Transportation and Land Use (TLU)
Technical Work Group

Summary List of Pending Priority Policy Options for Analysis

	Policy Option	GHG Reductions ($MMtCO_2e$)			Net Present Value 2009–2025 (Million $)	Cost-Effective-ness ($/tCO_2e$)	Level of Support
		2015	2025	Total 2009–2025			
TLU-1*	Develop and Expand Low-GHG and Alternative Fuels	*Not yet quantified*					Pending
TLU-2A*	Increased Fuel Economy and GHG Emissions Standards for New Vehicles	*Not yet quantified*					Pending
TLU-2B*	Add-On Technologies for Existing Vehicles and New Vehicles	*Not yet quantified*					Pending
TLU-3	Smart Growth Planning	*Not yet quantified*					Pending
TLU-4	Improving Transportation System Management (TSM)	*Not yet quantified*					Pending
TLU-5	Increasing Choices in Modes of Transportation	*Not yet quantified*					Pending
TLU-6	Factoring GHG Emissions into Transportation and Land Use (TLU) Planning Processes	*Not yet quantified*					Pending
TLU-7*	Incentive Programs for Increased Vehicle Fleet Efficiency	*Not yet quantified*					Pending
TLU-8*	Increasing Freight Movement Efficiencies	*Not yet quantified*					Pending
TLU-9*	Consider Transportation System Pricing Options	*Not yet quantified*					Pending

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $/$tCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

* These options are under development; they are listed but do not yet include initial descriptions.

Note: The numbering used to denote the above pending priority policy options is for reference purposes only; it does not reflect prioritization among these important draft policy options.

TLU-1. Develop and Expand Low-GHG and Alternative Fuels

Under Development

Policy Description

Policy Design

Goal levels:

Timing:

Parties Involved:

Implementation Mechanisms

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 1.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006-2020)			$ Million
Cumulative Emissions Reductions (2006-2020)			$MMtCO_2e$
Cost-Effectiveness			$/$MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $/$MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources:

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 2a. Increased Fuel Economy and GHG Emissions Standards for New Vehicles

Under Development

Policy Description

Policy Design

Goal levels:

Timing:

Parties Involved:

Implementation Mechanisms

Related Policies/Programs in Place

- Federal CAFÉ standards in process of being updated.
- State of Florida undertaking rule-making process to consider state Clean Cars program

Estimated GHG Savings and Cost Per Ton

Table 2.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$/$MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $/$MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources:

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 2b. Add-On Technologies for Existing Vehicles and New Vehicles

Under Development

Policy Description

Policy Design

Goal levels:

Timing:

Parties Involved:

Implementation Mechanisms

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 3.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$/$MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $/$MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources:

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. Smart Growth Planning

Policy Description

The essence and intention of smart growth within the context of climate change is to establish a policy framework, clear guidelines, and measurement parameters for the development of new, and the re-development of older, human habitat communities that will have a net-zero carbon effect on the general environment and reduce overall GHG emissions. This can be accomplished through the complex interactions of the three primary elements of community development that have a direct impact on GHG emissions and affect climate change:

- Construction energy and building lifetime energy use—measured by the protocols of LEED, GreenGlobes, and/or the Florida Green Building Coalition;
- Individual VMT generation and other transportation energy use (e.g., deliveries, maintenance, buses, security, health, fire, and safety) necessary to support human communities; and
- The changing of land uses from carbon sequestering land uses (e.g., forests, agriculture, parks, wetlands) to carbon releasing land uses (e.g., building sites, roadways) and development patterns.

In the aggregate, measured at various levels of development from small to large, the balance of carbon sequestering and carbon releasing land uses must *at least* balance and eventually become negative in releasing carbon to reduce GHG emissions and reverse existing adverse trends in our atmosphere.

In accordance with Florida's schedule of increasing standards for both building energy efficiency and appliance energy efficiency outlined in HB 697 and HB 7135, community development and re-development patterns should follow a similar schedule of reduced overall energy use and increased efficiencies, thereby reducing GHG emissions and the energy and resources necessary to provide all the requisites for human lifestyle support.

Taken singularly in isolated policies, these three factors—land use changes, individual VMT and transportation energy use in necessary daily lifestyle support, and the life cycle energy use of buildings—are not making the necessary reductions in GHG emissions to meet climate change goals. Considered together in an integrated set of policies and guidelines they can accomplish the goal of a carbon neutral footprint of human community activities on the general environment.

Policy Design

Goal levels:

- Require that municipalities increase the penetration of green initiatives into all aspects of their operations and programs by adopting an approach for internal and external stakeholders to work together to develop integrated energy and environmental solutions to reduce GHG emissions through multi-pollutant prevention, environmental improvements, greater operational efficiency, and expanded public acceptance of green initiatives.

- Require that community development proposals submitted for review are certified by LEED, GreenGlobes, Florida Green Building Coalition, or other approved certification to ensure that the new development does not increase GHG emissions.
- Work with LEED, GreenGlobes, and Florida Green Building Coalition to establish both standards and a review methodology to ensure that new development (taken in its entirety) does not increase GHG emissions.

Timing: Establish a consortium of universities to provide both research and training to local, regional and state officials as they implement the goal that new development does not increase GHG emissions.

Parties Involved: State and local governments, regional governments, private property owners, development companies, investors.

Implementation Mechanisms

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 4.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$\$/MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $\$/MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources:

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 4. Improving Transportation System Management

Policy Description:

Transportation System Management (TSM) is the concept of pairing transportation demand with transportation supply to help transportation networks serve the demand in an effective and efficient manner. Effective system management may utilize a variety of strategies based on advanced technologies, market-based incentives, regulations and design standards. Each strategy provides a relatively small benefit to greenhouse gas (GHG) reduction, but when applied in concert, substantial gains can be achieved. TSM strategies attempt to reduce the number of trips being taken by single occupant vehicle (SOV), shorten trip lengths, reduce vehicle delay, increase the reliability of the transportation network and reduce idling and other transportation actions that result in increased GHG emissions. The goal of TSM is to reduce the daily vehicle miles traveled (VMT) per capita on the transportation network. Effective TSM will also reduce vehicle hours traveled (VHT) per capita, which measures the amount of traffic congestion delay. Reduction of either VMT or VHT is highly correlated with a reduction in GHG emission.

TSM attempts to both improve transportation system performance and alter travel behavior through a combination of technological improvements, incentives, design, and restrictions. Technological improvements include traffic signal coordination, lane management, traveler information displays, and other intelligent transportation system applications. Incentives can include policies that financially favor desired behavior or allow users to gain a time advantage and include value pricing and smart parking strategies. System design is also important, since infrastructure and technology can be adapted to encourage less driving and includes access management applications and intersection improvements. Last, users can be barred from performing certain actions that would negatively impact the efficiency of the transportation system. TSM policies can be instituted at every level of government. Some can have a virtually instant affect, while others require many decades to reap full benefits.

Policy Design:

Goal levels: Develop and implement policies and strategies that include program funding, financial and development incentives, infrastructure investment and regulatory requirements to promote transportation system management improvements that result in reduced VMT and/or VHT which in turn result in reduced GHG emissions. These actions, taken in concert with other aggressive transportation and land use policy actions, should be designed to reduce urban area VMT by 7%–10% by 2020 and by 9%–12% by 2050 and VHT by similar amounts.

- Reduce existing and future trips and trip lengths in an effort to reduce both VMT and VHT. Driving less, in terms of both hours and miles driven, will result in a decrease of GHG emissions. This can be achieved through the aggressive implementation of specific transportation demand management strategies and coordinated transportation and land use decision-making.
- Distribute existing and future trips in terms of both time and geography—when trips are taken and where trips are taken—in order to reduce congestion and smooth traffic flow.

