

# ESCAMBIA/SANTA ROSA

## Regional Advanced Traffic Management System



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GRANT REQUEST: \$19.5M  
GRANT TYPE: URBAN

### *Financial Information Summary*

|                                     |                      |            |
|-------------------------------------|----------------------|------------|
| <b>Total Remaining Project Cost</b> | <b>\$ 24,381,110</b> |            |
| <b>BUILD Grant Request</b>          | <b>\$ 19,504,888</b> | <b>80%</b> |
| <b>Estimated Federal Match</b>      | <b>\$ 0</b>          |            |
| <b>Estimated Local Match</b>        | <b>\$ 0</b>          |            |
| <b>Estimated FDOT Match</b>         | <b>\$ 4,876,222</b>  | <b>20%</b> |
| <b>Total Federal Contribution</b>   | <b>\$ 19,504,888</b> | <b>80%</b> |



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## *List of Supporting Documentation*

1. Escambia County Resolution No. 2016-54
2. Santa Rosa County Resolution No. 2016-27
3. City of Pensacola Resolution No. 19-16
4. City of Milton Resolution No. 1365-16
5. City of Gulf Breeze Resolution No. 21-16
6. Emerald Coast Regional Planning Council Letter of Support
7. Florida-Alabama TPO Letter of Support
8. Escambia County Memorandum of Agreement
9. Santa Rosa County Memorandum of Agreement
10. City of Pensacola Memorandum of Agreement
11. City of Milton Memorandum of Agreement
12. City of Gulf Breeze Memorandum of Agreement
13. FDOT Work Program
14. Escambia County Corridors Long Range Estimate
15. Santa Rosa County Long Range Estimate
16. Florida-Alabama TPO Long Range Transportation Plan
17. Detailed Crash Data and Analysis
18. Escambia/Santa Rosa Regional Advanced Traffic Management System Feasibility Study and Implementation Plan
19. Escambia Santa Rosa County ATMS Environmental Review
20. Detailed Cost Summary
21. Benefit Cost Analysis Spreadsheet
22. Benefit Cost Technical Memo

[Direct link to access Supporting Documentation](#)





## 1. Project Description

Escambia and Santa Rosa counties are located at the western limits of Florida, along the Gulf Coast. The counties are a mix of rural and urban areas, with the City of Pensacola as an urban area in accordance with the 2010 Census. The area includes a deep-water sea port, the Pensacola International Airport, multiple military installations as well as tourist attractions anchored by the coastal areas. The area has attracted numerous industries, with the Navy Federal Credit Union supporting large employment opportunities. The population of Escambia county has experienced a population growth of approximately 6% between 2010 and 2018, with Santa Rosa county growing approximately 18% during the same period, with a combined urban and rural population of approximately 450,000.

The Florida Department of Transportation (FDOT) has invested significant funding in the area, with multiple interchange reconstruction projects along Interstate 10 (I-10) in various stages of design and construction as well as the replacement of the Pensacola Bay Bridge, a \$400 million-dollar project connecting the City of Pensacola with the City of Gulf Breeze.

However, even with the current investments, this region suffers from congestion, safety, and economic development issues. The Escambia/Santa Rosa Advanced Traffic Management System (ATMS) project consists of the next generation traffic signal systems, connected vehicle (CV) technologies, and intelligent transportation systems (ITS) devices and infrastructure to enable real-time monitoring, active traffic management, and enhanced safety. This project will establish a modern and unified ATMS to facilitate cooperative regional traffic operations – a concept supported by all local agency stakeholders. This new ATMS with Advanced Traffic Signal Performance Measures (ATSPM), CV and ITS technologies will allow for active arterial management (AAM) and ensure that the regional infrastructure meets the demands for efficiency, mobility, accessibility, and economic growth for today and for the future.

This application supports on-going efforts, supported by the Florida Department of Transportation (FDOT) District Three, Escambia County, Santa Rosa County, and the cities of Pensacola, Milton, and Gulf Breeze. The initial phase of the overall program was completed in 2015, which includes portions of State Road 296, US 29 and SR 295. This grant support will help build the implementation of an additional six corridors identified in the Escambia/Santa Rosa Regional ATMS Feasibility Study and Implementation Plan (Implementation Plan), which is included in the [Supporting Documentation](#). These agencies have individually and cooperatively installed, operated, and maintained well over 300 traffic signal systems in the region.

FDOT is requesting \$19.5 million grant award with a 20% match to help develop this state of the art ATMS system for the Gulf region. This effort is truly a regional collaboration where the project is also identified under the Transportation Improvement Program (TIP) to help support the regional goals.

### 1.1. Project Details

The BUILD Grant will enable FDOT to advance:





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- Broadband fiber optic network interconnection of a large majority of these signal systems, replacing the old and obsolete aerial copper interconnect that is vulnerable to damage from storms;
- State-of-the-art implementation of a regional traffic management system to replace existing isolated and obsolete closed-loop signal control systems;
- Traffic signal controllers updated to support modern transportation systems management and operations (TSM&O), including active arterial management and integrated corridor management as well as unified operation by a joint operations team comprised of staff from each participating agency;
- Closed-circuit television (CCTV) cameras strategically installed to support corridor management and traffic incident management from multiple locations, including the District Three Regional Transportation Management Center (RTMC) and local agency traffic signal operations centers;
- Vehicle detection and data collection systems deployment to enable monitoring and reporting of signal performance measures and arterial travel times;
- Existing traffic signal operations centers upgrades to include operator consoles, video displays, CCTV camera controls, and center-to-center connections with the FDOT RTMC for video sharing and cooperative handling of planned and unplanned traffic events;
- Upgraded signal control systems and modern TSM&O strategies for use by the counties and cities responsible for operation and maintenance of signals to improve operations and maintenance throughout the region; and
- Future connected and autonomous vehicle technologies support.

Active arterial management (AAM) ranges from basic signal maintenance to the ability to have FDOT or other operators adjust signal timings in “real-time” or coordinate with first responders depending on actual roadway conditions and special events. The goal of AAM is to maximize the investment that FDOT has already made on traffic signal and ATMS to help achieve their mission. AAM is basically composed of ITS devices deployed on arterial roadways and upgraded traffic controller equipment. AAM requires installation of a fiber network that will allow FDOT and local agencies to monitor the arterial network. Proposed equipment and operations will facilitate monitoring of areas with congestion on a real-time basis and allow signal operators and engineers to adjust traffic signal timing at any location from a remote point, respond to incidents, communicate with emergency responders, etc.

## 1.2. Expected Users

A broad range of intermodal travelers will benefit from implementation of the Escambia/Santa Rosa Regional ATMS as envisioned and described in the *Escambia/Santa Rosa Regional ATMS Feasibility Study and Implementation Plan* of 2017. These include:

- **Transit Riders:** Transit riders will benefit from improved travel time and travel-time reliability. Twenty-one bus transit routes in Escambia County and five bus transit routes in Santa Rosa County will benefit from the project. Escambia County Area Transit (ECAT) provides citizens with safe, convenient, and affordable transportation at over 1,500 bus stops covering 285 miles of routes. The ECAT system currently provides fixed-route bus service as well as the seasonal Pensacola Beach trolley, University of West Florida on-campus trolley, and Americans with Disabilities Act paratransit transportation. These





transit systems and routes will directly benefit from improved traffic signal operation on the major corridors in the region.

- **Automobile Drivers and Occupants:** Occupants on nearly 109 miles of signalized roadways in Escambia County and 41 miles of signalized roadways in Santa Rosa County will benefit from reduced congestion, delay, and crashes, Air quality and travel-time reliability will also improve for automobile drivers and commercial vehicle operators. The ATMS corridors also serve employment, commercial, and retail centers located in the City of Pensacola. US-90, SR-289, and SR-296 provide access for nearly 1.5 million passengers per year traveling through Pensacola International Airport.
- **Commercial Vehicles and Shippers:** US-90 provides an alternate route to I-10 through the City of Pensacola and access to population centers and air and sea ports. I-110 and US-98 provide access to the Port of Pensacola, northwest Florida’s leading deep-water port. The 50-acre facility offers a Foreign Trade Zone and an Enterprise Zone as well as stevedoring and marine terminal services for bulk, break-bulk, and unitized freight.
- **Emergency Responders:** In recent years, multiple hurricanes, and other major storms have directly impacted or threatened the Gulf Coast Florida Panhandle area. Twenty-one Escambia County corridors and all five Santa Rosa County corridors serve as evacuation routes. Emergency responders will have access to CCTV images and traffic information associated with traffic incidents, allowing responders to more quickly respond and select the quickest response route.
- **Access to Military Facilities:** Santa Rosa County is in the middle of one of the most active air traffic zones in the world, surrounded by military aviation installations and growing commercial operations. The area’s proximity to military-related research, development, and testing has created an emerging cluster of information technology and aerospace companies. Access to military facilities will benefit from reduced congestion, quicker clearance of traffic incidents, and improved travel-time reliability. Santa Rosa County is the home to Naval Air Station Whiting Field, Naval Outlying Field Spencer Field, and the former Ellyson Field.

### 1.3. Transportation Challenges

Escambia and Santa Rosa counties are the westernmost counties in the State of Florida. The population of Escambia County is 297,619 (US Census Bureau, 2010), most of whom live in or near the City of Pensacola.

In Escambia County, the highest traffic volume routes include 109 miles of roadways that experience moderate to severe level of service (LOS), with fifty-five percent of these congested miles experiencing severe congestion associated with LOS D and F.

The population of Santa Rosa County is 151,372 (US Census Bureau, 2010), mostly in or near Milton and the coastal areas in and around Gulf Breeze. The 25 highest volume ATMS routes in Escambia County have an annual average daily traffic (AADT) of 17,770 while the five highest volume routes in Santa Rosa County have an AADT of 27,200. Santa Rosa County is bordered by the Gulf of Mexico on the south and Pensacola Bay and Escambia River on the west. The highest traffic volume routes include 26.6 miles of roadways that experience moderate to severe LOS, with





eighty-one percent of these congested miles experiencing severe congestion associated with LOS D, E, and F.

The Emerald Coast Regional Planning Council (ECRC), formerly known as the West Florida Regional Planning Council, includes the Florida-Alabama Transportation Planning Organization (TPO), which is an independent regional transportation planning agency for Escambia and Santa Rosa counties and portions of Baldwin County in Alabama. The ECRPC and TPO partner with agencies, governments, and the public to identify and prioritize mobility needs, develop mobility plans and programs, seek and coordinate funding, and assemble resources through outreach and consensus building. The Florida-Alabama TPO 2040 Long-Range Transportation Plan (LRTP) is included in the [Supporting Documentation](#). The LRTP identifies transit enhancements and arterial ITS improvements as major strategies to improve quality of transportation and life in the two counties. Specifically, the LRTP contains the following goals and objectives that the proposed ATMS improvements will directly or indirectly support:

- Goal A: A transportation system that is safe and secure.

Project Impact: Encourage a safe, secure, and energy-efficient “multi-modal” and “inter-modal” transportation system for movement of goods and people through use of advanced traffic control technology and systems.

- Goal B: A transportation system that meets user needs.

Project Impact: Operate the major road network at acceptable Level of Service (LOS) in accordance with FDOT policy and LOS standards established in locally-adopted comprehensive plans. Encourage and promote mass transit use to increase ridership while reducing the number of single-occupant vehicles on the counties’ roadways and as a primary means of travel for the transportation disadvantaged population.

- Goal C: A transportation system that is maintained and operated efficiently.

Project Impact: Protect roadway capacity, optimize operating efficiency, enhance safety of transportation facilities, and reduce congestion through the application of ITS, system management, and demand management strategies.

- Goal D: A transportation system that is multimodal, integrated, and connected.

Project Impact: Ensure the safe accommodation of motorized and non-motorized traffic while reducing the incidence of vehicular conflicts within the counties’ major transportation corridors through technology and advanced traffic control measures.

- Goal E: A transportation system that supports economic vitality.

Project Impact: Contribute to the economic vitality of the TPO region through provision of a transportation system that provides for effective movement of people and goods to and from major employment centers and intermodal facilities in urban and transitioning areas.

- Goal F: A transportation system that supports a high quality of life respectful of the environment, public health, and vulnerable users.

Project Impact: Enhance quality of life factors that will attract industry and skilled workers and assist disabled and elderly populations. Promote a sustainable, integrated





transportation infrastructure system that is environmentally friendly. Reduce traffic congestion and provide environmental benefits to air quality and highway traffic noise by decreasing the use of single-occupant vehicles at peak hours and reducing idle time by heavy trucks.

- Goal G: A transportation system that includes consistent, continuing, cooperative, and comprehensive planning processes.

Project Impact: Facilitate efficient transportation systems and use of technology to support future land use changes that align with local, state, and federal goals and ensure consistency with the Strategic Regional Policy Plan developed by the ECRC and local agencies.

Future transit projects that include express bus route, commuter rail route, and ferry service route can be viewed in the LRTP included in the [Supporting Documentation](#), as well.

Furthermore, hurricanes have been common events in Escambia and Santa Rosa counties in recent years. The storm surge from a severe hurricane could potentially flood coastal areas of both counties. For this reason, the counties take their responsibility for declaring and managing evacuations very seriously. The regional ATMS will be able to provide emergency evacuation managers with up-to-date information on road conditions to optimize evacuation safety and efficiency.

#### 1.4. How the Project Addresses the Challenges

Implementation, operation, and maintenance of the Escambia/Santa Rosa Regional ATMS will be a cooperative effort between FDOT District Three, Escambia County, Santa Rosa County, the City of Pensacola, the City of Gulf Breeze, and the City of Milton. The regional ATMS project addresses transportation challenges as follows:

- *Active monitoring and management of traffic* on arterial corridors will minimize impacts of recurring congestion, reducing stops and speed changes, resulting in fewer crashes, improving air quality, and reducing fuel consumption;
- *Improving traffic incident response and management* will result in reduced congestion associated with planned and unplanned events. This will reduce stops, reduce the potential for secondary incidents, reduce fuel consumption, and improve air quality;
- *Active support for coastal evacuations* will reduce delays due to congestion;
- *Reducing time* spent stopped at red lights will improve air quality and reduce fuel consumption;
- *Improving bus and freight travel times and travel-time reliability* will potentially increase transit use for both necessary and discretionary trips as well as support economic growth and freight movement; and
- Providing regional traveler information to [www.FL511.com](http://www.FL511.com) and commercial traveler information providers such as Google and Nokia will allow regional travelers to make travel time and route choices to better meet their personal and business needs.

This grant will build on the foundation of the area's existing investment in regional transportation management and continue to improve access to employment and commercial centers and tourist attractions throughout the region.





# Escambia/Santa Rosa Regional Advanced Traffic Management System

## 2. Project Location

FDOT District Three is the grant applicant. District Three represents Florida's Panhandle with 1.4 million residents spread over 16 counties and 11,500 square miles. Each day motorists travel more than 26.1 million miles on state roads. Four rail lines and three deep-water ports, including one in Pensacola, help move goods into, through and out of District Three. There are 80 airports to accommodate airborne travel, including Pensacola International Airport in Escambia County. FDOT provides funding to assist the two major transit authorities, including ECAT, aiding those who rely on or choose to use public transportation. District Three is ultimately responsible for managing transportation along the State Highway System, including Interstate, US, and state routes. They are tasked with the safe and efficient movement of people and goods and, as such, they oversee the operation of traffic control devices including traffic signals. However, they do not directly maintain signals. District Three implements maintenance agreements with local jurisdictional agencies including Escambia and Santa Rosa counties and the cities of Pensacola, Milton, and Gulf Breeze.

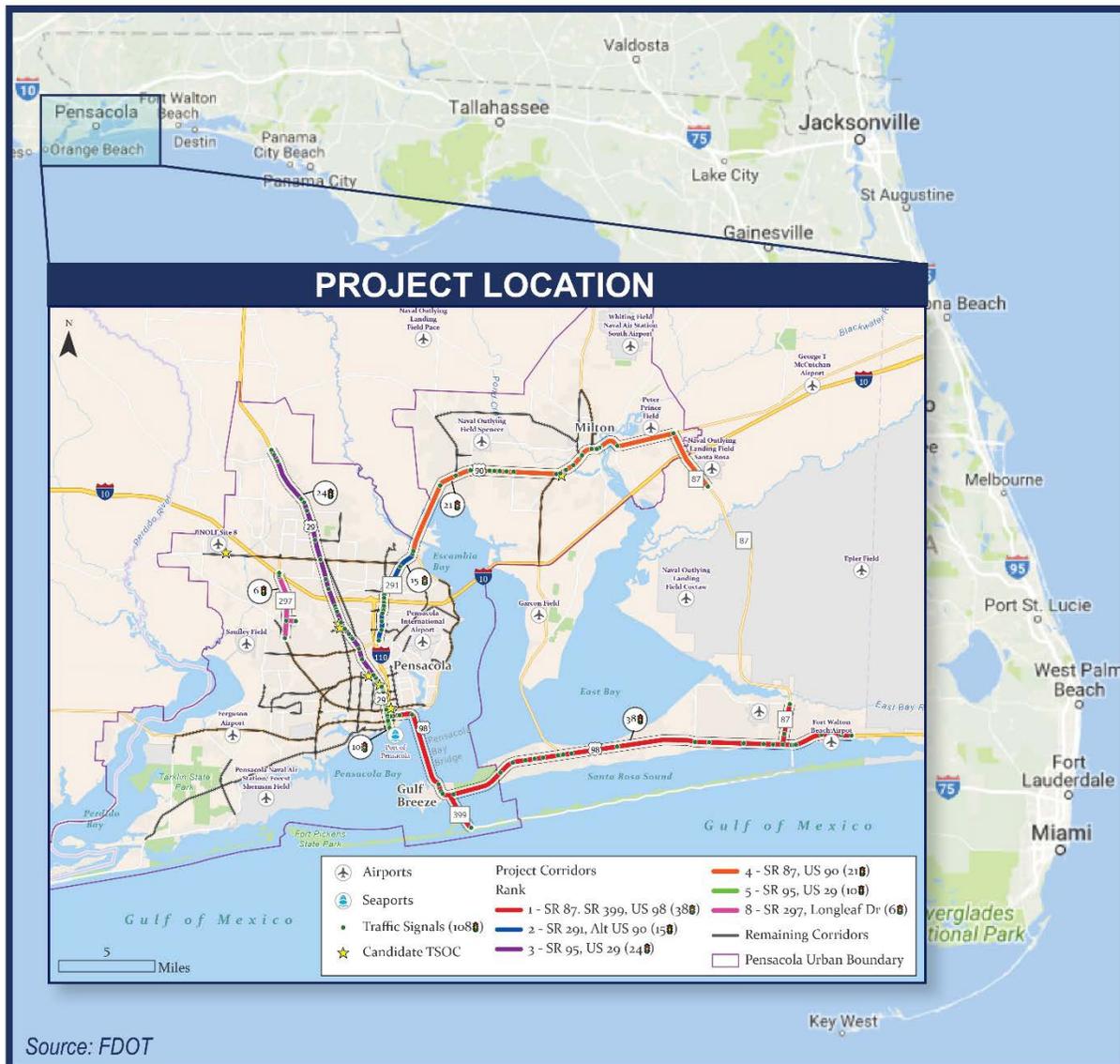




Figure 1. Project Location Map

### 3. Grant Funds, Sources, and Uses of Project Funding

FDOT has expended \$1,840,001 on construction of the first phase of the ATMS program. An additional \$392,911 was used for the development of the Implementation Plan for the remaining thirty-five corridors identified. The full implementation plan, with ranked corridors, shown below in Figure 2 and Table 1, includes the projects included in this grant application.

All of the corridors identified in the Implementation Plan are in candidate status but remain unfunded as necessary to complete construction. If awarded the 2019 BUILD Grant, FDOT will commit to programming the corridors shown in the Table 1. The estimated cost for these corridors of the Escambia/Santa Rosa Regional ATMS is \$24.38 million with a detailed project cost summary provided in the [Supporting Documentation](#).



Figure 2. Proposed Project Corridors in Relation to the Implementation Plan





Table 1. Proposed ATMS Corridors

| # | Corridor   | From                        | To   | County   | Length (mi) | AADT  | Intersections |
|---|--|-----------------------------|--|----------|-------------|-------|---------------|
| 1 | Gregory Street/<br>Pensacola Bay<br>Bridge (US-98)/<br>Gulf Breeze Pkwy/<br>Navarre Pkwy | Palafox St<br>(US-29)       | Orion Parker Dr                              | Both     | 28.0        | 37656 |               |
| 1 | Pensacola Beach<br>Blvd (SR-399)/<br>Bob Sikes Bridge                                    | Gulf Breeze<br>Pkwy (US-98) | Fort Pickens Rd/<br>Via Deluna Dr            | Both     | 2.2         | 25500 | 32            |
| 1 | Stewart St<br>(SR-87)  | Navarre Pkwy<br>(US-98)     | East Bay Blvd/<br>CR-399/<br>Turkey Bluff Rd | Both     | 2.1         | 9882  |               |
| 2 | Davis Hwy<br>(SR-291)  | Brent Ln<br>(SR-296)        | 9 Mile Rd<br>(US-90)/<br>SR-10A              | Escambia | 4.5         | 32184 | 15            |
| 2 | 9 Mile Rd/Davis<br>Hwy (Alt US-90)   | Davis Hwy<br>(SR-291)       | Scenic Hwy<br>(US-90)                        | Escambia | 0.4         | 22447 |               |
| 3 | N. Palafox St/<br>Pensacola Blvd<br>(US-29) (SR-95)                                      | E. Fairfield Dr<br>(SR-295) | Morris Ave<br>(CR-95A)                       | Escambia | 13.2        | 29733 | 24            |
| 4 | US-90  | Alt US-90<br>(SR-10A)       | SR-87  | Both     | 17.1        | 27140 | 21            |
| 4 | SR-87  | Caroline St<br>(US-90)      | Nichols Lake Rd                              | Both     | 3.3         | 11609 |               |
| 5 | Palafox St<br>/US-29<br>(SR-95)  | Main St<br>(CR-196)         | Texas Dr<br>(SR-752)                         | Escambia | 2.7         | 9381  | 10            |
| 8 | Pine Forest Rd<br>(SR-297)   | Mobile Hwy<br>(US-90)       | Interstate 10                                | Escambia | 3.3         | 26190 | 6             |
| 8 | Longleaf Dr  | Pine Forest Rd<br>(SR-297)  | Community Dr                                 | Escambia | 0.5         | 18453 |               |





# Escambia/Santa Rosa Regional Advanced Traffic Management System

FDOT has committed \$4.9 million (20 percent) in funding for this project with the remaining \$19.5 million (80 percent) requested as BUILD Grant funding. An original copy of the funding commitment letter is included in the [Supporting Documentation](#).

Funding commitments and how funds will be spent for the project are also outlined in the [Supporting Documentation](#). FDOT’s portion of the project (\$4.9 million) will be spent on the total estimated amounts for Traffic Signal Controller Upgrades and the CEI and Technical Support Consultants. FDOT anticipates funding will be available approximately nine months after receipt of the grant, as establishing contracts for the design and construction is estimated to take approximately nine months.

Table 2 also illustrates the portion of funding spent on the first phase as well as the total required for completion of the program, with a remaining cost of \$53.5 million to complete with the inclusion of this grant.

Table 2. Project Cost Summary and Estimated Funding Sources

| Phase   | Federal       | State        | Total         |
|---|---------------|--------------|---------------|
| <b>Feasibility Study and Implementation Plan</b>        |               | \$ 392,911   | \$ 392,911    |
| <b>ATMS Phase 1 Design Build</b>                        |               | \$ 1,571,463 | \$ 1,571,463  |
| <b>ATMS Phase 1 Construction Engineering Inspection</b> |               | \$ 186,497   | \$ 186,497    |
| <b>ATMS Phase 1 Initial Timing</b>                      |               | \$ 213,551   | \$ 213,551    |
| Preliminary Engineering                                 |               | \$ 310,000   | \$ 310,000    |
| Construction  | \$ 19,504,888 | \$ 225,529   | \$ 19,730,417 |
| Construction Support                                    |               | \$ 4,340,693 | \$ 4,340,693  |
| Total Project Cost                                      | \$ 19,504,888 | \$ 4,876,222 | \$ 24,381,110 |
| Total Program Cost                                      |               |              | \$ 80,331,537 |
| Remaining Program Cost                                  |               |              | \$ 53,586,005 |

Note: Costs in bold text rows are previously-incurred, expended or encumbered and not included in match.





Table 3. Grant Match Matrix

|                              |               |     |
|------------------------------|---------------|-----|
| Total Remaining Project Cost | \$ 24,381,110 |     |
| BUILD Grant Request          | \$ 19,504,888 | 80% |
| Estimated Federal Match      | \$ 0          |     |
| Estimated Local Match        | \$ 0          |     |
| Estimated FDOT Match         | \$ 4,876,222  | 20% |
| Total Federal Contribution   | \$ 19,504,888 | 80% |

The proposed corridors included within this grant application will be funded through state funds at 20 percent of the cost (as shown in Table 3). FDOT is seeking \$19.5 million towards grant support to pay for 80 percent of the individual project cost or 24 percent of the total program cost.

As seen in Figure 3 below, this project supports the overall investment FDOT is making in Escambia and Santa Rosa counties as part of their five-year work program. The Figure below shows the priority corridors of this grant application in relation to additional planned improvements by FDOT.



Figure 3. Proposed Project Corridors in Relation to FDOT Programmed Projects





4. Selection Criteria

4.1. Primary Selection Criteria

4.1.1. Safety

The modern ATMS proposed for the region is planned to include multiple framework components to improve safety. Corridor and regional ATMS projects are proven to have beneficial impacts on the safe movement of goods and people. Studies regarding countermeasures to address the project challenges has shown reductions of rear-end and right-angle crashes in urban areas. The results of these studies, for the following types of countermeasures, show improvements of 12.7 percent from signal priority, 34 percent from adaptive signal control technology, 19 percent from variable speed limit, and 23 percent from traveler information center. ATMS projects are linked to crash reduction rates as high as 50 percent.

A safety analysis was conducted on the corridors in this project for three years (2016-2018). Most crashes occurred around traffic signals and other traffic control elements along the corridors. There were 3,361 crashes during the analysis period with 1,460 injury crashes and 34 fatal crashes as shown in Table 4. The annual average crashes were 1,620. The crashes are concentrated around the traffic control elements at the intersections.

Table 4. Crash Data Summary for All Crashes on the Project Corridors

| Crashes on Corridors<br>(2016-2018) | Fatal | Injury | Property Damage Only |
|-------------------------------------|-------|--------|----------------------|
| 1                                   | 8     | 520    | 1,292                |
| 2                                   | 5     | 275    | 749                  |
| 3                                   | 7     | 281    | 533                  |
| 4                                   | 9     | 261    | 522                  |
| 5                                   | 1     | 37     | 104                  |
| 8                                   | 4     | 86     | 161                  |
| Total Crashes                       | 34    | 1,460  | 3,361                |



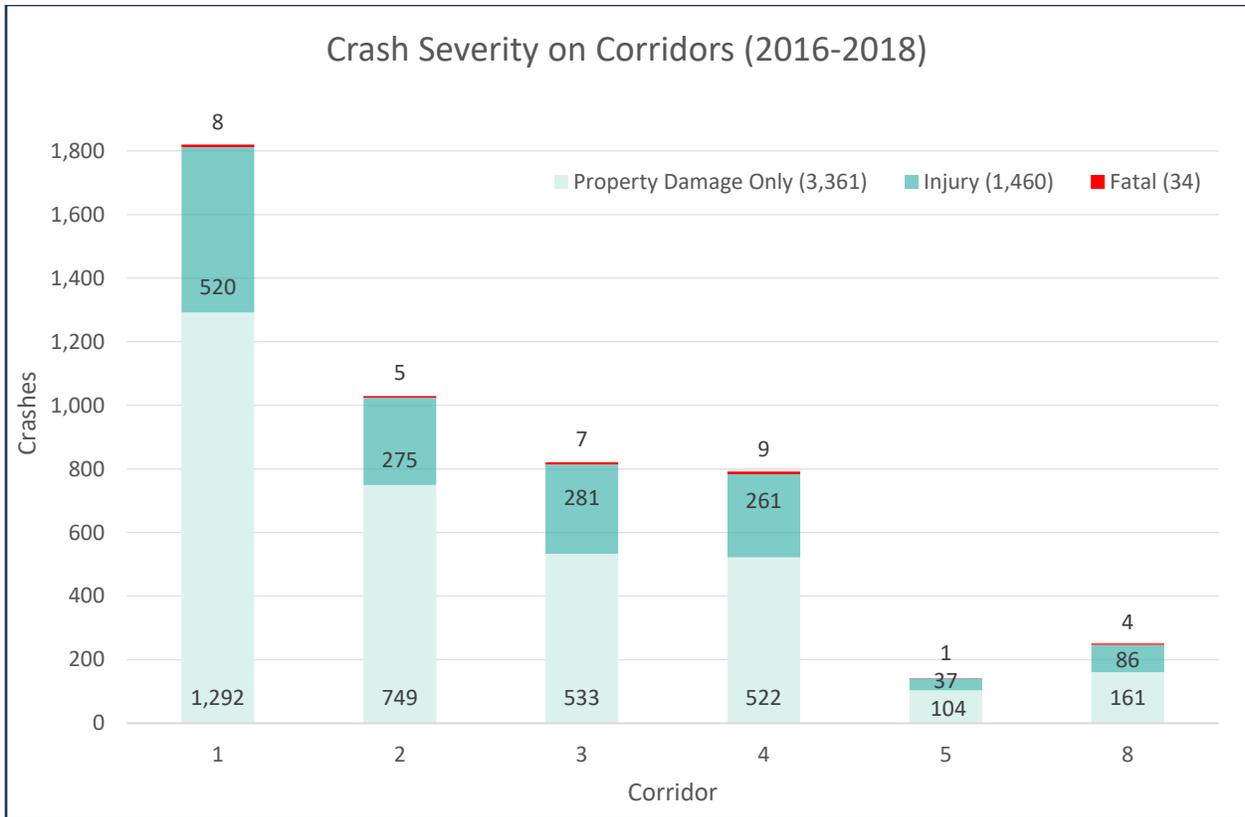


Figure 4. Crash Chart for All Crashes on the Project Corridors

A total of 18 fatal crashes involved pedestrians, bicyclists, or both (shown in Table 5), which is about 50 percent of total fatal crashes in the project limits. Figure 5 shows the hotspot locations for crashes on all the project corridors.

Table 5. Crash Data Summary for Pedestrian/Bike Crashes on the Project Corridors

| Ped/Bike Crashes on Corridors (2016-2018) | Fatal | Injury | Property Damage Only |
|---|-------|--------|----------------------|
| 1   | 2     | 16     | 0                    |
| 2   | 3     | 9      | 0                    |
| 3   | 4     | 16     | 2                    |
| 4   | 6     | 13     | 0                    |
| 5   | 1     | 6      | 1                    |
| 8   | 2     | 4      | 0                    |
| Total Crashes                             | 18    | 64     | 3                    |



