Introduction

This document is submitted to facilitate the revision and update of the Space Coast Transportation Planning Organization’s ITS Vision, Goals, and Objectives. After review by and consultation with the ITS Steering Committee, Atkins will incorporate feedback from the Committee and submit our final Task 1 deliverable.

Vision

The purpose of a vision statement is to provide a clear picture of what an organization aspires to be. Goals and objectives are then built to bring the organization more in line with its overall vision. In order to increase the focus on ITS and transportation technology, we recommend the following enhancement to the SPTPO ITS Vision Statement.

Previous Vision Statement: Maximize the use of the existing Space Coast transportation system by providing increased accessibility, reliability, and safety as part of a fully integrated multi-modal experience.

Proposed Vision Statement: Utilize cost-effective transportation technology to increase the accessibility, reliability, and safety of the Space Coast transportation system as part of a fully-integrated multi-modal experience.

Goals, Objectives, and Measures from Long Range Transportation Plan (LRTP)

It is important for ITS programmatic activities to be aligned with the overall goals of the agency. Because of this, we list the Space Coast TPO goals, objectives, and measures below, as defined in the 2040 LRTP. The following section will propose a series of ITS-specific objectives that map to the 2040 LRTP goals and objectives.

Goal 1: Enhance economic development through intermodal transportation connections

Objective 1.1 – Promote economic development through the improved performance of highway and rail facilities providing connections to intermodal hubs and commerce centers

Measure 1.1.1 – % roadway lane miles of SIS facilities operating at LOS C or better

Measure 1.1.2 – Number of high-tech jobs

Objective 1.2 – Improve mobility for people and freight on the regional transportation system within the County

Measure 1.2.1 – % regional roadway lane miles operating at LOS C or better

Objective 1.3 – Improve security through improvements to the capacity and efficiency of the County’s evacuation routes

Measure 1.3.1 – Lane miles of designated evacuation routes

Objective 1.4 – Employ operational strategies to optimize the performance of the County’s transportation infrastructure

Measure 1.4.1 – Centerline miles of roadways with ITS infrastructure
Goal 2: Increase the range of community, housing, and travel options

Objective 2.1 – Increase the supply and use of the non-automobile-oriented transportation infrastructure, including transit, sidewalks, bicycle facilities, and trails
  Measure 2.1.1 – Annual transit ridership (1,000s)
  Measure 2.1.2 – Annual number of bicycle / pedestrian crashes

Objective 2.2 – Improve the safety of County and State infrastructure for motorized and non-motorized users
  Measure 2.2.1 – Annual number of automobile crashes

Goal 3: Balance preservation of the natural environment with economic development and livability

Objective 3.1 – Improve air quality by lowering mobile source emissions with energy efficient vehicles and reduced vehicle miles traveled
  Measure 3.1.1 – Annual VMT per capita (miles per day)

Objective 3.2 – Promote intergovernmental coordination to redevelop historic communities and concentrate development within multimodal hubs
  Measure 3.2.1 – % of countywide activity units (households plus employment) located in multi-modal hubs

ITS Objectives

The following six ITS project objectives are proposed to build a meaningful linkage between ITS capital projects and objectives from the LRTP. The rationale for each ITS project objective is described below. Table 1 shows how each ITS program objective maps to the LRTP objectives. (LRTP Objective 3.2 does not have a direct linkage to the ITS program objectives described below.)

Table-1 - ITS Project Objectives

<table>
<thead>
<tr>
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<th>1.1</th>
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<th>2.1</th>
<th>2.2</th>
<th>3.1</th>
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<tbody>
<tr>
<td>1. Improve traffic mobility (e.g. reduce travel time, improve travel time reliability, reduce traffic congestion)</td>
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<td>2. Increase ITS footprint on critical corridors</td>
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<td>3. Increase transit ridership</td>
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<td>4. Improve bicycle and pedestrian safety</td>
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<td>5. Reduce the number of automobile crashes</td>
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<td>6. Improve transportation operation strategies</td>
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</table>

1. **Improve traffic mobility (e.g. reduce travel time, improve travel time reliability, reduce traffic congestion):** This objective influences a number of LRTP objectives. Initiatives supporting this objective would include projects to modernize traffic signal controller equipment, execute traffic signal retiming, deploy automated traffic signal performance measures (ATSPM), and deploy advanced traffic signal timing methodologies.