Reducing congestion and smoothing traffic flow by changing peoples driving patterns–either by changing the time of day that they drive or the route that they take– will result in less idling and stop-and-go driving. This will reduce VHT and GHG emissions. This can be achieved through increased investment in supporting transportation infrastructure, implementation of specific transportation system management strategies and the aggressive implementation of specific transportation demand management strategies.

- Improve transportation system operations to improve travel conditions on the transportation network. This includes traffic signal coordination, real-time traveler information, advanced computerized lane and parking space management, value pricing at toll locations, intersection improvements including round-about conversions, advanced incident management and other traffic operations applications. This will reduce the frequency of transportation actions that contribute to high levels of GHG (e.g., jack rabbit starts, idling, excessive braking). It will require an increased investment in transportation system management related infrastructure and aggressive implementation of non-capacity operational strategies that improve the flow of vehicles on the transportation network.

Timing: TSM strategies have a variety of implementation timeframes. Some, such as workplace-based strategies, can begin implementation almost immediately. Others that are based on infrastructure construction will have an implementation timeline of four to ten years. Systemic changes to the urban landscape have the longest horizon, up to 25 years.

Parties Involved: State government agencies (DOT, DCA, and DEP), regional government (MPOs, RPCs, and RTAs), Local transportation providers (public transit agencies, airports, seaports and expressway/bridge authorities), and local governments.

Implementation Mechanisms

Collectively, the implementation mechanisms recommended under this policy attempt to reduce GHG emissions by enhancing system efficiency and modifying travel behavior and conditions through transportation system management strategies. Those strategies will require a combination of program funding, financial and development incentives, infrastructure and technology investment, and regulatory requirements implemented at the state, regional and local level.

Reduce existing and future trips and trip lengths: These implementation mechanisms are intended to result either in the reduction of trip lengths or the complete elimination of certain trips. This will result in a reduction of both VMT and VHT that will reduce GHG emissions. Implementation mechanisms intended to reduce trips and trip lengths include:

- Encouraging and/or incentivizing public and private sector employers to implement *telework programs* for eligible employees. This will result in fewer work-based vehicle trips.
- Encouraging and/or incentivizing public and private sector employers to implement *job-sharing* programs for eligible employees. This will result in fewer work-based vehicle trips.
- Encouraging and/or incentivizing public and private sector employers to implement *carpooling/vanpooling* programs for eligible employees. This will result in fewer work-based vehicle trips.

- Requiring and/or incentivizing enhanced *coordination between land use and transportation decision-making* to reduce distances between clusters of affordable housing and employment opportunities. This will reduce work-based vehicle trip lengths.

Distribute existing and future trips in terms of both time (when a trip is taken) and geography (where a trip is taken): These implementation mechanisms are intended to change peoples driving patterns and behaviors (either by changing the time of day that they drive or the route that they take) resulting in reduced congestion and smoother traffic flows. Reducing congestion and smoothing traffic flow by will result in less idling and stop-and-go driving which in turn, will result in fewer GHG emissions. Implementation mechanisms intended to change peoples driving patterns and behaviors include:

- Encouraging and incentivizing transportation facility operators to implement *value-pricing policies.* This will encourage travelers to change the time of day they make various types of trips and result in fewer vehicle trips during peak operating hours. Alternatively, this will encourage travelers to change the route by which they make various types of trips and result in a more even distribution of vehicle trips across the transportation network.
- Encouraging and incentivizing public and private parking facility operators to implement *smart parking policies.* This will encourage travelers to change the time of day they make various types of trips and result in fewer vehicle trips during peak operating hours.
- Encouraging and incentivizing local governments and private developers to build up the *supporting transportation network* (e.g., lower functional class street network, local transit routes supporting express bus routes and premium transit options, more sidewalks and bike paths). This will encourage travelers to make appropriate route and mode choices and result in a more even distribution of vehicle trips across the transportation network.
- Encouraging and/or incentivizing public and private sector employers to implement *flex time and compressed time programs* for eligible employees. This will result in fewer work-based vehicle trips during peak operating hours and, in the case of compressed time programs, fewer work-based trips overall.

