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Statewide Strategic Transportaton Planning: A Policy White Paper

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STATEWIDE STRATEGIC TRANSPORTATION PLANNING: A POLICY WHITE PAPER

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INTRODUCTION

The purpose of this white paper is twofold: (1) to examine implications of the MPO long-range plans as they relate to issues of statewide concern, and (2) to examine possible future scenarios for statewide strategic transportation planning.

Over the last several years, the Center for Urban Transportation Research (CUTR) at the University of South Florida has performed a number of studies with important implications for future transportation planning efforts by Florida DOT, the Florida Department of Community Affairs, and Florida's 25 metropolitan planning organizations. Between October 1993 and June 1995, CUTR produced 14 separate reports as part of the State Transportation Policy Initiative. The Initiative dealt with a wide range of subjects including level of service standards, community design, transportation and growth management, transportation needs and funding, and transportation planning methods.

More recently, CUTR has performed an analysis of the collective funding shortfalls of Florida's 25 MPOs and has also examined issues and policies of the MPO plans and their relationship to the Florida Transportation Plan. Major issues and policies that were identified by many of the MPOs included:

- dealing with funding shortfalls,
- dealing with land use/transportation interaction,
- improving intergovernmental coordination efforts,
- generating more constructive public involvement,
- balancing goals of mobility and livability,
- addressing air quality objectives, and
- addressing goods movement activities in the transportation planning process.

As part of these analyses, CUTR has made a number of suggestions for consideration in future long-range planning efforts. Several of the suggestions related to making the financial elements of the plans more consistent to better allow future summations of MPO statewide needs. Implementation of these suggestions will greatly facilitate efforts to accurately portray transportation revenue shortfalls for MPOs throughout Florida:

- Standardize the timing of plan updates throughout the metropolitan regions.
- Standardize the reporting categories of estimated costs and projected revenues.
- Report financial information by responsible agency and facility type.

Other suggestions related specifically to better incorporating strategic considerations of the interaction of transportation and land use in the long-range transportation planning process:

- Recognize the interaction between transportation and land use, with alternative land use scenarios.
- Incorporate a strong visioning process.
- Address goods movement activities related to Florida's economic viability.

A number of recommendations related to making transportation planning methods more dynamic and responsive to conditions as they exist in the real world:

- Incorporate principles of strategic planning into the long-range transportation planning process.
- Incorporate current issues and problems into the long-range plan documents.
- Place greater emphasis on difficult policy tradeoffs and less reliance on transportation planning models.
- Include standard reporting of certain performance measures.

Safety appeared to receive little attention in the development of long-range transportation plans; as a result, a number of recommendations specifically related to better treatment of safety issues:

- Include a systematic assessment of safety considerations, as appropriate, in plan development.
- Include systematic consideration of hurricane evacuation in the development of long-range plans.

In November 1998, CUTR released a white paper, titled *Innovations in Planning: Best Practices of Florida's 25 Metropolitan Planning Organizations*. It summarized current planning practices considered by Florida MPOs to be innovative, and enumerated characteristics of a "best practices" MPO.

In the last year, a number of important initiatives by others have built on CUTR's efforts. The Florida MPO Advisory Council, with the assistance of a general planning consultant, has acted to implement a number of the recommendations from CUTR's earlier reports. Notable progress is being made in addressing funding shortfalls, in transportation planning methods and in the improved integration of transportation and land use.

In addition to collective efforts through the MPOAC, several individual MPOs are pursuing innovative strategic approaches in their planning processes. Notable examples include the Gainesville MPO, which is working through a process of visioning and consideration of strategic alternatives; the Charlotte County-Punta Gorda MPO, which is evaluating the transportation implications of its buildout plan; and the Tallahassee-Leon County MPO, which set the early standard by evaluating three very different land development patterns as part of its long range plan development.

IMPLICATIONS OF MPO LONG RANGE PLANS

This section specifically deals with issues identified in the review of MPO plans and potential statewide implications. These are issues that can perhaps be addressed through joint efforts of the members of the MPOAC and by the Florida Department of Transportation. Several of these issues might be addressed by undertaking specific focused research projects.

