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 GHG emissions. Transportation accounts for the second largest contributor to GHG emissions in Florida and represents approximately 40% of emissions in Florida.

Florida has a long history of comprehensive planning by local governments, the cornerstone of which was the enactment and amendment of the Local Government Comprehensive Plan (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."[1]

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

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

improving the transportation facility."[2] 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 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 existing urban cores because of the lack of excess transportation capacity within these areas, thereby requiring expensive transportation improvements to meet concurrency standards. Development outside of the urban core results in longer trips (both commuting and non-commuting) that yield more VMT. Lower density development at the urban fringe and ex-urban development contributes to the premature conversion of natural and agricultural lands, thereby reducing the GHG buffering capacity of the landscape.

During the 2008 session of the Florida Legislature, the Legislature adopted HB 697, which 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 GHGs. The following elements of the comprehensive plan are amended to require

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

The Energy Bill, HB 7135, amends the State Comprehensive Plan to include goals related to energy and global climate change. The Bill also provides that each MPO 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. It provides 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 transportation modes.

In addition, the Florida Department of Transportation (FDOT) produces the Florida Transportation Plan (FTP), a long-range plan that identifies the goals and objectives for the next 20 years to address the needs of the state transportation system. The FTP is a plan for all of

[2] Ibid.

Florida, not FDOT, and establishes a policy framework to guide investment in the transportation system by all public and private partners.

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.). These LRTPs are developed based upon future land use and growth assumptions contained in the LGCPs. FDOT'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.

Policy Design

Goals:

6.1—All local government comprehensive plans shall be revised to include policies and objectives that address energy-efficient land use and GHG reduction strategies, including

- Policies that increase density within the urban service area;
- Policies that prioritize compact development and maximize internal trips within the development;
- Policies that prioritize transit-oriented development within urban service areas and encourage the use of transit;
- Policies that prioritize affordable workforce housing in proximity to major employment centers;
- Policies that prioritize targeted infrastructure investments in GHG-efficient locations;
- Policies that encourage the reduction of trip length and vehicle hours of delay ; and
- Policies that prioritize the preservation of green space, natural, and agricultural areas.

Florida DCA is initiating a rulemaking process to comply with recently passed state law on these issues.

6.1a—Any future plan amendment must be supported by data and analysis to demonstrate how the amendment is based upon energy-efficient land use patterns and GHG reduction strategies.

TLU 6.1(b) -- Require local governments to adopt minimum densities that apply within the urban development boundary or urban service area.

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

6.3—By July 1, 2009, amend the LGCP 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 FTP to develop goals, objectives, and strategies for addressing climate change, reducing GHG emissions and providing modal alternatives to highways for travel.

6.5—By July 1, 2010, review state law to identify programs that fund capacity improvements and should be amended to include GHG emissions in the funding criteria.

6.6—By July 1, 2010, modify the Efficient Transportation Decision Making (ETDM) process to include climate change considerations (e.g., VMT and GHG emissions) in the evaluation of candidate projects for long-range transportation plans and the 5-year transportation work program.

6.7—All MPOs should address expanding transit options and reducing GHG emissions during the update of LRTPs and subsequent development of project priorities.

6.8—By July 1, 2009, require all transportation authorities to give priority to projects that reduce VMT and consider the GHG impact of constructing new roads.

6.9—By date 2020, reduce VMT and associated VHT within urban service areas by 10% on a per capita basis. Start goal levels with 10% and then project out for the other milestones in the Governor's Executive Order until at least 2025. T he Florida GHG emissions targets established under Executive Order 07-126 are 10% below current levels by 2012, 25% below current levels by 2017, and 40% below current levels by 2025. (CCS to run a couple of scenarios so the group can look at the numbers before they decide.)

6.10—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 GHG emissions.

6.11—Assess Impact Fees Programs for effectiveness and suggest improvements to incentivize reductions in GHG emissions impacts.

6.12—Reevaluate level of service (LOS) standards for local governments.

6.13-- Federal, state, regional and local governments should seek to leverage and expand funding opportunities to meet current and future public transportation needs. (E.g. expand authority to levy the Charter County Transit Surtax to all counties)

6.14--FDOT and DEP should work with the US Department of Transportation and Environmental Protection Agency to improve modeling tools for assessing GHG emissions for transportation plans and projects. Once developed, these modeling tools should be used to evaluate the GHG emissions impact of transportation choices.

6.15-- Maximize the use of existing transportation infrastructure before building new roads.

Implementation Mechanisms

To assist local governments in implementing the requirements of HB 697, the Florida DCA 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 that govern the Florida Transportation Planning Process should be amended to require consideration of GHG reduction in setting and prioritizing transportation projects. Priority should be given to projects that reduce GHG emissions or encourage compact development in urban areas. RTAs should also be required to consider GHG reduction in the setting of project priorities.

Related Policies/Programs in Place

TBD

Estimated GHG Reductions and Net Costs or Cost Savings

Table X-6.1. Title

	2010	2020	Units
GHG emission savings	0.00	1.31	$MMtCO_2e$
Net present value (2006–2020)		Net savings	$ Million
Cumulative emissions reductions (2006–2020)		7.19	$MMtCO_2e$
Cost-effectiveness		Net savings	$/MtCO_2e$

GHG = greenhouse gas; $MMtCO_2e$ = million metric tons of carbon dioxide equivalent

Data Sources:

Total population and population density by Census tract, 1990 and 2000.