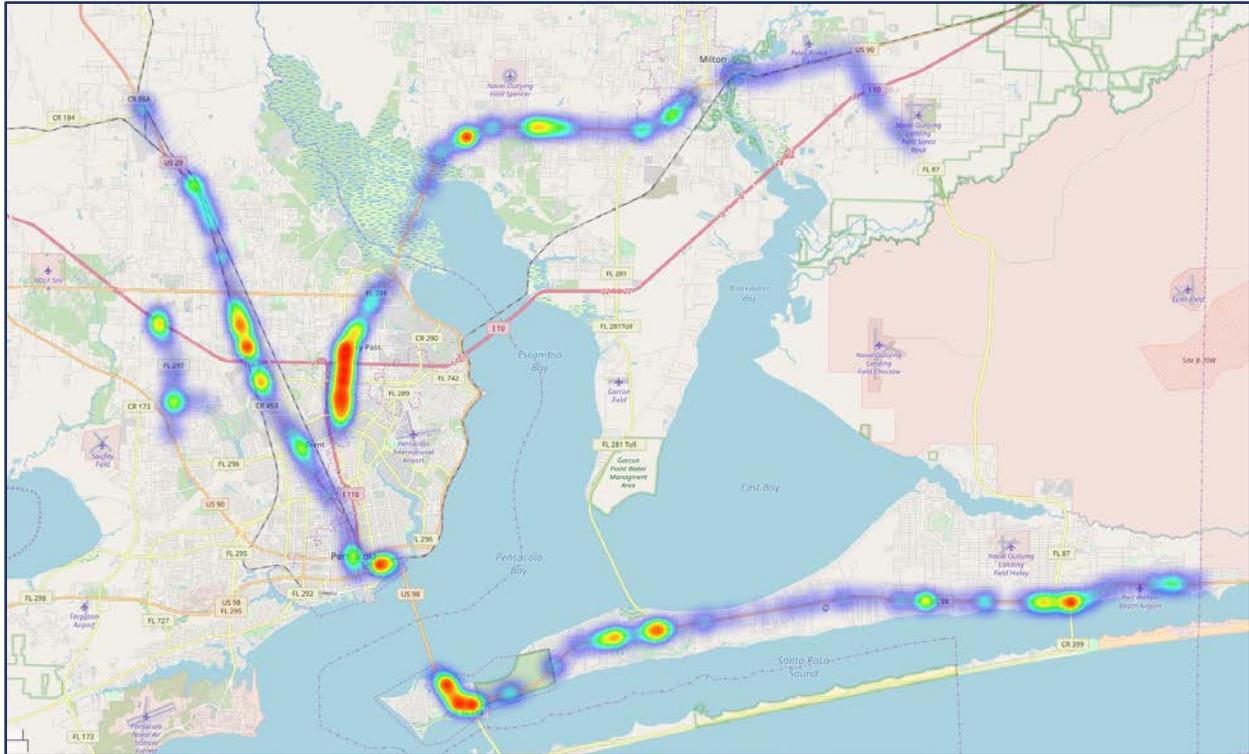


Figure 5. Crash Locations and Hot Spots

The ATMS will include driver information services to advise users of traffic conditions, incidents, and other hazards, thereby providing actionable information that supports safe travel decisions. The ability to remotely monitor and manage incidents and work zones using cameras in conjunction with communications systems can improve safety for responders, work crews, and the public. Vehicle detection systems, advanced transportation controllers (ATC), and CV equipment are all components that are expected to be part of the regional ATMS as described in the *Escambia/Santa Rosa Regional Advanced Traffic Management System Feasibility Study and Implementation Plan* of 2017. As a result, the system will also be able to provide a foundation for future collision avoidance systems leveraging CV technology.

In addition, the ATMS will include emergency vehicle management user services that are oriented to public safety and fast on-scene arrival by responders. The combination of coordinated dispatch systems, pre-emption systems, and interconnected ATCs, along with a surveillance network of CCTV cameras, can be used to effectively clear routes for fire-rescue services and evacuations when necessary. Currently, route guidance for regional fire-rescue dispatch is limited and routes may be delayed or blocked by trains and other obstacles. The proposed system will include tools that can help reduce and eliminate such conflicts. The ATMS will also allow improved incident management and coordination by providing comprehensive traffic monitoring, real-time data collection, and enhanced control of signal timing adjustments. For instance, agencies can develop predetermined scenarios that allow quick adjustment of signal timings along a corridor during an unplanned event or emergency.



## 4.1.2. State of Good Repair

This section describes the project's contribution to improving the existing condition, the impact of no improvement, the impact of the grant on the project capitalization, and the focus on long-term operations and maintenance.

### 4.1.2.1 Plans for Maintenance

District Three and local agencies have made, and continue to make, substantial investments in the on-going operation and maintenance of traffic signal systems and ITS in the Escambia and Santa Rosa region. FDOT provides funding to local agencies for signal maintenance on state highways. The Florida-Alabama TPO consists of the southern halves of Escambia and Santa Rosa counties and a small portion of southeast Baldwin County (Alabama). The TPO has allocated \$300,000 per year to focus on signal operation and coordination with the intent to increase this amount to \$400,000 annually starting in 2024.

### 4.1.2.2 Consequences if Infrastructure is Not Improved

Most of the current traffic signals in the region are part of closed-loop systems using limited dial-up connections to field master controllers. Interconnect between local controllers and closed-loop field master controllers is by means of aerial twisted pair copper wiring. Some existing signalized intersections operate under the control of CLMATS software package, which runs on a Pentium computer acquired in 1999. The CLMATS system was installed in 1991, and the original system vendor, Peek Traffic, Inc., no longer supports CLMATS software. The current signal system hardware, software, and communication system cannot support devices and operational strategies that are commonly used as part of a modern TSM&O program. For example, the current system will not support CCTV cameras for traffic and incident management, data collection, and signal optimization using signal performance measures, CV technology, or operational strategies such as integrated corridor management and AAM. With no improvement, the failure rate and cost of legacy equipment maintenance will increase. There will be increased risk for loss of the limited coordinated operation maintained today and, eventually, an inability to maintain or replace current system hardware and software. If left unimproved, the continued deterioration of the legacy system will have negative impacts on long-term efficiency, reliability, and cost, as well as increasing congestion and lowering the quality of life in the region.