Financial Issues

Additional Revenues Needed. Without exception, all MPOs consistently raised financial shortfall as a major problem. There are a number of possible implications. First, the MPO Advisory Council is actively participating in efforts to convince the Florida Legislature to increase funding for transportation. The current activities of the Council's general planning consultant include specifically addressing the funding issues for MPO transportation improvements. The MPOAC recently issued an attractive brochure, *The Funding Crisis: Transportation Funding for Florida's Metropolitan Areas*, as part of its Transportation Funding Initiative for the 21st Century. The MPOAC is addressing both traditional and non-traditional funding sources that can be used for future transportation improvements. Of course, the implications of financial shortfalls are fundamental to both MPO and FDOT planning.

TEA-21 has significantly increased Florida's share of federal gas tax collections, amounting to an additional $440 million per year. However, even with the increase in federal funds, Florida will fall far short of the needed revenues to provide the transportation system Floridians want. A number of groups, including the MPOAC, the Transportation and Land Use Study Committee, and Floridians for Better Transportation, are advocating additional sources of state revenue for transportation purposes. Pervasive uncertainty suggests that contingencies be considered for several possible long-term funding scenarios.

Production Issues. To the extent that major new funding sources are created, FDOT and local governments will need to expand their production efforts. Hiring additional agency staff or making greater use of consultants will be necessary. Regrettably, the marketplace takes time to respond to increased demands for skilled professionals; in addition the current robust economy is making competition for skilled personnel intense. This could make for a shortage of qualified professionals. Recently, there has been an alarming

trend of some of the best and brightest students coming out of transportation engineering graduate programs being enticed into computer software companies, which offer salaries significantly higher than traditional transportation engineering positions. If the transportation industry is to remain competitive in attracting and retaining skilled professionals, there will be an upward pressure on professional salaries. This is likely to be the case both in government agencies and in private consulting organizations that serve transportation agencies.

To deal with the likelihood of a shortage of skilled professionals, FDOT and local governments may need to increase their salary scales to be able to attract necessary skill levels to the production of transportation facilities. It may also be necessary to allow higher limits on consultant salaries to ensure that adequate production help can be attracted from the private sector. As the demand for increased transportation infrastructure grows, increases in construction costs also can be expected as the demand increases more rapidly than the supply of qualified contractors.

Unit Cost Reports. FDOT can continue to contribute to rational financial analyses with regular updates to the FDOT Transportation Cost Report series. By providing rules of thumb and order-of-magnitude costs for various transportation facilities, the report serves an important role of checks and balances for MPOs. It also provides information specific to Florida on construction price trends.

Mobility/Livability Balance

Increasingly, MPOs and local governments are recognizing the balance that must be achieved between mobility requirements and desires for community cohesion and livability. FDOT recently adopted a policy statement on Transportation Design for Livable Communities, which calls for consideration of the following:

- safety of pedestrians, bicyclists, motorists, and public transit users,
- balancing community values and mobility needs,
- efficient use of energy resources,
- protection of the natural and manmade environment,
- coordinated land use and transportation planning,
- local and state economic development goals, and
- complementing and enhancing existing standards, systems, and processes.

Guidance for implementing this policy is being prepared by FDOT. With increased emphasis at the national level, and a growing constituency for consideration of community values in transportation project implementation, state and local transportation planners will need to be better prepared to deal with these issues.

FDOT is currently working with CUTR to create a Community Impact Assessment Handbook for use by FDOT Districts, consultants and MPO planners. FDOT's Environmental Management Office has created a Community Impact Assessment Steering Committee, which is actively working to strengthen attention to the human

environment throughout FDOT, MPOs, and local governments. A key objective of the Steering Committee is to encourage greater consideration of community values in the MPO systems planning process, well ahead of traditional project development and environmental analysis. There is also a need to provide training on community impact assessment techniques so that MPOs and local governments can apply them in the systems planning process. FDOT can be instrumental in promoting these methods throughout District offices and in MPOs and local governments.

The issue of the mobility/livability balance has been a major concern of the Transportation and Land Use Study Committee, which was created by the 1998 Florida Legislature. FDOT can contribute a great deal to the pursuit of this balance by encouraging efforts of the environmental management office to integrate community impact assessment into the planning and PD&E processes. In addition, FDOT could initiate an aggressive training program in community-sensitive design practices to ensure that FDOT, local governments and consultant engineers are utilizing flexibility in highway design practices.

Air Quality Concerns

As recently as three years ago, Florida had six urban counties that were not in attainment with the National Ambient Air Quality Standards (NAAQS). Each of these Counties has since come into attainment, but the margin is small. As a result, these six counties, as well as several others need to be vigilant in maintaining their clean air programs. With the recent changes in the NAAQS, there is potential that other Florida counties may be found to be in non-attainment for one of the criteria pollutants.

FDOT is continuing its past efforts at providing substantial assistance to MPOs and local governments in meeting air quality planning requirements. For example, FDOT is taking the lead on organizing a Transportation Air Quality Conformity Workshop, to be held in May 1999. The workshop will bring together planning officials with the Environmental Protection Agency, Federal Highway Administration, local governments, MPOs and state agencies concerned with air quality. FDOT's continued efforts to publicize emerging statutory and regulatory requirements will be especially helpful as rules for implementing the new clean air regulations are promulgated.

Freight Considerations in the Transportation Planning Process

Current technical methods used for transportation planning practice do not address freight movement very well. However, FDOT has undertaken major initiatives to advance the state of the practice in dealing with freight issues. A research report on freight travel demand modeling, funded by the FDOT Research Office, was recently completed on behalf of FDOT's Systems Planning Office. The Statewide Model Task Force has made goods movement a priority subject with the creation of a Freight Modeling Subcommittee. A Freight Stakeholders Task Force has been convened to develop a program to address freight transportation needs systematically across the state.

Preparation of a Statewide Intermodal Transportation Plan is now underway, with a consultant recently selected and under contract by FDOT.

Systematic Safety Assessment

The review of MPO long-range plans showed little in the way of systematic safety assessments. Evaluation of high crash locations should be an important part of every MPO's planning process. Intersections and route segments should be rank-ordered in terms of number of crashes and crashes per million entering vehicles. High crash locations and corridors should be evaluated to assess the need for safety related actions. FDOT, particularly working through the District offices, may be able to assist and promote the systematic inclusion of safety-related considerations into the development of long-range plans.

Designate Statewide Evacuation Roadway Network

Hurricane evacuation is a major concern for residents of Florida. Those that live in low-lying coastal areas are vulnerable to storm surge and flooding from low atmospheric pressure and torrential rains. Those that live in mobile homes are vulnerable to high force winds, regardless of whether they live in a flood area. FDOT should designate a statewide evaluation roadway network made up of principal arterials that play an important role for regional hurricane evacuations. FDOT should consider special design standards for designated evacuation roadways. These might involve extra clear zones, stronger sign anchors, and other special design features.

In addition, FDOT and the MPOAC should encourage and provide assistance to MPOs to incorporate studies of forecast-year evacuation characteristics into the long-range transportation planning process.

SCENARIOS FOR STATEWIDE STRATEGIC TRANSPORATION PLANNING

As articulated by FDOT in a companion report to the 2020 Florida Transportation Plan:

> It's tough to tell the future. Analyzing historical and current trends to forecast conditions 20 or more years into the future has been compared to throwing darts at a moving board under a strobe light. The dynamic nature of social, economic, and political activities in the United States and Florida creates too many uncertainties for foolproof forecasting.

This philosophy is also reflected in a number of CUTR reports dealing with transportation planning methods. In the past, some CUTR staff members have strongly advocated a planning process that is more strategic in its approach. Rather than focusing entirely on a single forecast of future outcomes, Florida will be better served by preparing for a range of possible uncertainties.

The 1998 session of the Florida Legislature created the Transportation and Land Use Study Committee, which has developed 40 distinct recommendations, several of which are aimed at better integration of transportation and land use decisions, incorporating principles of strategic visioning.

FDOT has clearly embraced the importance of strategic planning. As the updating of the Florida Transportation Plan is now underway, FDOT has indicated their intention to apply some innovative approaches in terms of evaluating a wide range of future scenarios, as contrasted to a deterministic fixed forecast of future needs. It is impossible to contemplate all the future scenarios that might happen, but there are a number of areas in which uncertainties can be readily identified.

Financial Scenarios

Uncertainty of Revenue Sources. In addition to the overall revenue shortfall, a related issue of concern to MPO planners is the high level of uncertainty inherent in revenue forecasts. In the immediate future, measures that can be taken to expedite estimates of formula funds and their distribution should be taken. Beyond TEA-21, each new Congressional funding proposal changes distributions, categories, and availability of federal funding.