2. **Increase ITS footprint on critical corridors:** This objective is a direct output of Objective 1.4, whose measure is the centerline miles of roadways with ITS infrastructure. Projects supporting this objective would include installation of new fiber optic or wireless communication along corridors and deployment of ITS equipment such as cameras, dynamic message signs, Bluetooth data collection equipment, and connected vehicle roadside units.
3. **Increase transit ridership:** ITS projects that support this objective would work to make transit ridership easier and more attractive to potential riders. These projects could include arrival countdown boards at bus stops, infrastructure to support seamless payment systems, automated vehicle location (AVL) systems for buses, transit signal priority, and bus occupancy detectors.

4. **Improve bicycle and pedestrian safety:** ITS projects that support this objective would work to minimize injuries and fatalities involving bicycles and pedestrians. These projects could include deployment of connected vehicle roadside units, signalization for bike lanes, deployment of pedestrian detection, and use of rapid rectangular flashing beacons (RRFB) at midblock crosswalks.

5. **Reduce the number of automobile crashes:** ITS projects that support this objective would work to reduce the number of vehicle-to-vehicle automobile crashes. These can include projects to modernize traffic signal controllers, improve signal timing, and deploy connected vehicle roadside units for use in safety applications.

6. **Improve transportation operation strategies:** While the previous five objectives were primarily focused on deployment of technology assets, this objective emphasizes changes in business processes to raise the profile of traffic operations. Projects that support this objective could include active corridor management, incorporating automated traffic signal performance measures into the signal management workflow, and developing a traffic signal program management plan.

### ITS Performance Measures

The 2040 LRSP established performance measures to quantify the success of the agency’s overall goals and objectives. By their nature, ITS programs have the benefit of being data rich environments, which makes them suited for the establishment of enhanced performance measures. This section presents a number of supplemental ITS-based performance measures which can be used to track the effectiveness of ITS projects and operations initiatives. Effort was made to select outcome-based performance measures whenever possible.

1. **Travel Time and Planning Time of strategic corridors:** Travel time and planning time are widely-adopted measures for describing the performance of highways and roadways. These metrics are used to aggregate performance over a period of time (typically monthly). Median travel time (i.e. 50th percentile travel time) is normally used to describe typical travel times along a corridor. The planning time (or 95th percentile travel time) is used to describe the reliability of travel time along a corridor. When the median travel time and planning time is divided by the free flow travel time, a travel time index (TTI) and planning time index (PTI) is produced, which can be used to compare conditions between corridors of different lengths. These metrics can be obtained through various systems, including RITIS and Bluetooth data collection systems.

2. **Percent Arrivals on Green:** This metric describes the percentage of vehicles that arrive at an intersection during a green indication, which can be used as a measure of good progression. A low value for arrivals on green can indicate room for improvement in traffic signal timing in terms of promoting good progression. Improving arrivals on green can have a positive effect on corridor-level performance measures such as travel time and planning time. Percent arrivals on green is a standard component of automated traffic signal performance measures (ATSPM) for intersections with advance detection.

3. **Lane-miles of evacuation routes instrumented for ITS:** This output measure is a corollary to the “centerline miles of roadways with ITS infrastructure” defined in the LRSP to measure Objective 1.4. However, the modified measure proposed here could be beneficial to demonstrate readiness for Objective 1.3, which seeks to “improve security through improvements to the capacity and efficiency of the County’s evacuation routes.”

4. **Travel time and/or percent arrivals on green during evacuation:** This is a special-case application of ITS performance measures 1 and 2 focused on travel conditions during evacuations.

5. **Uptime of ITS equipment on strategic corridors:** This measure is a natural extension of the LRSP measure “centerline miles of roadways with ITS infrastructure.” Uptime measures encourage good maintenance practices and can be used to improve operational readiness.

6. **Number of transit routes with real-time monitoring:** this output measure identifies the number of transit routes with baseline performance data that can be leveraged for use in follow-on projects to improve rider experience, such as apps and arrival time boards at bus stops.
7. **Additional transit data (occupant count, etc.):** Additional automated transit data, such as occupant data, can be used to measure changes in ridership over time and in response to new programs and initiatives.

8. **Data from bike/ped counters:** Volume and time-of-day information from bike/ped counters can be used to improve safety at intersections and improve signal timing.

