diesel fuel. [Minn. Stat. § 239.77](#); <http://www.pca.state.mn.us/air/cleanfuels.htm>; <http://www.mda.state.mn.us/renewable/biodiesel/default.htm>

[NOTE: In addition to biofuels the TWG may want to consider any recent efficiency issues or improvements in the oil/refining sector as this is not solely a biofuels policy, but a full life-cycle transportation fuels policy, inclusive of other alternative fuels and better extracted/refined oil.]

Type(s) of GHG Reductions

All GHG types in the fuel life cycle.

Estimated GHG Reductions and Net Costs or Cost Savings

	2007	2015	2025
No action—continue according to trends	22.97 + 7.07 = 30.04	24.10 + 8.82 = 32.92	25.44 + 11.34 = 36.78
TWG proposed action—25% by 2015, and 50% by 2025		18.07 + 6.61 = 24.68	12.72 + 5.67 = 18.39
Reduction		8.24 MMtCO₂e	18.39 MMtCO₂e

For comparison

CA LCFS—10% by 2020		29.63	33.1
Reduction		3.29 MMtCO₂e	3.68 MMtCO₂e

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-3. Low GHG Fuel Standard [Alternative Provided by Jan Callison]

Policy Description

Encourage the use of alternative fuels in vehicles by establishing a low greenhouse gas standard. This standard would measure greenhouse gas emissions from alternative fuels on a life-cycle basis, i.e., by considering emissions from the production and distribution of alternative fuels as well as from consumption. This standard is not biased towards any particular alternative fuel⁴.

Policy Design

Goals: Reduce the average carbon intensity of on-road, transportation fuel 25% by 2012 and 50% by 2025.

Timing: TBD

Parties Involved: All layers of government; fuel producers, importers, refiners and blenders

Implementation Mechanisms

1. Partnership with the University of Minnesota and the Department of Transportation to create the framework for the GHGFS.
2. Market-based mechanisms for fuel providers to choose how they wish to meet GHGFS
3. Full life cycle basis of measuring GHG impact of transportation fuels. Implemented by a cap and trade system for fuel providers.
4. Financial incentives for refueling station creation and retrofitting based on GHGFS
5. Certification process

Related Policies/Programs in Place

Recent Actions in Minnesota:

1. Current State policy for fossil diesel displacement is 2% biodiesel blend. For gasoline displacement, current policy is 20% ethanol displacement by 2013; with a carve-out goal for 5% derived from cellulosic material. Current petroleum displacement goal is 20% of the liquid fuel sold in the State will come from renewable sources by the year 2015 and 25% by 2025.
2. Metro Mobility uses the highest level of biofuel allowable by operating conditions and vehicle manufacturers.
3. B5 (5% biodiesel) used by Metro Transit
4. Testing B20 (20% biodiesel)
5. Considering use of B10 (10% biodiesel) by mid-2007 pending B20 test results.
6. Looking for other engine technology that uses other types of renewable fuels.
7. Formation of the NextGen Energy Board to determine how state can invest most efficiently to achieve energy independence—\$90 million from 2010 to 2020.

⁴ Italics denote items that have been changed from earlier draft.

8. Ethanol: Minnesota established an ethanol production incentive to provide payment to producers to help develop a new market for Minnesota’s agricultural products. On the market side, Minnesota requires that all gasoline sold in the state be blended with a 10% ethanol mix. In addition, Minnesota began efforts in 1997 to develop a network of fueling stations for flex fuel vehicles that could run on an 85% ethanol blend. Today Minnesota has over three hundred E85 fueling stations around the state that together sold a total of \$18,160,000 gallons of E85 blended gasoline during 2006. <http://www.pca.state.mn.us/programs/ethanol.html>; <http://www.pca.state.mn.us/programs/ethanol.html#links>
9. Biodiesel: According the US DOE, biodiesel has the most favorable energy balance of any transportation fuel. For every unit of energy needed to produce a gallon of biodiesel, 3.2 units of energy are gained. As of September 29, 2005, Minnesota requires nearly all diesel fuel sold in the state to contain at least a 2% biodiesel blend. It is estimated that the 2% fuels use requirement for Minnesota will replace 16 million gallons of diesel fuel. [Minn. Stat. § 239.77](#); <http://www.pca.state.mn.us/air/cleanfuels.htm>; <http://www.mda.state.mn.us/renewable/biodiesel/default.htm>

[NOTE: In addition to biofuels the TWG may want to consider any recent efficiency issues or improvements in the oil/refining sector as this is not solely a biofuels policy, but a full life-cycle transportation fuels policy, inclusive of other alternative fuels and better extracted/refined oil.]

Type(s) of GHG Reductions

All GHG types in the fuel life cycle.

Estimated GHG Reductions and Net Costs or Cost Savings

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

Current technology does not exist to reach the 2025 goal of 50% reduction in carbon intensity. Research is on-going, particularly related to cellulosic fuels.

Additional Benefits and Costs

TBD

Feasibility Issues

Impact of higher biofuel blends for older engines; potential vehicle warranty issues.

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-4. Infrastructure Management

Policy Description

With the state as a coordinator, build on current efforts to create a seamless multi-modal system. Tools to reduce traffic congestion include HOT lanes, synchronized signals, incident management, real-time information about congestion, transit, and parking, and other forms of integrated intelligent transportation systems (ITS).

Comment [LMc1]: From Barb: Thoman would ask that Improve Street Design be separated out as a separate strategy under reducing VMT and that TLU-4 retain the previous language that had to do with reducing vehicle idling (fuel use).

Policy Design

This strategy is designed to increase walking, bicycling, and transit use, and encourage development patterns that support these modes and reduce the number and length of motor vehicle trips.

Goals: Use infrastructure management to reduce urban-area emissions by 10% by 2025 relative to the baseline. **Insert old language related to vehicle idling (roundabouts, signal timing, HOT lanes, etc.)**

Comment [LMc2]: Suggestion made by Barb.

Move the rest of this to a Strategy called Complete Streets.

Comment [LMc3]: Suggestion made by Barb.

1. Adopt a “complete streets” policy in Minnesota that would apply to all new and reconstructed roads. Ensure, through an inclusive process, that roads are designed to better serve all users including vehicle drivers, transit users, pedestrians, freight and truck traffic, and bicyclists. **(Pursue an “Urban Preservation Route” street classification, similar to the “Natural Preservation Route” that exists today. (move)**
2. **Encourage cities and counties to develop bicycle and pedestrian plans to identify needs and priorities. (move)**
3. **Encourage roundabouts (leave here)**

Timing: By 2025

Parties Involved: All state transportation providers.

Other: TBD

Implementation Mechanisms

TBD

Related Policies/Programs in Place

Recent Actions in Minnesota:

1. With CMAQ funds, Minneapolis has implemented computerized traffic signals for better traffic flow. The 2007 CMAQ solicitation contains a funding program for TSM. Freeway on-ramp metering program.

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-8 Update Road Standards—Now Part of TLU-4

[On October 18, TWG decided to move TLU-8 under TLU-4]

Policy Design

Goals: This strategy would be part of an overall VMT reduction goal.. This strategy is designed to increase walking, bicycling, and transit use, and encourage development patterns that support these modes and reduce the number and length of motor vehicle trips.

Timing: 2008-9 adoption and then ongoing implementation.

Parties Involved: Legislature, city and county engineers, MNDOT, local elected officials, bike, transit, and pedestrian interests, Minnesota Trucking Association, others.

TLU-5. Climate-Friendly Transportation Pricing

Policy Description

Implement policies so that drivers pay taxes and fees that more closely estimate the full costs of driving – making it more likely for them to choose transportation alternatives, purchase more efficient vehicles, drive less, or drive more efficiently (combining trips). Where possible enable some of the fixed costs of driving to become variable costs.

In certain highway corridors and/or within a selected area of the metropolitan area, institute congestion pricing—charging single occupant vehicles (SOVs) a variable fee relative to travel demand—to price motor vehicle use more in line with real costs, and to provide revenue for less CO₂-intensive travel options (e.g., public transit, vanpooling).

Policy Design

Short-term:

1. Increase the state’s fuel tax and vehicle registration fees to improve (better maintain? or do we mean expand?) transportation infrastructure and reduce bottlenecks/congestion. **Can the TWG talk about this?**
2. To encourage purchase of low-GHG emitting passenger vehicles, institute a “greenhouse gas emission fee” with higher fees charged for higher emitting vehicles. Revenue collected should be dedicated to transportation alternatives.
3. Have **(provide an incentive for)** auto insurance companies to institute a “pay as you drive” system for policyholders. This should be voluntary, but assumes 50% market penetration by 2015. **Is this realistic?**
4. Encourage lower-cost highway expansion projects to eliminate bottlenecks that result in delay and vehicle idling. **Can the TWG talk about this?**
5. **(From TLU-10)** Establish a network of lanes that allow public transit vehicles, carpools, and SOVs willing to pay a fee, congestion-free travel. The electronically charged toll for use of these HOT lanes would vary by time of day and traffic conditions to ensure free-flowing conditions at posted highway speeds. The network should consist of the existing HOT lanes on I-394, the HOT lanes proposed for I-35W (selected for a US DOT Urban Partnership Agreement), and other highway corridors that exhibit the highest level of traffic congestion and the ability to cost-effectively turn bus-only shoulder lanes into a HOT lane. Assume the toll proceeds are used in the following manner: 1) pay back the trunk highway fund and any other funding source for monies spent to establish each lane, 2) pay all the costs of implementing and administering the toll collection system for that lane, and 3) the remainder, if any, for the expansion and improvement of transit services within the HOT lane corridor.

Comment [LMc4]: Request from Barb

Comment [LMc5]: From Barb

Long-term:

6. **Consider?** In conjunction with other state or national efforts, Minnesota should institute a mileage tax, in place of the current funding system (gas tax, license tab fees, motor vehicle sales tax) for roads. For purposes of this exercise, we assume that happens in 2015. Some

Comment [LMc6]: From Barb

say a VMT tax is more politically feasible than raising the gas tax, but no state has yet implemented such a system.]

7. (From TLU-10) Establish a cordon pricing system similar to that used in Stockholm and Oslo. All vehicles other than public transit should be charged a fee when entering the Twin Cities' urbanized core on a principal arterial at the I-494/I-694 beltway. The fee should be collected electronically and vary by time of day, but in peak periods be at least twice the peak period transit fare then in effect. All proceeds should be used to support the transit element of the Metropolitan Council's 2030 Transportation Policy Plan.

Anytime:

8. Provide income tax incentives to encourage the purchase of low-GHG emitting vehicles and technologies.
9. Policy design for all components of this package should take into account and mitigate equity impacts, through, for example, life-line policies.

Timing: Passage of a comprehensive transportation funding package, GHG emission fees and tax incentives during the 2008 Legislative Session, effective July 1, 2008. Mileage tax replacement would be enacted in 2015.

The HOT network should be phased in over time and completely operational by 2015. Assume that highway expansions identified in the Metro District's fiscally constrained Transportation System Plan will follow the timing set out by MNDOT.

The cordon pricing system should be phased in over time but be completely operational by 2015. The phase-in should be by principal arterial based on highest traffic count.

Parties involved: Highway and transit users, automobile manufacturers, insurance companies, state departments of commerce, transportation, public safety, revenue, finance, and pollution control, Metropolitan Council.

Other: Since Minnesota' motor fuel tax, registration fees, and motor vehicle sales tax are constitutionally dedicated to "highways purposes," significant use of these monies for transit, bicycling, or pedestrian projects may invite a lawsuit or may require amending the state's constitution. In addition, offering exemptions/reductions in any of these funding mechanisms to encourage the purchase of low-GHG vehicles would decrease the amount of transportation dollars for roadways and counter TLU strategies 2, 7, and 8.

Implementation Mechanisms

CO₂-Based Registration Fees

1. The state could adopt a variety of programs to increase purchase of fuel-efficient or low-GHG vehicles (including pure electric, hybrid, plug-in hybrid, and other alternative fuel vehicles). State incentives could include lower registration fees, feebates, and/or tax credits. Higher vehicle registration fees could be charged for vehicles that have lower fuel economy. Vehicle licensing fees could be based upon vehicle weight, with use of a dollar per vehicle-ton multiplier instead of the present broad categories of vehicle weight.

VMT Tax

2. The state would charge a tax reflective of miles traveled by passenger vehicles and could vary the fee by the fuel economy achieved by the model type (per EPA estimated mph). In addition, revenues could be used to fund transit and other transportation alternatives within a corridor or region.

Pay-as-You-Drive Automobile Insurance

3. The state would encourage and support the provision of pay-as-you-drive auto insurance, possibly including state support for additional pilot programs. This would also require the state commission to conduct an active review of possibilities.

Increase Motor Fuel Taxes

4. Increasing the state tax on conventional fuels can reduce consumption and travel while encouraging the use of lower emissions vehicles, alternative fuels, and public transit. (Get estimate for % increase in price and expected decrease in driving).

Related Policies/Programs in Place Type(s) of GHG Reductions

TBD

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

**TLU-10. Congestion Pricing (or Tolls) With Targeted Use of Revenue
Toward Travel Alternatives—Now Part of TLU-5**

[On October 24, TWG decided to move TLU-10 into TLU-5 under implementation mechanisms.]

Comments from Dave VanHattum—The key elements of my changes are:

1. Focusing exclusively on Congestion Pricing not roadway tolls. The latter would help build more roads and lead to less traffic congestion (at least in the short term), but would almost certainly lead to increased CO2 emissions per capita as people live further out and commute longer distances.
2. Direct revenues from Congestion Pricing to transit. Again, any revenues generated beyond that needed to convert bus-only shoulders to HOT lanes and to implement electronic tolling, should go to increasing transit options, both to build political support for congestion pricing and to maximize CO₂ reductions. Using the money to add additional roadway capacity is unlikely to have a CO₂ benefit.
3. Set the Cordon Pricing toll at a level that a substantial number of commuters would be willing to pay—otherwise this proposal would be viewed as pushing business out of the urbanized area—which, in the long run, is likely to increase CO₂ emissions per capita.

Policy Description

Moved to TLU-5.

Policy Design

1. **High Occupancy Toll (HOT) Network** Moved to TLU-5.
2. **Cordon Pricing**

Timing: Parties Involved: Minnesota Department of Transportation, Metropolitan Council.

Other:

Related Policies/Programs in Place

Recent Actions in Minnesota:

5. MNDOT currently studying the VMT finance mechanism. [TLU-5]
6. I-394 is HOT lane. MOU between MC and MNDOT to consider additional HOT lanes in future highway improvements. [TLU-10]

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-6. Adopt California Clean Car Standards

Policy Description

Reduce greenhouse gas emissions from new motor vehicles (cars and light trucks) sold in Minnesota by adopting legislation equivalent to the California Clean Car Standards (Assembly Bill 1493 also known as “Pavley” the name of the California lawmaker who sponsored the legislation).

California adopted legislation in 2002 (and regulations in 2004) requiring a reduction in greenhouse gas emissions from new cars and light trucks sold in that state beginning with model year 2009. California plans an eight-year phase in. The California standards incorporate the four main global warming emissions including carbon dioxide, methane, and nitrous oxide resulting directly from the operation of the vehicle (tailpipe emissions) as well as hydrofluorocarbon emissions resulting from leakage from or operation of the air conditioning system.

Policy Design

Goals: Adopt California’s Clean Car program

Timing: If adopted, the standards would take effect no earlier than the 2011 model year and be phased in over a specified period of time (assuming the legislature would act in 2008).

Parties Involved: TBD

Other: California standards constrain the sale of E85 vehicles. This is due to the PZEV standard and the testing on worst case blend of fuel (E10). This is likely to require switching back to metal fuel tanks, which add weight and packaging issues. Also, SULEV tailpipe emissions are difficult at cold temperatures required by CARB. HC emissions exceed the standard before the catalyst is warmed up. The increasing level of PZEV and SULEV vehicles in CA conflict with the sale of E85 vehicles.

Implementation Mechanisms

TBD

Related Policies/Programs in Place

Since California’s adoption of the Clean Car Standards, 12 additional states have adopted similar standards.. It is also worth noting that there are two Federal actions to reduce fuel consumption pending. EPA is developing GHG standards for motor vehicles because of a recent Supreme Court ruling and Congress is debating an energy bill which is likely to result in higher CAFE standards for the industry.

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

	MMtCO ₂ e		
	2007	2015	2025
No action—trend (Light-duty)	22.97	24.10	25.44
Proposed action: CA Clean Car		Not estimated: phase-in unclear	18.44
Reduction		--	7.0

CARB estimates that the ultimate GHG standards will add an average cost of \$1,064 per vehicle, and that the fuel savings will more than offset those additional costs. CARB further estimates that the fuel savings, by starting immediately, will immediately begin offsetting the higher costs of a leased or financed vehicle.

The auto industry estimates the cost per vehicle will be, on average, \$3,000 for complying with these requirements, and that the fuel savings will not offset that higher cost. The auto industry estimates that the higher initial cost will delay the turnover of the fleet to cleaner, safer vehicles.

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

- The auto industry has sued CA and other states, arguing that there is federal preemption over fuel economy requirements. Regardless of the outcome of these trials, the losing party is likely to appeal, resulting in delays. It may be 3–4 years before the courts resolve this issue delaying any possible adoption of these rules. Implementation of these rules is also dependent on the granting of a waiver to California by EPA. It is unclear what decision EPA will make. This decision is expected by the end of 2007.
- It is important to understand that cars for the 2011 model year are already being designed and that new engine lines take 6-7 years to develop. Because of the timelines and requirements in the CA GHG standards that occur in the 2010-2013 timeframe, the auto industry says that the only way to meet the standards in the early years would be to drop models.
-

Additional Benefits and Costs

Feasibility Issues

Manufacturers have stated under oath that they cannot meet the CA GHG standards using their current mix of models. They would attempt to comply by severely restricting model availability.

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-7. “Fix-it-First” Transportation Investment Policy and Practice

Policy Description

Prioritize state and federal transportation investments in 1) maintenance of existing roads, and in 2) new and expanded roads designed to serve higher density, more compact, pedestrian friendly development in priority growth areas (examples might include downtowns, town centers, regional centers, transit corridors, transit station areas, others?). Significantly reduce investment in new roads and roadway expansion that accommodates/encourages low-density development and more and longer vehicle trips. This strategy will increase trips by bicycling and walking and reduce the number and length of vehicle trips thus reducing emissions of GHGs. (Part of VMT reduction goal along with TLU strategies 1, 2, 5, 8, 9, 10)

Policy Design

Goals: Place a much higher priority on maintenance of existing roads. Strategically target roadway expansion dollars as described above. Expansion projects comprise approximately 40% (approx. \$600 million) of \$1.6 billion in transportation investments planned for 2008–2011 in the Twin Cities metropolitan area. (See metro Transportation Improvement Plan [TIP] document page 48).

Review Statewide Transportation Improvement plan (STIP) to get dollar amounts and percentages for Greater Minnesota.

Timing: Legislation drafted in 2008–2009 and adopted in 2009; changes in investments starting 2011 (federally required Transportation Improvement Program document with listed projects is already in place for 2008–2011).

Parties Involved: MNDOT, Local Units of Government, Metropolitan Council, Legislature, Developers, Business Community

Other: TBD

Need legislation adopted by 2009 that identifies goals, investments policies including targeted growth areas, implementation steps, etc.

Related Policies/Programs in Place

Recent Actions in Minnesota:

Regional highway plan in MC Transportation Policy Plan states that highway expansion investments are only considered after preservation and management investments have been funded.

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-9. Workplace Tools to Encourage Carpooling, Bicycling, and Transit Ridership

Policy Description

Reduce emissions by offering commuter benefits at the workplace to increase the use of transit, ride-sharing and non-motorized transportation. Commuter benefits include: reducing the amount of free or subsidized parking; providing paid or pre-tax transit passes or mode-neutral transportation allowances, guaranteeing rides home for non-drive alones; providing bicycle parking and employee lockers, telecommuting programs, and converting employee ID cards to transit passes. Also, reduce emissions by requiring large employers (over 200 employees) to develop and implement “transit demand management” plans (“TDM”) that customize commuter benefits and transit-supportive building design to specific building locations.

Policy Design

Goals:

Commuter Benefits

1. All Minnesota non-rural employers over 200 employees located within an incorporated municipality offer Commuter Benefits (CB) programs
2. All colleges and universities offer Commuter Benefits
3. All government units offer Commuter Benefits, especially the state of Minnesota
4. State adopts employee parking management and incentive programs to promote alternatives to drive alone (SOV) commuting.

Commuter Choice

5. State establishes a public/private partnership to develop and run telecommuting centers that offer office-type services in locations close to commuters’ residences.
6. State would establish best practices in TDM, and assist employers of over 200 employees in developing and implementing TDM plans. (State is already committed to doing this in the Twin Cities Metro through Metro Transit and five transportation management organizations).

State Tax Credits for Employer-provided Commuter Benefits

7. Expand the current Minnesota Employer Transit Pass tax credit to include more employers and more commuters (i.e. non-profit organizations and commuters that bike, carpool, or telecommute).

Timing: Implement by 2010.

Parties Involved: Metropolitan Council, Minnesota State College and University, University of Minnesota, other colleges, municipalities, transit providers, Transportation Management Organizations, employers, state legislature.

Other: TBD

Implementation Mechanisms

TBD

Related Policies/Programs in Place

Employee Discount Transit Passes: Metro Transit offers passes for regular route bus service for sale to employers at a 30% special discount rate for their employees to promote mass transit and reduce both congestion and emissions in the Metro area. <http://www.metrotransit.org/groupDiscProg/metroPass.asp>

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-11. Truck Stop Electrification and Other Anti-Idling Policies

Policy Description

Reduce idling-induced emissions from heavy-duty diesel trucks and buses by

- providing electrical hook-ups to power heating, cooling, and other needs while stopped.
- Reducing idling through education, access to loans to speed technology adoption, and other policies.

Policy Design

Goals: TBD

Timing: TBD

Parties Involved: TBD

Other: TBD

Implementation Mechanisms

TBD

Related Policies/Programs in Place

Idle Reduction Program: The MPCA, in cooperation with the U.S. EPA, offers loans to help small trucking companies pay for idle reduction devices such as auxiliary power units. This equipment can reduce fuel consumption by 75%, which conserves resources, helps achieve energy independence, and reduces the emissions that contribute to soot and smog. During 2006, 30 loans were issued ranging from \$7,500 to a maximum of \$50,000. http://www.pca.state.mn.us/programs/sbomb_loan.html

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-12. Voluntary Mobile Source Emissions Reduction programs

Policy Description

Support ongoing and new reduction options to achieve immediate and direct emissions reduction from mobile sources (e.g., Project Green Fleet school bus retrofit) that can be done without legislation or regulation. This will bolster prior investments of local, state and federal governments in Minnesota and leverage significant federal, private and foundation support.

From a health-risk perspective, the MPCA calculates that more than half of the elevated risk of cancer from toxic air pollutants comes from mobile sources.

Mobile source emission-reduction options gained greater relevance to climate change with the release of a study recently in the journal *Nature*. The study points out the significance of ground-level ozone levels to climate change improvement activities. Mobile sources are one of the primary sources of ground-level ozone precursors. According to the study, “Ozone could be twice as important as we previously thought as a driver of climate change.” The study reports that “ozone near the ground damages plants, reducing their ability to mop up carbon dioxide from the atmosphere.”

Policy Design

Goals: *Double* the quantifiable emission-reductions from voluntary projects, relative to the baseline; increase the number of partners and funders for projects.

Timing: Immediate; many of these projects are ongoing and will be expanded in the near future.

Parties Involved: Minnesota Environmental Initiative (Project Green Fleet and Clean Air Minnesota) and multiple public and private funders and partners; Minnesota Trucking Association; Minnesota Chamber of Commerce; Minnesota Center for Environmental Advocacy; GE Fleet Services; MPCA; US EPA; Hennepin County

Other: TBD

Implementation Mechanisms

TBD

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]

TLU-13. Reduce Maximum Speed Limits

Policy Description

Reduce maximum speed limits on highways in Minnesota to improve fuel economy and reduce GHG emissions per mile traveled.

Policy Design

Goals: Reduce maximum speed limit on urban interstates to 55 mph (from 65 mph today) and to 60 mph on rural interstates (from 70 mph today). Speed limits will be 55 on highways not specified by statute (same as today). This strategy reduces GHG emissions per mile traveled but does not reduce vehicle miles traveled.

Timing: Change law during 2008 legislative session with an effective date of January 1, 2009 so that there is enough time to educate the public about the change.

Parties Involved: Highway users, Minnesota Department of Transportation, Minnesota State Patrol, local law enforcement

Other: TBD

Notes: The speed a vehicle is driven has a major impact on fuel economy. While each vehicle reaches its optimal fuel economy at a different speed (or range of speeds), gas mileage usually decreases rapidly at speeds above 55-60 mph.

Implementation Mechanisms

[Note: Enforcement may be better to discuss under "Implementation Mechanisms".]

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

A significant additional benefit of lowering speed limits is reduced injuries and fatalities. The Canada Safety Council writes on its web site, that “As speed increases over 100 km/h,(60 mph) the fatality rate of vehicle occupants goes up exponentially. For example, the chances of being killed in a vehicle traveling at 120 km/h (72 mph) are four times higher than at 100 km/h.” (60 mph).

The same Web site also notes that “A recent study examined the impact of higher travel speeds on US rural interstates after the repeal in November 1995 of the national speed limit. Researchers found states that had increased their speed limits to 75 mph (120 km/h) experienced a shocking 38 per cent increase in deaths per million vehicle miles than expected, compared to deaths in those states that did not change their speed limits. States that increased speed limits to 70 mph (112 km/h) showed a 35% increase in fatalities.”

Feasibility Issues

TBD

Status of Group Approval

Pending – [until MCCAG moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until MCCAG meeting #5 or #6]

Barriers to Consensus

TBD – [blank until final vote by the MCCAG]