Executive Summary of City of Jacksonville 2030 Multimodal Transportation Study

2030 Multimodal Transportation Plan:

The 2009 revisions to Florida's Growth Management laws, known as the Community Renewal Act, or 2009 Senate Bill 360 (2009 SB 360), designate the City of Jacksonville as a Dense Urban Land Area (DULA). The 2009 SB 360 also requires a local government designated as a DULA to adopt into its Comprehensive Plan land use and transportation strategies that include alternative modes of transportation to support and fund mobility in the DULA. The purpose of this study is to develop a 2030 Multimodal Transportation Plan to address the mobility needs of the City of Jacksonville including automobile/truck, transit, bicycle and pedestrian modes. The 2030 Multimodal Transportation Plan will then be used to develop a mobility fee that will assess new development and replace the current fair share program administered through the City of Jacksonville concurrency management system.

The study addresses the requirements of the 2009 SB 360 legislation by providing for alternative modes of transportation. Future land use planning efforts will incentivize development that encourages the use of alternative modes of transportation and reduces vehicle miles traveled and greenhouse gas emissions. The study identifies specific transportation strategies and improvements to address traffic congestion and mobility needs on the City of Jacksonville's transportation network.

The study begins with an existing conditions level of service analysis of the City of Jacksonville Functional Highway Classification System roadways. The analysis is provided for each mode based on the Florida Department of Transportation *2009 Quality/Level of Service (Q/LOS) Handbook* procedures using Average Annual Daily Traffic and existing roadway characteristics and Jacksonville Transportation Authority bus routes. For the automobile/truck mode, capacities were based on volume to capacity (V/C) ratio. For this study, capacity is defined as the Maximum Volume at level of service E for each roadway link, commonly referred to as the *Maximum Service Volume (MSV)*. A V/C ratio greater than 1.0 indicates a roadway deficiency. **Figure E-1** illustrates the study network and existing roadways with a V/C ratio greater than 1.0.

The horizon year for the study is 2030, which coincides with the new planning horizon for the Comprehensive Plan. The future conditions analysis for the multimodal transportation plan is based on a 2030 interpolation between the 2005 base year and the 2035 horizon year socio-economic data included in the travel demand forecasting model developed for the North Florida Transportation Planning Organization's (TPO) recently completed Envision 2035 Long Range Transportation Plan (LRTP) Cost Feasible Plan. The 2030 conditions analysis assumed as committed all City of Jacksonville managed Better Jacksonville Plan projects and projects included in the North Florida TPO LRTP Cost Feasible Plan, shown on **Figure E-2**. The 2030 analysis was based on a 2030 AADT forecast on links included in the study network. **Figure E-3** illustrates the study network and the roadways projected to have a V/C ratio greater than 1.0.

Mobility Zones

Mobility needs vary throughout the city based on localized population and employment densities and the level of services available. For example the mobility needs in the rural far western portion of the city will be based on roadways necessary for long vehicle trips to work, shopping

and other basic needs whereas the Downtown area is better served by sidewalk and transit service improvements. In order to quantify the diverse nature of mobility needs the City was divided into 10 Mobility Zones; the Zone 10 boundary coincides with the central business district area (CBD), Zones 1 through 9 were based on geographic boundaries with consideration for local mobility needs and to enable the fees collected within each of the zones to fund specific local transportation improvements. These zones were further defined so that the distance through the zone is approximately equal to the average trip length of the underlying Development Areas. This helps to establish a rational nexus between the development project paying the mobility fee and the transportation project to which the mobility fee is applied. The Mobility Zones are illustrated on **Figure E-4**.

Vehicle/Truck capacity was assessed for each Mobility Zone based on the overall available capacity measured by the maximum service volume for each roadway (Collector, Arterial and Freeway) on the City's Functional Classified Roadway Network. The analysis of roadways in each zone was conducted for North/South and East/West orientation separately. The capacity measurement for each roadway was based on the following formula:

MSV – AADT = Available Capacity

Where:

MSV = The total MSV of all functionally classified roadway links within the Mobility Zone

AADT = The total 2030 average annual daily volume of all functionally classified roadway links within the Mobility Zone

The analysis indicates there are deficient arterial segments in Mobility Zone 2 and deficient Freeway segments in Mobility Zones 1, 2, 5, 7, 8, and 9. However, the overall analysis of each zone reveals available capacity. A summary of the analysis and roadway project costs is shown in **Table E- 1.**

Projects Recommended for the 10-Year CIE

Prioritized transportation modes improvement projects have been proposed to address roadway deficiencies. The selection of these improvements is based on the potential for road widening; the need for improvements based on future traffic projections; and the consideration of alternative modes of transportation. Several of the multi-modal improvements were also chosen to reduce and relieve deficiencies on FDOT freeway and Strategic Intermodal System (SIS) facilities. Facility improvements that parallel freeways have been selected to provide mobility alternatives to congested roadways.

Each new or widened roadway included in the prioritized transportation improvement project list is assumed to include sidewalks and bicycle facilities consistent with the applicable cross-section for road design, bus turn-out facilities, and Comprehensive Plan policies. Roadway improvement projects consist of a combination of new roads, widening existing roads, intersection improvements and Intelligent Transportation System (ITS) improvements. The total cost for proposed roadway improvements included in the 2030 Mobility Plan is $218 million in 2010 dollars (**Table E-1**). The projects recommended for the 10-Year CIE are illustrated on Figure __

Adequate transit services are also important in achieving mobility, land use and community visioning goals. The North Florida TPO LRTP Cost Feasible Plan includes bus rapid transit, commuter rail and streetcar projects as shown on **Figure E-2**. According to the American Public Transportation Association, every dollar of public money invested in rail attracts $6 in new private investment. A review of 22 major studies in 11 cities over the past two decades found, "commercial and residential property values generally rise the closer they are to rail stations." In order to facilitate and accelerate the construction of streetcar and commuter rail projects the 2030 Multimodal Transportation Plan includes a 25% local match for portions of the north, southeast and southwest commuter rail lines. The Plan also provides full funding for the street car line from Downtown to Riverside (King Street) and a skyway extension across the FEC rail line to connect San Marco to Downtown Jacksonville. The skyway extension will provide high frequency service uninterrupted by freight rail traffic. ITS and road widening projects along significant stretches of Philips Highway, Southside Boulevard and Beach Boulevard will also accelerate and improve the performance of bus rapid transit routes proposed along those corridors. Proposed transit project descriptions and cost estimates are included in **Table E-2** and illustrated on **Figure E-4**. The total cost for proposed transit improvements included in the 2030 Multimodal Transportation Plan is $151.50 million in $2010.

Bicycle and pedestrian improvements are also included in the 2030 Multimodal Transportation Plan. A total of over 100 miles of bicycle improvements will enhance the connectivity of the existing bicycle facilities network and the interconnectivity of transportation modes at a cost of $36.35 million in $2010. Pedestrian improvements include construction of over 68 miles of sidewalks within the City of Jacksonville urban area boundary and a pedestrian overpass on Arlington Expressway between Arlington Road and Southside Boulevard. The pedestrian improvements will improve connectivity and support mobility, land use and community visioning goals and interconnectivity of transportation modes at a cost of $13.51 million in $2010.

The total cost for the 2030 Multimodal Transportation Plan is $444.44 million in $2010. **Table E-3** provides a project cost summary of the proposed 2030 Multimodal Transportation Plan.

Mobility Fee Study:

Table E-3 also includes a summary of the mobility fee calculations based on vehicle miles traveled (VMT) and the total cost of the plan. First, a 2008 travel demand forecasting model was prepared by interpolating the socio-economic data between 2005 and 2030 and revising the model network to reflect existing conditions. Total VMT on roads within the City of Jacksonville was extracted from the 2008 model and from the 2030 model. The change in VMT between 2008 and 2030 represents the increase in traffic that will be generated by development between 2008 and 2030. The mobility fee is the cost of the plan's Priority Improvements divided by the change in VMT, or $24.13 per VMT.

The mobility fee will be assessed based on average trip length of trips generated within Development Areas as defined in the City of Jacksonville Comprehensive Plan. The average trip length for travel within the City of Jacksonville generated by development in the five City of Jacksonville Development Areas was extracted from the 2030 model and is illustrated on **Figure E-5** and summarized as:

- CBD – 9.09 miles
- Urban Priority Area – 9.24 miles
- Urban – 9.46 miles
- Suburban – 10.28 miles
- Rural – 12.27 miles

The mobility fee for new development is proposed to be calculated by multiplying the project daily trip generation times the average trip length based on the Development Area in which the project is located times the mobility fee of $24.13 per vehicle mile traveled. Trip generation is proposed to be calculated using rates and equations summarized in the most recent release of *Trip Generation* by Institute of Transportation Engineers or local data approved by the City of Jacksonville Planning and Development Department.

Mobility Fee Adjustments:
Mobility fee adjustments may be applied based on changes to the projected daily trip generation used to calculate the mobility fee of a proposed development. The development must meet specific design and location based elements projected to reduce vehicle miles traveled and encourage use of alternative modes. The adjustment methodology is based on the URBEMIS (Urban Emissions) model developed to estimate emissions from mobile sources attributed to new development. The model includes adjustments for internal capture, pass-by capture, diverted linked trips and specific mitigation measures.

Mobility Score:
The goal of this study is to develop a plan that will improve mobility and reduce the effects of greenhouse gas emissions. The approach recommended in the Multimodal Transportation Study is to improve all modes of travel throughout the City. A scoring system was developed to measure the effectiveness of alternative modes. In order calculate the Mobility Score Level of Service grades B through F were assigned a numerical value as follows:

LOS B = 4 (4.00)

LOS C = 3 (3.00 to 3.99)

LOS D = 2 (2.00 to 2.99)

LOS E = 1 (1.00 to 1.99)

LOS F = 0 (0.00 to 0.99)

The LOS values are *weighted* based on the length and the number of directional lanes on each segment. The average of the adjusted LOS values for each Mobility Zone is the W*eighted Mobility Score*. In order to maintain an acceptable quality of service, the City has established the following standards as acceptable: A minimum average Mobility Score of 1.5 for each Mobility Zone and a minimum average City wide Score of 2.00 (LOS D). The analysis indicates the weighted mobility score for 2009 is 2.62 and the weighted score for 2030 is 2.03. The horizon year (2030) mobility scores meet the minimum goals of 1.5 for the mobility zones and 2.0 city-wide. T**able E-4** shows the Mobility Scores for existing 2008-2009 conditions and for future 2030 conditions.