9. **Pedestrian delay:** This is a standard ATSPM performance measure that records the length of time between ped button actuation and the start of the associated walk phase. Intersections with high pedestrian delay could be more prone to jaywalking, due to pedestrian impatience.

10. **User delay cost:** User delay cost (UDC) is a metric that assigns a dollar value to travel delay based on estimated volumes and value of time assumptions. UDC is a useful metric for identifying the impacts of specific traffic events along with the performance of corridors over time.

Table 2 below presents a mapping of the proposed ITS performance measures to the existing goals, objectives, and measures established in the LRSP.
## Table-2 - ITS Performance Measures

<table>
<thead>
<tr>
<th>Goals</th>
<th>Objectives</th>
<th>LRSP Measures</th>
<th>ITS Performance Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance economic development through intermodal transportation connections</td>
<td>Promote economic development through the improved performance of highway and rail facilities providing connections to intermodal hubs and commerce centers</td>
<td>Percent roadway lane miles of SIS facilities operating at LOS C or better</td>
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<td></td>
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<td>Improve mobility for people and freight on the regional transportation system within the County</td>
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<td></td>
<td></td>
<td>Lane miles of designated evacuation routes</td>
<td>Lane miles of evacuation routes instrumented for ITS; Travel Time Index during evacuation; % arrivals on green during evacuation.</td>
</tr>
<tr>
<td>Improve security through improvements to the capacity and efficiency of the County’s evacuation routes</td>
<td>Employ operational strategies to optimize the performance of the County’s transportation infrastructure</td>
<td>Centerline miles of roadways with ITS infrastructure</td>
<td>Uptime of ITS equipment on strategic corridors</td>
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<td></td>
<td>Increase the range of community, housing, and travel options</td>
<td>Increase the supply and use of non-automobile-oriented transportation infrastructure, including transit, sidewalks, bicycle facilities, and trails</td>
<td>Annual transit ridership (1,000s)</td>
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<td>Annual number of bicycle/pedestrian crashes</td>
<td>Data from bike/ped counters; ATSPM Pedestrian delay</td>
</tr>
<tr>
<td>Improve the safety of County and State infrastructure for motorized and non-motorized users</td>
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<td>Utilize data from Signal 4 Analytics</td>
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<td>Balance preservation of the natural environment with economic development and livability</td>
<td>Improve air quality by lowering mobile source emissions with energy efficient vehicles and reduced vehicle miles traveled</td>
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<td>Percent of countywide activity units (household plus employment) located in multimodal hubs</td>
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</tr>
</tbody>
</table>
Appendix A. Blackline of Previous ITS Master Plan Text
Before the development of the ITS Master Plan, vision, goals, and objectives should be established in order to guide the Steering Committee and project team. Performance measures should also be defined in order to track progress towards the goals and objectives for the ITS Master Plan. The success of the ITS Master Plan will be in the implementation of ITS projects and achievement of established performance measures. The goals, objectives, and performance measures identified in this section will help set the foundation for future success.

2.1 ITS Master Plan Vision

Before establishing goals and objectives for the ITS Master Plan, a clear vision statement should be defined. Vision statements from the SCTPO, Brevard County, the Florida Department of Transportation (FDOT) ITS Program, and the FDOT TSM&O Program, presented below, were reviewed to help the project team develop a SCTPO ITS Vision statement.

- **SCTPO Vision Statement:**
  - “To become the benchmark planning forum trusted for its leadership and respected for its integrity and inclusiveness in developing and implementing transportation projects and programs that enrich Brevard County.”

- **Brevard County Vision Statement:**
  - “A community which excels and is recognized for:
    - Providing the health, safety, and education and social needs of our community;
    - Protecting the environment and conserving our valuable natural resources;
    - Building a diverse, strong economic base with the needed infrastructure to support a quality lifestyle;
    - Creating cooperative partnerships between the government, business, community organizations, and our residents; and
    - Maximizing performance and communication to provide excellent service to our customers.”

- **FDOT ITS Vision Statement:**
  - “Be the national leader in ITS by promoting multi-jurisdictional coordination for the provision of an efficient, secure, reliable, and safe transportation system.”

- **FDOT TSM&O Vision Statement:**
  - “To operate our transportation system at the highest level of cost-effective performance.”

After review of the above vision statements, the project team created the following SCTPO ITS Vision statement:

"Maximize the use of the existing Space Coast transportation system by providing increased accessibility, reliability, and safety as part of a fully-integrated multi-modal experience."

"Utilize cost-effective transportation technology to increase the accessibility, reliability, and safety of the Space Coast transportation system as part of a fully-integrated multi-modal experience."
Accessibility, reliability, and safety should be at the forefront of any project, and the ITS Master Plan is no exception. The existing Space Coast transportation system can be built upon and improved to increase these three main themes within Brevard County. Automobile users are considered the primary benefactor of ITS projects but the ITS Master Plan will also include multi-modal elements, most of which will specifically target Space Coast Area Transit (SCAT) and its users.

The Vision was presented and accepted by the SCTPO at the ITS Master Plan Kick-Off Meeting on February 18, 2014. The draft SCTPO ITS Vision statement was presented at the first Steering Committee meeting in order to obtain input and feedback. The ITS Vision statement was accepted by the Steering Committee and used as the guiding principle for the ITS Master Plan.

2.2 Goals Relating to the ITS Master Plan (Updated 2019)

In order to fully realize the ITS Vision and provide a guiding framework for developing the ITS Master Plan, the 2040 Long Range Transportation Plan (LRTP) was reviewed to determine how ITS strategies could support the primary goals outlines in the LRTP. The three primary goals of LRTP are:

1. Enhance Economic Development Through Intermodal Transportation Connections: Implementation of an ITS Master Plan for Brevard County can have a variety of direct and indirect impacts on the economic development of the region. One of the ways this can be done is through improved performance of highway and rail facilities in providing connections to intermodal hubs resulting from the implementation of various ITS strategies.

2. Increase the Range of Community, Housing, and Travel Options: ITS infrastructure will allow Brevard County to leverage their current uniqueness and resources. This can be done by prioritizing access to intermodal facilities and ports. Also, travel options will increase by providing multimodal options including walkable centers.

3. Balance Preservation of the Natural Environment with Economic Development and Livability: ITS infrastructure has the ability to reduce the urban footprint by redirecting growth into existing towns that are being underused and creating compact, walkable communities. One of the ways this can be done is by utilizing a county-wide premium transit network.

2.3 Objectives Relating to the ITS Master Plan

After ITS strategies supporting the three LRTP goals were identified, the objective for these goals were reviewed to determine specific ITS elements which could be reported and measured. These
objectives are separated into primary, objectives directly supported by ITS strategies, and secondary, objectives supported by an ITS strategy applied for a primary

Each objective contained in the LRSP has an associated performance metric, which is pre-defined in the LRSP. For objectives relating to ITS, the ITS Master Plan extends these performance metrics to build a connection between ITS activities and the LRSP. These metrics are described as supplemental “ITS performance measure” in the discussion below. In addition, a performance measure has been identified for each LRTP objective as a starting point for quantifying the goal the objective is targeting. ITS related performance measures have been generated based on the measures outlines for the primary and secondary objectives discussed in this section. The SCTPO will rely on the following performance measures and targets to evaluate progress towards achieving the ITS Master Plan goals and ultimately the goals of the LRTP. To strive for consistency of measurements over time, the SCTPO will set a current baseline data point for each performance measure. Once the baseline is established, the SCTPO can update the performance measures and track progress as a part of the State of the System (SOS) Report.

2.3.1 **Primary** Objectives

The primary-LRTP objectives and corresponding performance measures applicable to the ITS Master Plan are discussed below:

Objective 1.1 – Promote economic development through the improved performance of highway and rail facilities providing connections to intermodal hubs and commerce centers

Measure 1.1.1 – % roadway lane miles of SIS facilities operating at LOS C or better

*ITS Performance Measure(s): Travel Time Index and Planning Time Index of strategic corridors (RITIS and/or Bluetooth data); % arrivals on green (ATSPM)*

Measure 1.1.2 – Number of high-tech jobs

*ITS Performance Measure: N/A*

Objective 1.2 – Improve mobility for people and freight on the regional transportation system within the County

Measure 1.2.1 – % regional roadway lane miles operating at LOS C or better

*ITS Performance Measure: Travel Time Index and Planning Time Index of strategic corridors (RITIS and/or Bluetooth data); % arrivals on green (ATSPM)*

Objective 1.3 – Improve security through improvements to the capacity and efficiency of the County’s evacuation routes

Measure 1.3.1 – Lane miles of designated evacuation routes

*ITS Performance Measure: Lane miles of evacuation routes instrumented for ITS; Travel Time Index during evacuation; % arrivals on green during evacuation.*

Objective 1.4 – Employ operational strategies to optimize the performance of the County’s transportation infrastructure

Measure 1.4.1 – Centerline miles of roadways with ITS infrastructure
Performance Measure: **Uptime of ITS equipment on strategic corridors**

Objective 2.1 – Increase the supply and use of the non-automobile-oriented transportation infrastructure, including transit, sidewalks, bicycle facilities, and trails

- Measure 2.1.1 – Annual transit ridership (1,000s)
- ITS Performance Measure: *on-time or occupant count data from transit system?*
- Measure 2.1.2 – Annual number of bicycle / pedestrian crashes
- ITS Performance Measure: *data from bike/ped counters?*

Objective 2.2 – Improve the safety of County and State infrastructure for motorized and non-motorized users

- Measure 2.2.1 – Annual number of automobile crashes
- ITS Performance Measure: **N/A**

### 2.3.2 Secondary Objectives

The secondary objectives and corresponding performance measures applicable to the ITS Master Plan are discussed below:

Objective 3.1 – Improve air quality by lowering mobile source emissions with energy efficient vehicles and reduced vehicle miles traveled

- Measure 3.1.1 – Annual VMT per capita (miles per day)
- ITS Performance Measure: *User delay cost?*

Objective 3.2 – Promote intergovernmental coordination to redevelop historic communities and concentrate development within multimodal hubs

- Measure 3.2.1 – % of countywide activity units (households plus employment) located in multi-modal hubs
- ITS Performance Measure: **N/A**

#### 2.4 Summary of Goals, Objectives, and Performance Measures

**Figure 2** on the following page summarizes the goals, objectives, and performance measures established for the ITS Master Plan.
<table>
<thead>
<tr>
<th>Goals</th>
<th>Objectives</th>
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Appendix B. Original Pages from Previous ITS Master Plan
2. ITS Visions, Goals & Objectives

Before the development of the ITS Master Plan, vision, goals, and objectives should be established in order to guide the Steering Committee and project team. Performance measures should also be defined in order to track progress towards the goals and objectives established for the ITS Master Plan. The success of the ITS Master Plan will be in the implementation of ITS projects and achievement of established performance measures. The goals, objectives, and performance measures identified in this section will help set the foundation for future success.

2.1. ITS Master Plan Vision

Before establishing goals and objectives for the ITS Master Plan, a clear vision statement should be defined. Vision statements from the SCTPO, Brevard County, the Florida Department of Transportation (FDOT) ITS Program, and the FDOT TSM&O Program, presented below, were reviewed to help the project team develop a SCTPO ITS Vision statement.

- SCTPO Vision Statement:
  - “To become the benchmark planning forum trusted for its leadership and respected for its integrity and inclusiveness in developing and implementing transportation projects and programs that enrich Brevard County.”

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    - Building a diverse, strong economic base with the needed infrastructure to support a quality lifestyle;
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- FDOT ITS Vision Statement:
  - “Be the national leader in ITS by promoting multi-jurisdictional coordination for the provision of an efficient, secure, reliable, and safe transportation system.”
Space Coast TPO ITS Master Plan

- FDOT TSM&O Vision Statement:
  - “To operate our transportation system at the highest level of cost effective performance.”

After review of the above visions statements, the project team created the following SCTPO ITS Vision statement:

“Maximize the use of the existing Space Coast transportation system by providing increased accessibility, reliability, and safety as a part of a fully integrated multi-modal experience.”

Accessibility, reliability, and safety should be at the forefront of any project, and the ITS Master Plan is no exception. The existing Space Coast transportation system can be built upon and improved to increase these three main themes within Brevard County. Automobile users are considered the primary benefactor of ITS projects but the ITS Master Plan will also include multi-modal elements, most of which will specifically target Space Coast Area Transit (SCAT) and its users.

This Vision was presented and accepted by the SCTPO at the ITS Master Plan Kick-Off Meeting on February 18, 2014. The draft SCTPO ITS Vision statement was presented at the first Steering Committee meeting in order to obtain input and feedback. The ITS Vision statement was accepted by the Steering Committee and used as the guiding principle for the ITS Master Plan.

2.2. Goals Relating to the ITS Master Plan

In order to fully realize the ITS Vision and provide a guiding framework for developing the ITS Master Plan, the 2035 Long Range Transportation Plan (LRTP) was reviewed to determine how ITS strategies could support the primary goals outlined in the LRTP. The four primary goals of the LRTP are:

1. Improve Economic Vitality through Better Access and Intermodal Connectivity for People and Goods: Implementation of an ITS Master Plan for Brevard County can have a variety of direct and indirect impacts on the economic vitality of the region. One of the ways this can be done is through improved access and connectivity to Brevard County’s strategic intermodal hubs resulting from various ITS strategies. These ITS strategies include the addition of active arterial traffic management, improved signal timings/signal coordination, and improved real-time congestion management strategies.
2. Improve the Safety and Security of the Transportation System: The safety and security of the transportation system can be enhanced by improving the ITS infrastructure throughout the region. The use of video surveillance, the reduction in average emergency response times, and the reduction of evacuation clearance times can be achievable through ITS infrastructure enhancements.

3. Improve Mobility through Effective Management and Operations of the Transportation System: ITS infrastructure improvements are one of the key drivers for improved mobility throughout Brevard County’s transportation system. ITS strategies such as Dynamic Message Signs (DMS), improved signal timings/signal coordination, Transit Signal Priority (TSP), active arterial traffic management, travel time reliability measurement methods, and improved emergency response procedures can greatly enhance mobility by improving total travel time, travel time reliability, and ease of access.

4. Improve Sustainability and Livability: ITS infrastructure has the ability to significantly impact total hours of delay on the arterial transportation system. ITS can also enhance transit operations and patron information resulting in increased ridership with the added byproduct of fewer cars. With improved ITS infrastructure, greenhouse gas emissions will be reduced, improving sustainability and livability in the region. ITS improvements outlined in Goals 1 through 3 will also support overall sustainability and quality of life in Brevard County.

2.3. Objectives Relating to the ITS Master Plan

After ITS strategies supporting the four LRTP goals were identified, the objectives for these goals were reviewed to determine specific ITS elements which could be reported and measured. These objectives are separated into primary, objectives directly supported by ITS strategies, and secondary, objectives supported by an ITS strategy applied for a primary objective.

In addition, a performance measure has been identified for each LRTP objective as a starting point for quantifying the goal the objective is targeting. ITS related performance measures have been generated based on the measures outlined for the primary and secondary objectives discussed in this section. The SCTPO will rely on the following
performance measures and targets to evaluate progress towards achieving the ITS Master Plan goals and ultimately the goals of the LRTP. To strive for consistency of measurements over time, the SCTPO will set a current baseline data point for each performance measure. Once the baseline is established, the SCTPO can update the performance measures and track progress as a part of the State of the System (SOS) Report.

2.3.1 Primary Objectives
The primary LRTP objectives and corresponding performance measures applicable to the ITS Master Plan are discussed below:

Objective 2.3 – Increase the number of roadway miles under surveillance by 50%

Measure: 2.3.1 – Number of roadway miles under surveillance

ITS Performance Measure: The total number of Brevard County non-limited access facility roadway miles under surveillance should be used to measure this objective. Based on the 2035 LRTP, this data has yet to be collected. Approximately 40 total miles of surveillance were installed as a part of the FDOT Daytona Area Smart Highway (DASH) projects, 30 to 35 miles of which are in Brevard County. The Brevard County ITS plan, the FDOT 511 website, and other Brevard County agency resources can be used to determine the baseline conditions for this measure. These resources, in addition to meetings with various Brevard County area stakeholders, will provide an accurate baseline number to be compared to future conditions.

Objective 3.1 – Reduce system wide delay for cars, trucks, and transit

Measure 3.1.1 – Vehicle hours of delay (VHD) on the system

ITS Performance Measure: Average VHD per person per day is used to measure progress towards objective 3.1 in the 2035 SCTPO LRTP. In 2011, total delay per person on the system was nine minutes. Based on projected population and traffic volumes in 2035, the anticipated target delay is 15 minutes (0.25 hours) per person. This
statistic should be used to measure the possible impact future ITS improvements have on delay conditions in Brevard County. Those corridors having the highest delay can be identified for future ITS improvements.

Examples of other jurisdictions having implemented programs aimed at reducing delay include the following:

- The Georgia Department of Transportation (GDOT) Regional Traffic Operations Program (RTOP) reported the following after just 16 months (reference GDOT RTOP ConOps):
  o Reduced number of stops by 8.3%;
  o Traffic Volume Increased by 9%;
  o Eliminated 1.4 million hours of delay;
  o Reduced stopped time delay by 12%; and
  o Saved 700,000 gallons of fuel.

- Los Angeles reportedly synchronized all of their signals and reported a city wide average speed increase of 16% and major intersection delay decrease of 12%.

- The AAM oriented FDOT Statewide Needs Plan estimated the following:
  o Average reduced delay due to adequate and sufficient signal retiming of 8% annually;
  o Average reduced delay of 3% annually due to the implementation of Adaptive Traffic Control Systems (ATCS); and
  o Average incident reduction of 20-25% during incidents.

Objective 3.2 – Reduce corridor delay for cars, trucks, and transit with traffic management

Measure 3.2.1 – Percent of corridors actively monitored or managed

ITS Performance Measure: The number of corridors actively monitored and/or managed (in lane-miles) is used to measure objective 3.2 in the 2035 SCTPO LRTP. In 2011, the total amount of actively monitored/managed corridor miles on the system was 10 lane-miles. In 2035, the anticipated target is 240 lane-miles. This statistic should be used to measure the breadth of ITS implementation in the Brevard County area.
Objective 3.3 – Improve reliability and predictability of travel

Measure 3.3.1 – Variability of travel time on priority corridors

Performance Measure: Based on the 2035 LRTP, this data is yet to be collected. Various methods are used across the country to measure travel time reliability, most of which require ITS infrastructure (i.e. continuous vehicle speed data collection). Travel time reliability/predictability can also be measured using the following annual data that is more accessible based on current ITS conditions in Brevard County:

- Average incident response time (coordinate with local fire and police services, see also secondary Measure 2.2.1);
- Miles of actively monitored/managed lanes (see also primary Measure 3.2.1);
- Miles and average duration of lane closures;
- Weather, special events; and
- Crashes per lane mile (collected as part of Annual Countywide Safety Report).

It is recommended the SCTPO work with local Brevard County agencies to implement the regular collection of one or more of the data sources above.

Objective 3.4 – Improve real time transit management

Measure 3.4.1 – Percent of transit routes with real time monitoring or management

ITS Performance Measure: Currently there are no transit routes in Brevard County with real-time monitoring or management. However, as real-time transit management methods are added, progress toward achieving this objective can be measured by calculating the percentage of transit routes which have incorporated real time monitoring methods. The SCTPO should coordinate with SCAT to obtain this data as time progresses.

Objective 3.5 – Improve real time traffic and transit information

Measure 3.5.1 – Percent of travelers with access to real time traffic/transit information

ITS Performance Measure: It is suggested the SCTPO conduct a traveler survey (vehicle and transit users) to determine what percentage of travelers currently have access to traffic and transit information. This traffic and transit information includes parking
availability information, DMS, next bus technology, and real-time congestion information, among other information. After ITS improvements are made, a traveler survey should be conducted to determine progress toward this objective.

2.3.2 Secondary Objectives
The secondary objectives and corresponding performance measures applicable to the ITS Master Plan are discussed below:

Objective 1.4 – Maintain the connectivity of intermodal hubs (seaport, airport, spaceport, transit and rail stations)

Measure 1.4.1 – VHD on the system.

ITS Performance Measure: Not unlike Measure 3.1.1, VHD per person can be used to measure progress towards objective 1.4 in the 2035 SCTPO LRTP. When trying to maintain connectivity to the intermodal hubs, tracking delay of freight movement into and out of the intermodal hubs should be a focus. Port Canaveral, one of the largest ports in Florida, serves as both an import/export port along with a thriving cruise industry. Minimizing delay along FDOT maintained Strategic Intermodal System (SIS) facilities will enhance freight movement and get cruise passengers to the Port more efficiently. Coordination of ITS improvements along SIS facilities will need to take place with the FDOT.

Delay on the system can also impact transit and high demand corridors which may connect to intermodal hubs. ITS strategies such as Automatic Vehicle Location (AVL) and TSP will help improve transit flows, making the intermodal hubs more accessible. As with Measure 3.1.1, the anticipated target delay of 15 minutes per person should be used to measure the possible impact future ITS improvements have on delay conditions near and around the intermodal hubs.
Objective 2.2 – Reduce average response times by 10% for each priority crash type (aggressive driving, intersection crashes, vulnerable road users and lane departures)

Measure 2.2.1 – Average crash response and clearance times by crash type

ITS Performance Measure: Based on the 2035 LRTP, this data is yet to be collected. An effort should be taken by the SCTPO to coordinate with Brevard County emergency response departments to obtain information on average response times seen for aggressive driving crashes, intersection crashes, vulnerable road user (bicycle and pedestrian) crashes, and lane departure crashes. Average response times can be obtained to establish a baseline (existing) condition to compare future average response and clearance times after ITS strategies have been implemented.

Objective 2.7 – Improve ability to evacuate during an emergency event with reduced clearance times and increased capacity during evacuations.

Measure 2.7.1 – Evacuation clearance times

ITS Performance Measure: Based on the 2035 LRTP, this data is yet to be collected. An effort should be taken by the SCTPO to coordinate with Brevard County emergency service agencies to determine this statistic along critical evacuation routes, as identified in the SOS Report. Any recorded data from previous evacuation emergency events should be reviewed to determine a baseline condition. After ITS strategies are implemented, evacuation clearance times should be measured to quantify the potential impact ITS improvements have had on evacuating the County.

Measure 2.7.2 – Evacuation roadway capacity

ITS Performance Measure: Evacuation roadway capacity should also be used to measure the possible impact future ITS improvements can have on the ability to evacuate residents in Brevard County. Using FDOT Quality/Level of Service criteria, evacuation routes should be analyzed to determine generalized, planning-level evacuation capacity (and capacity deficiencies) in the baseline (current) and future year conditions. As part of this analysis, lane reversal of evacuation roadways should be reviewed.
Objective 4.1 – Reduce greenhouse gas emissions

Measure 4.1.2 – Per capita greenhouse gas emissions from mobile sources and vehicle miles of travel (VMT) per person

ITS Performance Measure: The two methods of measurement outlined by the 2035 LRTP to quantify reductions in greenhouse gas emissions are per capita greenhouse gas emissions from mobile sources and VMT per person. When corridor ITS improvements are made, the number of vehicle stop-starts is decreased, resulting in decreased carbon emissions along the corridor. *The National Emissions Inventory* (collected by the Environmental Protection Agency [EPA]) aggregates carbon monoxide emissions (from mobile sources) data on a county-by-county basis. This data can be used to compare the baseline (2011) condition of 89,373 tons of total carbon monoxide emissions to future year conditions after ITS improvements are made.

Vehicles miles of travel per person should also be used to measure the possible impact future ITS improvements can have on reducing greenhouse gas emissions in Brevard County. This data can be calculated from the annual SOS Report.

2.4. **Summary of Goals, Objectives, and Performance Measures**

*Figure 2* on the following page summarizes the goals, objectives, and performance measures established for the ITS Master Plan.
## GOALS

1. **Improve Economic Vitality**

2. **Improve Safety and Security of System**

3. **Improve Mobility through Management and Operations**

4. **Improve Sustainability and Livability**

## OBJECTIVES

1.4 **Maintain connectivity of intermodal hubs (seaport, airport, spaceport, transit and rail stations)**

2.2 **Reduce average response time by 10% for each priority crash type**

2.3 **Increase roadway miles under surveillance by 50%**

2.7 **Improve ability to evacuate during an emergency event with reduced clearance times and increased capacity during evacuations**

3.1 **Reduce system wide delay for cars, trucks, and transit**

3.2 **Reduce corridor delay for cars, trucks, and transit with traffic management**

3.3 **Improve reliability and predictability of travel**

3.4 **Improve real time transit management**

3.5 **Improve real time traffic and transit information**

4.1 **Reduce greenhouse gas emissions**

## MEASURES

1.4.1 **Vehicle hours of delay on the system**

2.2.1 **Average crash response and clearance times by crash type**

2.3.1 **Number of roadway miles under surveillance**

2.7.1 **Evacuation clearance times**

2.7.2 **Evacuation roadway capacity**

3.1.1 **Vehicle hours of delay on the system**

3.2.1 **Percent of corridors actively monitored or managed**

3.3.1 **Variability of travel time on priority corridors**

3.4.1 **Percent of transit routes with real time monitoring or management**

3.5.1 **Percent of travelers with access to real time traffic/transit information**

4.1.2 **Per capita greenhouse gas emissions from mobile sources and vehicle miles of travel per person**

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**Figure 2 – ITS Master Plan Goals, Objectives, and Performance Measures**