Improve transportation system operations to reduce occurrences of transportation actions that contribute to high levels of GHG (e.g., jack rabbit starts, idling, excessive braking): These implementation mechanisms are intended to maximize the efficiency of the transportation system through the application of technology and advanced design. Management of the supply of transportation capacity through the application of various technologies and design strategies will result in reduced congestion and smoother traffic flows. Reducing congestion and smoothing traffic flow will result in less idling and stop-and-go driving which will, in turn, result in reduced GHG emissions. Implementation mechanisms intended to change peoples driving patterns and behaviors include:

- Increase investment in *intelligent transportation system* (ITS) technologies at all levels. In particular, investment should be focused on technologies that smooth the flow of traffic (e.g., reducing congestion, braking, idling), resulting in a reduction of VHT and GHG emissions.
- Increase investment in *incident management programs* and technologies. Quickly responding to incidents will reduce the negative impacts that incidents have on the smooth flow of

traffic. Incident management can also include roadside assistance programs such as FDOT's "Road Rangers." Incident management will result in a reduction in incident related stop-and-go traffic, in turn reducing VHT and GHG emissions.

- Increase investment in *traffic signal coordination.* This will smooth the flow of traffic on the roadway network and result in reduced idling, braking and jack-rabbit starting, in turn reducing VHT and GHG emissions.
- Encourage and/or incentivize *access management programs* at all levels, particularly those that coordinate land use and transportation decision-making. This will reduce conflicts on the roadway and make vehicular movements more predictable (including for transit vehicles, bicyclists and pedestrians). This will result in smoother traffic flows and reduced stop-and-go traffic conditions, reducing VHT and GHG emissions.
- Increase investment in *traveler information technologies.* This will provide travelers with a more predictable travel experience and let them make rational choices that maximize their efficient use of the transportation network. This will result in less congestion and VHT and, in some cases, reduced VMT.
- Increase investment in *managed lanes technology.* Real time lane management allows for the more efficient flow of vehicles through the transportation network, maximizing available capacity and smoothing traffic flow. This will result in less congestion and VHT and, in some cases, reduced VMT.

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 5.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$\$/MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $\$/MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

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. Increasing Choices in Modes of Transportation

Policy Description:

An important strategy in reducing greenhouse gas (GHG) emissions produced from transportation sources is reducing the growth rate in vehicle miles of travel (VMT) per capita. Providing modal alternatives to the single-occupant vehicle can reduce the number of trips on the highway system and VMT per person. Modal alternatives can include bus transit, rail transit, paratransit, ridesharing, greenways, on and off road bicycle facilities and all manner of pedestrian facilities.

Public transit vehicles generate much lower levels of GHG per person-mile. The challenge is that transit (bus and rail) accounts for only 2 percent of trips made in the United States today, compared with 5% in Canada and 10% in Western Europe.[1] An expansion of transit services will require a substantial increase in funding for both infrastructure and operations. Increased transit use is key to reducing the growth rate of VMT. A higher rate of transit use can be achieved by expanding transit services, increasing transit's competitiveness with other modes, ensuring safety and security of transit systems, and educating the public about transit options available in their community.

Many employers partner with local governments and non-profit agencies to promote and fund local carpooling and vanpooling programs. These rideshare alternatives, combined with employee incentives, telecommuting, and parking strategies are often effective in reducing travel demand and ultimately, VMT. High-occupancy vehicle (HOV) lanes or high-occupancy toll (HOT) lanes on major transportation corridors can encourage ridesharing by providing reduced travel times and/or tolls for vehicles carrying passengers.

Bicycling and walking do not generate GHGs. A convenient and comprehensive bicycle and pedestrian network can be a pleasant, stress free option to driving on congested roadways. Although each modal alternative by itself may not significantly reduce GHGs, an integrated system of bicycle, pedestrian and public transportation facilities could provide a significant benefit in enhancing mobility while reducing the growth rate in VMT.