This is an area in which FDOT can be of considerable assistance to local MPOs. FDOT currently assists local MPOs by providing estimates of federal and state funding sources available for implementing transportation implements. FDOT has initiated a seminar series to assist local planners to make revenue estimates over a 20-year planning horizon. FDOT also is able to advise MPOs and local governments about the likelihood of various federal funding scenarios.

Impact of Vehicle Technology on Motor Fuel Revenues. Two possible factors that could be incorporated into FDOT scenario considerations are alternative-fueled vehicles and motor vehicle fuel efficiency characteristics. At this point it does not appear that alternative fuels will have a major impact on motor fuel revenues, at least in the next 20 years. Alternative fuel vehicle promoters are targeting their efforts at fleet vehicles and are not expected to penetrate the market more than a percent or two in the foreseeable future. However, this is a definite area of uncertainty that is worthy of exploration.

Automotive technology seems to be capable of increased fuel economy, with some futurists expecting 80 mile-per-gallon vehicles by the year 2005. At the other extreme, with current low gas prices, many consumers have been attracted to less fuel-efficient sport utility vehicles and minivans.

The State should be developing contingency strategies for generating transportation revenues if either of these possibilities materialize. Even if alternative fuels are used, or if high efficiency vehicles become the norm, they will still utilize roadway space and will generate needs for physical roadway maintenance and expansion. If either of these

scenarios materialize, alternative measures for the collection of user fees will need to be created.

Potential Implications of Major Capital Investments in Fixed Guideway Transit

In the CUTR study of MPO financial shortfalls, it was reported that $11 billion of the $22.3 billion shortfall was attributable to major transit capital investments in four of Florida's urbanized counties. To the extent that MPOs in the large transportation management areas identify major transit capital investments in their transportation needs, FDOT may need to reconsider the way it allocates funds among various modes and among various geographic areas.

Impact of Increasing Right of Way Costs

Right of way costs are becoming a greater portion of transportation expansion projects. As Florida's metropolitan areas become more and more urbanized, it is becoming costlier to purchase the needed rights of way for transportation projects. In some areas, we are now hearing reports of right of way costs contributing over half of the cost to a project. Future scenarios might explore the possibility of legislative relief or, conversely, the legislature enacting even stronger private property protections. Perhaps right of way costs will lead to more consideration of double-decking solutions in urbanized area.

An interesting aside to the increasing cost of right of way relates to job creation. Historically, arguments have been made that investments in transportation infrastructure generate high-paying skilled jobs in the construction industry. To the extent that transportation project funds go into purchase of right of way, the creation of construction jobs is not realized—instead, the expenditures accrue to landowners, appraisers, and attorneys, with an anticipated lowering of economic multiplier effects.

International Contingencies

The State of Florida has a relatively modest ability to affect international conditions. Moreover, international affairs are among the most unpredictable aspects of any strategic planning process. Nonetheless, there are at least two international situations that merit contingency planning on the part of the State: future disruptions in international petroleum supplies and future changes in US policy toward Cuba.

Petroleum Supplies. Many Americans can remember the lifestyle disruptions of the mid-1970s and the early 1980s caused by disruptions in the flow of petroleum products from the Mideast. While the unity of petroleum exporting countries seems to be waning, the potential for political unrest and a resulting disruption in normal petroleum exports continues to be a very real possibility. If we ever again return to gas-rationing, long lines waiting for fuel, and high costs of petroleum products, the impact on lifestyles will be severe. In this regard, the State would be well advised to have contingency plans in the form of gas distribution rules and alternative transportation solutions at the ready.

The FDOT already supports an active transportation demand management program in many of Florida's urbanized areas. Transportation management and commuter assistance organizations supported by these programs are an excellent hedge against future petroleum uncertainties. If the time ever comes again, people will be looking for ridesharing alternatives.

Those of us that are old enough to remember the gas lines of the past production disruptions may recall that there was widespread inconsistency in measures applied to ration supplies. There were even-odd days, in which fuel purchases were limited to alternative days. There were limitations on the amount of fuel that could be purchased. Similar to the food-hoarding that goes on when a hurricane approaches, a much greater portion of the fuel reserves were held in vehicle fuel tanks, as motorists faced with uncertain availability tried to keep their tanks as full as possible at all times. The point of all this is that the response of government agencies to situation was very haphazard. It was unclear if the government actions helped or hindered the situation. If it doesn't already exist, FDOT, in cooperation with the Governor's Energy Office, would be well advised to develop a contingency plan for dealing with potential future disruptions in petroleum supplies.

U.S. Policy Toward Cuba. Since the rise of Fidel Castro as the political leader of Cuba, U.S. foreign policy has prohibited normal relations. Severe limitations on trade and travel have made it difficult, if not impossible, to carry on business with Cuba. Recently, there have been some signs of reducing those barriers to interaction. Moreover, it is thought by many that upon the demise of Fidel Castro a whole new era of U.S.-Cuba relations will ensue. Many organizations are preparing strategic contingency plans for future scenarios of interaction with Cuba. For example, the updating of the Hillsborough County Aviation Authority's master plan for Tampa International Airport is explicitly considering the potential demand for air service between Tampa and Cuba. Major engineering consulting organizations are preparing business plans to take advantage of opening markets in Cuba.

FDOT would do well to engage in strategic scenario analysis of the potential impacts on Florida's transportation system of open relations with Cuba. It would seem that the demand on seaport and airport facilities could be significantly affected, which in turn might have significant impacts on access facilities.

Population Demographics

Studies seem to indicate that Florida's population growth over the next 15 to 20 years will moderate in comparison to the rates of the last 15 years. Studies by the Bureau of Economic and Business Research (BEBR) have reported that, between 1995 and 2010, Florida's population is expected to grow by 3.7 million people, compared to 4.4 million for the previous 15-year period. BEBR cites fewer people retiring to Florida and fewer young people—the two groups with the highest migration rates. While the rate of growth may be moderated, Florida will still experience a healthy growth rate and it will be difficult to meet the infrastructure requirements of the expanding population base.

The Baby Boom and its Echo. Historically, Florida's population has been substantially older than the population of the U.S. as a whole. There is little reason to think this will change, though the magnitude is definitely subject to variation. Florida and the rest of the U.S. will be dealing with the aging of the baby boom generation, and with the baby boom echo generation. The future impact of aging baby boomers should be examined. As an aging population loses its ability to drive, mobility or lifestyle alternatives need to be created. In some counties, more than half the current population is over 60 years of age.

At the opposite end of the spectrum from the elderly, the so-called Millenium Generation, those presently less than 18 years of age, has reached an all time high in the U.S., though it represents a smaller percentage than in years past. Demographic studies seem to point toward a longer term "squaring" of the age profile charts, with fairly equal numbers in each age cohort. FDOT would be well advised to examine various demographic scenarios and to contemplate their implications on future transportation needs for the state.

Retirement Preferences. In recent years, there have been conflicting reports regarding Florida's relative attractiveness as a retirement destination. It appears that Florida is being challenged by states like Georgia, North Carolina and South Carolina as a desirable retirement location. Might it be that Florida's preeminence as a retirement location will change? Perhaps a future scenario accounting for this possibility should be examined.

Alternative Work Styles

The potential for alternative work styles to affect transportation systems is a matter of considerable debate. This in itself argues for consideration in a package of reasonable scenarios. Telecommuting as an option to a traditional office work environment has been debated for decades now. However, the computing and telecommunications revolutions have made the option technically feasible today. Is it unreasonable to think that in the next 20 years, 10 percent of the workforce will be working at home? 20 percent?

Role of ITS and New Technologies

Florida DOT is currently preparing its Statewide ITS Strategic Plan. Future scenarios might consider the range of uncertainties about ITS implementation. There is a potential that ITS can enhance tourism through enhanced security and destination information. ITS can be an integral part of the implementation of high occupancy toll lanes, congestion management systems, and safety improvements. It can promote transit through signal preemption, passenger information systems, and other innovations. Future FDOT and MPO plans will need to include systematic consideration of ITS solutions.

Technology solutions do not necessarily mean ITS. Separated high occupancy vehicle (HOV) lanes, high occupancy toll (HOT) lanes, and bus rapid transit are technologies that have been employed elsewhere, but not yet in Florida. Separated truck lanes and separated truck roadways are being studied in various locations in the U.S. Perhaps

effective applications exist in Florida. State and MPO planners need to stay apprised of innovative technological applications and look for opportunities in Florida.

Summary

The future is inherently unpredictable. By considering a range of plausible alternatives for the future, FDOT can be better prepared to deal with the inevitable contingencies that will emerge. Hopefully, these reflections will assist in that process.