Per-capita VMT by Census tract population density in Florida, from Center for Urban Transportation Research (CUTR) VMT forecasting model.

Forecast statewide population growth.

Quantification Methods:

Achieve quantifiable VMT reduction goals of 10% per capita reduction of 2020 the projection off-baseline in urban areas through smart growth The State of Florida will help growth and development efforts achieve VMT reduction goals through a series of policies that includes

implementation mechanisms identified below . Scientific research shows that VMT reduction in urban areas is quantifiable through improved planning software. Florida agencies will assist local and/or regional governments in using the latest planning technology that measures VMT impacts to assist with decision making on future growth and development. The more aggressively the policies are pursued, the greater the potential reduction in VMT.

This analysis considers potential GHG reductions from fewer personal (noncommercial) VMT as a result of a shift toward more compact development patterns. The analysis relies on estimates of per capita VMT by Census tract population density range, as developed by Polzin, et al. for the CUTR VMT forecasting model. The CUTR model is based on analysis of 2001 Nationwide Household Travel Survey data. The model provides estimates of per capita VMT by state for five density ranges. The model is currently set up for years 2005, 2035, and 2055; for this analysis, results were interpolated for CCS analysis years.

The observed relationship between per capita VMT and population density is a rough proxy for the effects of Smart Growth development as described above. Higher levels of population density are associated with overall shorter trips because destinations are closer together. In addition, areas with higher population densities are more likely to have pedestrian-friendly design (e.g., walkability and mixed-use development) and to support transit service. It is difficult to separate the individual effects of the various Smart Growth strategies at this aggregate level of analysis, but the analysis should provide an indicator of what can be achieved through a combined set of Smart Growth policies.

The specific method used to estimate GHG benefits of Smart Growth strategies is as follows:

- Total population in 2000 is identified by five Census tract density ranges as identified in the CUTR model (<500, 500–1,999, 2000–3,999, 4,000–9,999, and 10,000 or more persons per square mile).
- The change in population from 1990 to 2000, and associated share of change by density range, is identified from Census data.
- For the Baseline scenario, new population growth between 2000 and 2020 (as determined from CCS baseline assumptions) is allocated to tract density ranges based on the share of growth in the 1990–2000 timeframe.
- The proportion of existing housing stock (population) that would be redeveloped over this time frame is estimated at 15%, of which two-thirds is redeveloped in place and one-third is redeveloped elsewhere, with this redevelopment allocated to tract density ranges based on the 1990–2000 share of population growth. (The 15% and two-thirds figures come from the 2007 Growing Cooler report Section 1.7.3, citing analysis of Census data by Nelson [2006]).
- For the Climate Action scenario, a significant shift in the proportion of new development and relocated redevelopment is assumed to take place; with higher-density tracts (> 2,000 persons per square mile) receiving 50% of new development under this scenario compared

with only XX percent under the Baseline scenario. Total population by tract density under this scenario is then calculated.

- Total personal-travel VMT is calculated under the Baseline and Climate Action scenarios, based on VMT per capita (from the CUTR model) and total 2025 population by tract density range, and the percent reduction in personal-travel VMT is calculated.
- The percent reduction in VMT is adjusted by 90% to estimate the percent reduction in GHG emissions. This factor is the same as that used in the Growing Cooler report to account for the fact that higher-density areas may experience somewhat lower travel speeds and therefore slightly reduced fuel economy.

Key Assumptions:

- Fraction of new population growth and redevelopment by Census tract density, under Baseline scenario.
- Assumed shift in the fraction of new population growth and redevelopment from lower-density to higher-density Census tracts, under Climate Action vs. Baseline scenario.
- Percent of residential building stock redeveloped (off-site) over the analysis time frame.

Key Uncertainties

Smart Growth scenario analysis depends upon patterns of development that involve decisions of many individual property owners and private capital investors. As result, the scenarios show what is possible under a development scenario but should not be considered as predicted outcomes.

The estimates developed using this methodology are consistent with results found in meta-analysis in the published literature, such as the recent *Growing Cooler* report from the Urban Land Institute (ULI).

Additional Benefits and Costs

Smart growth generally has very low direct costs to implement; the costs consist of governmental costs of altering regulations and zoning and costs providing education and technical assistance. Tax incentives are an income transfer that results in a public sector cost but offsets developer revenue. As most smart growth policies (e.g., allowing higher density and mixed use, reducing parking requirements) are deregulatory in nature, they are opening the development market and have significant indirect benefits. An exception is growth boundaries, which restrict the land use market and have an indirect cost.

Alternative patterns of development have a large number of additional impacts, which may provide both benefits and costs. Smart growth provides a range of co-benefits that are well documented in other places. Prominent among these is the reduced cost of providing utilities and infrastructure, because smart growth makes better use of existing facilities and

infrastructure and, on average, has lower demand. Improved air quality, public health (e.g., due to walking), and quality of life are also notable co-benefits.

Feasibility Issues

Smart growth policies are being considered and implemented around the country in a wide range of communities. Because most policies are deregulatory in nature, this significantly lowers political barriers.

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD