SMART REGION MASTER PLAN

North Florida will become the nation's first Smart Region to address the region's needs by identifying and implementing new and emerging transportation-related technologies through an integrated Transportation Systems Management and Operations (TSM&O) approach.

Implementing new technologies and strategies will create a safer, more efficient and reliable transportation system improving our region's economic competitiveness, sustainability and quality of life.

Through a partnership with 30 stakeholder agencies, the North Florida Transportation Planning Organization (North Florida TPO) facilitated the development of a Smart Region Plan. A Smart Region utilizes innovative and emerging technologies to collect, analyze and utilize data from many sources to enhance the region's livability. While many of these technologies have been deployed independently with great success, integrating them and harnessing the power of coordinated data will provide new and innovative means to improve the quality of life for citizens throughout the region.

A smart region has many pieces, including but not limited to waste, water, energy, healthcare and transportation. The true power of a Smart Region is realized when the silos between each piece are broken down and data is fully integrated with different systems. For example, transportation and health care data. This Smart Region Master Plan focuses on transportation and transportation related infrastructure and services.

A regional Intelligent Transportation Systems (ITS) Master Plan was adopted in 2006 and updated in 2010. In the last seven years 54-miles of freeway incident management systems, 25-miles of arterial management systems, 22 bridge weather information stations, contraflow lane systems, transit signal priority and transit information systems were implemented. This Smart Region Master Plan is the next step in leveraging technologies to enrich the quality of life in our communities and enhance our region's economic competitiveness.

The plan's goals are as follows:

- Eliminate fatalities
- Improve travel time reliabilities
- Reduce greenhouse gas emissions
- Provide ladders of opportunity to the disadvantaged
- Grow North Florida

Need for a Smart Region Plan

In 2004, the North Florida Regional ITS Coalition was formed with more than 80 participants from the public and private sector to coordinate and deploy Intelligent Transportation Systems (ITS) within the region. Most of the priority ITS projects identified by the ITS Coalition and formalized in a Regional ITS Master Plan in 2010 are complete. These projects included freeway and incident management systems, integrated corridor management, arterial management systems, road weather information systems, regional fiber optic communication systems and constructing a new regional traffic management center. With this plan nearing completion, it is time to define a path forward for leveraging technology to better manage and operate our transportation system.

Safety

In 2015, nearly 30,000 vehicle crashes occurred and 218 persons lost their lives in North Florida. The crashes cost the region $4.6 billion in economic loses and contribute to travel delays on the entire transportation network. North Florida is regularly ranked by Smart Growth America and the National Complete Streets Coalition as one of the worst regions in the nation for pedestrian safety. The Bike Walk Alliance ranked Jacksonville as the worst city in the nation for fatalities per pedestrian commuters and fatalities per bicycle commuters. The parts of the region with the greatest frequency of bicycle and pedestrian crashes coincide with tourist areas near the Jacksonville beaches and in St. Augustine. Innovative technologies will provide new solutions to enhance safety for drivers, pedestrians and bicyclists in North Florida.

Innovative technologies are also needed to better manage emergency vehicle access to hospitals. Reducing delays by even a few minutes can significantly improve the survivability of patients who need emergency care. Where incidents occur, smart technologies can provide emergency vehicles with warnings to use alternate routes which will result in shorter delivery times and may save lives.

As a coastal region susceptible to hurricanes and other flooding events, identifying flooded roadways and diverting vehicles around these areas can reduce the number of vehicles traveling in hazardous conditions.

In 2015, more than 7,000 violent crimes were committed in the region. Providing safe and timely access to first responders is critical to saving lives and supporting law enforcement's mission to protect citizens. Through cooperation with the Clay County, Jacksonville, Nassau County and St. Johns County Sheriff's offices, areas where a high incident of gun-related crimes were identified and considered for investment in traffic management and gun-shot warning systems.

Mobility

Congestion cost our region $900 million in lost productivity in 2015. Congestion grew at 10 percent from 2014 and this trend is anticipated to continue.

On-time travel reliabilities within our major corridors are also worsening. Based on recent surveys with freight operators, reliability is as important, if not more important, than congestion within our region. Freight companies

$16 billion

In economic losses per year from crashes

218

Lives lost

30,000

Crashes

$0.9 billion

In economic losses per year from congestion

consider reliability and congestion when planning routes, determining locations for warehousing investment and delivering goods. More than 160 million tons of freight move by truck and 32 million tons of freight by rail each day.

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As much as 30 percent of traffic within downtown Jacksonville and the city of St. Augustine is caused by vehicles searching for parking spaces. Smart parking management programs are needed to reduce circulating vehicles seeking parking spaces in these areas. Reducing this traffic will reduce delays and enhance safety in these high pedestrian areas.

Reduce Greenhouse Gases
Beginning in 2009, the North Florida TPO has hosted the North Florida Clean Fuels Coalition and has facilitated over $5 million investment in alternative fuels infrastructure that included electrification, compressed natural gas conversions for buses, tier 3 train locomotives, port vehicles and government truck fleets. These programs resulted in a reduction of 16 tons of carbon dioxide emissions in 2015. The next phase of electric vehicle charging stations is underway due to the demand stimulated through initial public investments. Based on the success of these programs and anticipated growth in electric vehicles, continued investment is needed in this infrastructure to reduce vehicle emissions and fossil fuel consumption.

Ladders of Opportunity
New ladders of opportunity are needed to transport at-risk populations to health care, goods, services and jobs. The Jacksonville Transportation Authority (JTA) recently completed the Northeast Florida Multimodal Transportation Opportunity Corridors Plan that identified significant needs for investment to enhance mobility for the disadvantaged.

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A child growing up in Jacksonville in the bottom fifth of the income scale has only a 5.3 percent chance of rising to the top fifth of the scale. Poor transportation infrastructure is the most significant barrier to economic mobility. Low-income communities are isolated from employment, health care, education, child care and other amenities and resources. People spend hours a day and a significantly higher proportion of their income commuting to and from low paying jobs. Without proper access to and from work or school, a population cannot move beyond its current economic situation. Smart mobility solutions are needed to bring these communities out of isolation and integrate them fully into the region's economic sectors.

Specific areas where enhanced mobility is needed to support ladders of opportunity in North Florida include Arlington, Eastside, Kings Street/Edwards Waters College corridor (also called the New Town Success Zone), Norwood/Gateway neighborhoods, and Philips Highway corridor in Jacksonville; West St. Augustine in St. Johns County; and Green Cove Springs and Keystone Heights in Clay County.

Plan Elements
A Smart Region utilizes innovative and emerging technologies to collect, analyze and mine data from many sources to enhance the region's livability. There are many aspects to a smart region including waste, water, energy, healthcare and mobility. The focus of this Smart Region Plan is on the safe and efficient movement of goods and people.

A smart region collects information from a wide variety Internet of Things (IoT) technologies and merges data from multiple sources into one data management system. With a diverse and widespread dataset, in-depth analyses can be conducted and new connections can be made. A smart region is a catalyst for technology innovation that can create economic growth. This Smart Region plan was developed in partnership with federal, state and local governments, the U.S. Navy and the private sector.

From these building blocks, a set of regional project priorities was identified. The proposed projects are grouped into four categories – local intelligence, electrification, services and data management services.

The 33 projects identified in the plan for future deployment are summarized in the table to the right.

Accomplishments

The cooperation and stakeholder engagement that occurred while preparing this plan has resulted in reenergizing the Region's ITS Coalition and its rebranding as the Smart Region Coalition. New projects inspired by the planning process began before the formal adoption of the plan for bicycle and pedestrian safety and automated vehicle deployments. The University of North Florida is partnering with the FDOT to develop a Big Data Systems class that will use the FDOT's regional traffic management center data warehouse as part of graduate research projects. Students will assist the FDOT in data analytics and mining the data for new insights into mobility, sustainability and economic development issues. The plan also demonstrates support for other local agency programs such as the Jacksonville Transportation Authority, who plans to demonstrate the feasibility of automated vehicle technologies for transit shuttles and to develop an automated vehicle deployment that modernizes the downtown Skyway. The City of Jacksonville is working to complete their smart lighting conversion program.

Next Steps

Annually, funding is being programmed to design and implement these projects. A total of $34 million is identified for TSM&O and smart technology projects in the North Florida TPO's 2040 Long Range Transportation Plan. The Smart Region Plan is a foundation for future regional efforts to seek innovative technology or smart city grants by demonstrating a proven record of success through regional cooperation, a clear vision and plan to advance smart city technologies.

Projects
Local Intelligence
Connected Vehicle Corridor Deployments
Regional Greenwave Data
Bicycle and Pedestrian Warning System
Truck Priority System on Heckscher Drive
Baptist Hospital Rail Crossing Alert System
Regionwide Rail Crossing Data Management and Information System
Critical Bridge Failure Detection System
Street Flooding Sensors and Notification System
Automatic Vehicle Locators in Public Vehicles
Bus Rapid Transit Crash Avoidance System
Transit Signal Priority
Smart Truck Parking at Talleyrand and Blount Island Marine Terminals
JAXPORT Gate Closure Notification System
Integrated Corridor Management
Smart Delivery Truck Parking and Availability System
Parking Management and Information System
Electrification
Smart Street Lighting Upgrades
Expand Electric Vehicle Network
Solar Road Pilot
Smart Kiosks
Services
Ultimate Urban Circulator (U^{2}C) Expansion
Electric Autonomous Vehicle Shuttles
Automated Vehicle Smart Parking Lot
Intermodal Container Transfer Facility (ICTF) Connector for Trucks
Special Event Traffic Management System
Smart Card for Multiple Uses
Mobility as a Service First Mile/Last Mile (FMLM) Partnership
Car Sharing Incentives for Low Income Neighborhoods
FMLM Connectors in Special Neighborhoods
Data Management System
Upgrade Regional Fiber
North Florida Integrated Transportation Data Exchange
Enhanced Interagency Data Sharing System
North Florida Region Traffic Application and Total Trip Planner

To read the full Smart Region Master Plan please visit the ITS section at
www.northfloridatpo.com

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