Policy Design:

Goal levels: Double transit ridership to equal levels found in Canada. Increase the percentage of people that walk, bicycle, carpool, vanpool or telecommute. Develop and implement policies and strategies that include program funding and financial incentives that expand non-automobile infrastructure and provide modal alternatives to single-occupant vehicle travel.

Timing: 1–30 years

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[1] Making Transit Work: Insight From Western Europe, Canada, and the United States—Special Report 257. Transportation Research Board: Washington, DC. 2001.

Parties Involved: Public transit agencies, local governments, metropolitan planning organizations, regional transportation authorities, Florida Department of Transportation and local businesses.

Implementation Mechanisms

Improve availability and accessibility of service:

- Create new public transportation systems and options, including bus rapid transit (BRT). New transit systems and routes can serve areas presently without transit, or they can add new destinations from areas currently served.
- Encourage local governments and developers to provide and expand bicycle and pedestrian networks. A more complete infrastructure will entice travelers to shift from single occupant vehicles to walking or bicycling for appropriate trips. Better bicycle and pedestrian access also promotes transit use, since all transit trips begin and end as a pedestrian.
- Create new rail systems for passengers and freight. Work with rail companies to expand intercity passenger services. Partner with ports and rail lines to expand freight rail facilities to reduce the need for trucks on the roadways and incorporate rail services in the planning and design of new transportation corridors.
- Construct new or expand existing High Occupant Vehicle (HOV) or High Occupant Toll (HOT) lanes. This will encourage travelers to shift from single occupant vehicles to high occupant vehicles for all types of trips, particularly during peak hours. Transit vehicles can also use HOV/HOT lanes to gain a time advantage over operating in standard traffic lanes.

Increase the competitiveness of alternative modes:

- Increase investment in public transit systems to provide more frequent service and longer service hours, making transit more time competitive with single-occupant vehicle travel. This will encourage travelers to shift from automobiles because their wait time for their needed bus or train will be shorter.
- Hold steady or decrease the user cost of transit, making transit more cost competitive with single-occupant vehicle travel. As fuel prices increase, people will find significant cost savings in moving to alternative modes. Group discounts and employer pass programs can also reduce the cost to the user.
- Increase capital investment and management procedures to ensure reliability of transit service. Users, particularly those who can afford a car, will be more likely to use transit if the service is reliably on-schedule and on time.
- Simplify and streamline the use of transit through fewer required transfers.
- Allocate preferred and discounted parking spaces to vanpools and carpools.
- Offer "guaranteed ride home" programs to those who regularly use transit, vanpools, or carpools. Under these programs, people who must work beyond their usual shift ending time receive free or discounted taxis or door-to-door transit. This gives flexibility to the worker's schedule and encourages the use of alternative modes.

Alternative modes must be safe and secure:

- Public transportation must be secure. Patrons should be able to observe law enforcement and counter-terror procedures and feel safe while using public transportation services. The public is mindful of the vulnerability of mass transit systems, and is more likely to ride if they feel secure.
- Crime must be kept to minimum on the streets and on transit. If the streets are not safe, people will not walk or ride a bicycle. Similarly, if transit vehicles and stations are unsafe, everyone who can drive will do so.
- Passengers must be safe from injury on the transportation system. This includes traffic control measures, intersection markings, and proper signage.

Educate and market the availability of alternative modes:

The benefits of alternative modes must be promoted to the public. Direct mail, traditional advertising, schools, and employers should be utilized to distribute information on transit and bicycle/pedestrian facilities to the public. The more knowledge the public has about their options, the greater share of alternative mode use.

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 6.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$\$/MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $\$/MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources: Making Transit Work: Insight From Western Europe, Canada, and the United States—Special Report 257. Transportation Research Board: Washington, DC. 2001.

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. Factoring GHG Emissions into Transportation and Land Use Planning Processes

Policy Description

This option seeks to ensure that local and state land use and transportation planning considers the impact of land use and transportation decisions on the reduction of greenhouse gas emissions. Transportation accounts for the second largest contributor to greenhouse gas emissions in Florida, and represents approximately 40% of emissions in Florida.

Florida has a long history of local government comprehensive planning, the cornerstone of which was the enactment and amendment of the Local Government Comprehensive Planning (LGCP) and Land Development Regulation Act. Each local government is required to adopt a comprehensive plan that contains certain required elements: a capital improvements element; a future land use plan; a traffic circulation element; a general sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge element; a conservation element; a recreation and open space element; a housing element; a coastal management element (where appropriate) and an intergovernmental coordination element. Local zoning codes and land development regulations must be consistent with the policies articulated in the comprehensive plan.

In addition to the comprehensive plan, Florida has adopted as the cornerstone of its growth management transportation framework a policy called concurrency. The policy is based on the premise that public facilities shall be in place concurrent with or prior to the impacts of a particular development. "Concurrency in Florida is tied to provisions in the state growth management act, requiring the adoption of level of service standards, elimination of existing service deficiencies, and provision of infrastructure to accommodate new growth reflected in the comprehensive plan. Plans and development regulations must aim at achieving and maintaining the desired level of service, and comprehensive plans are reviewed by the state for consistency between the capital improvement element and the various elements of the plan, including the future land use plan."[2]

With respect to transportation facilities, the general rule is that transportation facilities needed to serve new development shall be in place or under construction within 3 years after the local government approves a building permit or its functional equivalent that results in traffic generation. The implementation of transportation concurrency has been problematic and the Florida Legislature has adopted a number of exceptions to the general policy. First, in 2005, proportionate fair share mitigation or "pay and go" option for concurrency was adopted that: "allows developments to proceed under certain circumstances, notwithstanding a failure to meet transportation concurrency, where applicants contribute their fair share of the cost of improving the transportation facility."[3] The improvement must be financially feasible within a 10 year time frame and be in or added to the 5 year capital improvements element. Second, specific

[2] Transportation Concurrency—Best Practices Guide, Florida Department of Community Affairs, p.6.

[3] *Ibid*

exceptions from the concurrency requirement are provided for certain public transportation facilities, infill or redevelopment projects, and projects whose impacts are considered insignificant or de minimis.

It is generally accepted that the implementation of the concurrency policy in Florida has had the unintended consequence of encouraging developers to build outside of existing urban cores because lack of excess transportation capacity within these areas; thereby requiring expensive transportation improvements to meet concurrency standards.

During the 2008 session of the Florida Legislature, the Legislature adopted HB 697 that was signed into law on June 17, 2008. The new law requires local governments to include in their local government comprehensive plans policies that address energy efficiency and the reduction of greenhouse gas reductions. The following elements of the comprehensive plan are amended to require:

- Future Land Use Element—includes energy-efficient land use patterns and greenhouse gas reduction strategies.
- Traffic Circulation Element—include strategies to reduce greenhouse gas reductions.
- Housing Element—address energy efficiency in design and construction of new homes.

The Energy Bill, HB 7035, requires the State Comprehensive Plan to include goals related to energy and global climate change. Also the bill provides that each Metropolitan Planning Organization is encouraged to consider strategies that integrate transportation and land use planning "to provide for sustainable development and reduce greenhouse gas emissions."

On a broader scale, long-range visioning activities being conducted at the community and regional levels in Florida are identifying alternatives to current growth practices. Regional visioning enable communities to develop a comprehensive approach to planning for future land use, transportation, conservation, economic development, housing and other community needs. They provide an opportunity for regions to alter current growth patterns, thus modifying future transportation needs and associated energy consumption by enabling people to make fewer trips, make shorter trips, or use alternative modes.

In addition, the Department of Transportation (DOT) produces the Florida Transportation Plan (FTP), a long-range plan that identifies the goals and objectives for the next 20 years. The FTP addresses the needs of the entire state transportation system, not just those owned by DOT, and provide a vision for Florida's transportation and lays out a policy framework to achieve this vision.

A Metropolitan Planning Organization (MPO) is made up of local elected and appointed officials responsible for coordinating transportation planning in a metropolitan area of at least 50,000 people. The 26 MPOs in Florida are responsible for developing long-range transportation plans (LRTPs) and programs, and for setting transportation funding priorities for the metropolitan areas (s. 339.179, F.S.). DOT's five year work program is developed based on the project priorities submitted annually by the MPOs and county commissions from counties not included in MPO areas. These LRTPs are developed based upon future land use and growth assumptions contained in the LGCPs.

Policy Design

Goal levels:

6.1—By December 31, 2009, all local government comprehensive plans shall be revised to include policies and objectives that address energy efficiency and greenhouse gas reduction strategies, including:

- Policies that increase density within the urban service area;
- Policies that promote compact development and maximize internal trips within the development;
- Policies that promote transit oriented development within urban service area;
- Policies that promote affordable and workforce housing in proximity to major employment centers.
- Policies that target infrastructure investment in greenhouse gas efficient locations.

6.2—By December 31, 2009, all local governments shall adopt land development regulations that implement the amended policies that address energy efficiency and greenhouse gas reduction strategies.

6.3—By July 1, 2009, amend the Local Government Comprehensive Planning and Land Development Act to allow local governments to enact mobility fee structures as an alternative to transportation concurrency.

6.4—By December 31, 2010, amend the Florida Transportation Plan to develop goals, objectives and strategies for addressing climate change and reducing greenhouse gas emissions.

6.5—By July 1, 2010, amend the 5-year state transportation work plan to prioritize projects that reduce vehicle miles traveled and consider the greenhouse gas impact of constructing new roads.

6.6—By April 1, 2012, require Metropolitan Planning Organizations to prioritize projects that reduce vehicle miles traveled in the M.P.O. long-range transportation plan.

6.7—By July 1, 2009, require all transportation authorities to give priority to projects that reduce vehicle miles traveled and consider the greenhouse gas impact of constructing new roads.

6.8—By date TBD, reduce VMT within urban service areas by 10% on per capita basis.

6.9—By July 1, 2009, establish growth policies that provide incentives for developing regional visions that integrate transportation and land use planning to provide for sustainable growth and reduce greenhouse gas emissions.

Timing: TBD

Parties Involved: TBD

Implementation Mechanisms

In order to assist local governments in implementing the requirements of HB 697, the Department of Community Affairs should prepare model comprehensive plan policies to address the new policies required in the Future Land Use Element, Traffic Circulation Element and the Housing Element. Provisions in Florida law governing the Florida Transportation Planning Process should be amended to require consideration of the greenhouse gas reduction in the setting and prioritizing of transportation projects. Priority should be given to projects that have the result of reducing greenhouse gas emissions or encourage compact development in urban areas. Regional Transportation Authorities should be required to also consider greenhouse gas reduction in the setting of project priorities.

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 7.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$/$MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $/$MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources:

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. Incentive Programs for Increased Vehicle Fleet Efficiency

Under Development

Policy Description

Policy Design

Goal levels:

Timing:

Parties Involved:

Implementation Mechanisms

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 8.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$/$MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $/$MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources:

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. Increase Freight Movement Efficiencies

Under Development

Policy Description:

Policy Design:

Goal levels:

Timing:

Parties Involved:

Implementation Mechanisms

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 9.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$/$MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $/$MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources:

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. Consider Transportation System Pricing Options

Under Development

Policy Description

Policy Design

Goal levels:

Timing:

Parties Involved:

Implementation Mechanisms

Related Policies/Programs in Place

TBD

Estimated GHG Savings and Cost Per Ton

Table 10.

	2010	2020	Units
GHG Emission Savings			$MMtCO_2e$
Net Present Value (2006–2020)			$ Million
Cumulative Emissions Reductions (2006–2020)			$MMtCO_2e$
Cost-Effectiveness			$\$/MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent; $\$/MtCO_2e$ = dollars per metric ton of carbon dioxide equivalent.

Data Sources:

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