### 4.1.2.3 Cost Structure and Asset Management

With the addition of the BUILD Discretionary Funds, the regional ATMS project can be accelerated and completed in three years instead of being gradually implemented as noted in the TPO 20-year long-range transportation plan (LRTP). Beyond the benefits-cost associated with operational improvements that system upgrades can realize, an accelerated deployment could also realize cost savings through economies of scale, lack of cost escalation due to inflation, and by removing the likelihood that equipment deployed during the early stages of a 20-year project might become obsolete or require replacement before the overall project is complete.

### 4.1.2.4 Sustainable Revenue for Life-Cycle Costs

State and local funds have provided signal operation and maintenance in Florida as a matter of priority and policy. District Three is committed to the long-term success of the future unified





ATMS envisioned for the Escambia/Santa Rosa region and supported by local stakeholders. As noted above, the TPO is also allocating funds for operation and maintenance.

### 4.1.3. Economic Competitiveness

This section describes the expected impacts of the project on the long-term efficiency, economic productivity, and employment opportunities.

#### 4.1.3.1 Relationship to Rural Communities and Opportunity Zones

While the Escambia/Santa Rosa Regional ATMS project concentrates on congestion within the Pensacola Urban Area, one of the key corridors planned for improvement is US-29, which runs north from Pensacola through rural Escambia County to Century, Florida. Century and the immediately surrounding area are designated as Opportunity Zones. Multiple arterials within the proposed Escambia/Santa Rosa Regional ATMS project limits serve as evacuation routes and support commuters from surrounding rural areas who work in Pensacola and neighboring coastal areas.

#### 4.1.3.2 Long-Term Efficiency, Reliability, and Cost Competitiveness

The Escambia/Santa Rosa Regional ATMS project will address congestion within the Pensacola Urban Area as well as improve regional access and travel-time reliability for residents and visitors, including people and goods traveling through the Port of Pensacola, the Pensacola International Airport, along local arterials, the interstate highway system, evacuation routes, and routes of significance throughout the region.

#### 4.1.3.3 Economic Productivity

The Escambia/Santa Rosa Regional ATMS project will improve traffic operations, including travel times and travel-time reliability as well as provide a modern transportation infrastructure that can accommodate future growth and increased economic productivity in the region. These improvements will allow planned regional investments to continue and provide a roadway network capable of supporting future investments and land use as the area continues its expected growth.

#### 4.1.3.4 Job Creation

The Escambia/Santa Rosa Regional ATMS project will generate jobs throughout its design, construction, and operational stages. Using the standard ratio of one job per \$76,923 in transportation infrastructure spending, an average of 27 jobs per quarter for the three-year construction period will be generated. In addition, one to two additional long-term jobs may be generated for long-term operations and maintenance. By far the biggest job creation opportunity will be realized as the region experiences increased productivity in the public and private sector as a result of providing a modern, well-managed, and collaboratively operated regional transportation infrastructure that promotes the efficient movement of people and goods. It is estimated that most jobs created by the project will begin approximately one year after the grant application is approved. Using the standard ratio of one job per \$76,923 in transportation infrastructure spending, the following Table 6 provides a quarter-by-quarter estimate of spending and estimated job creation:





Table 6. Quarterly Job Creation

| Year | Expend/Jobs  | Quarterly Average | By Quarter  |             |             |             |
|------|--------------|-------------------|-------------|-------------|-------------|-------------|
|      |              |                   | Q1          | Q2          | Q3          | Q4          |
| 1    | Expenditures | \$623,502         | \$249,401   | \$249,401   | \$498,802   | \$1,496,405 |
|      | New Jobs     | 8                 | 3           | 3           | 6           | 19          |
| 2    | Expenditures | \$3,117,510       | \$3,117,510 | \$3,117,510 | \$3,117,510 | \$3,117,510 |
|      | New Jobs     | 41                | 41          | 41          | 41          | 41          |
| 3    | Expenditures | \$2,494,008       | \$2,992,810 | \$2,992,810 | \$2,992,810 | \$997,603   |
|      | New Jobs     | 32                | 39          | 39          | 39          | 13          |

4.1.3.5 Freight Movement

With the opening of the expanded Panama Canal in mid-2016, the State of Florida placed special emphasis on improving deep water ports and infrastructure to support the shipping and freight industries. The Escambia/Santa Rosa Regional ATMS project will directly benefit the Port of Pensacola and inland port container transfer services by enabling additional signal timing improvements and having the ability to support signal priority solutions based on operational rules, including systems that use emerging CV technologies for vehicle-to-infrastructure (V2I) communication. Systems currently being deployed in the region to support freight movement include the Truck Parking Availability System (TPAS) that provides safe parking options for commercial vehicles along I-10 at rest areas, weigh stations, and welcome centers.

4.1.3.6 Military Installations

The existing congestion is placing significant strain on the vital military missions supported by Naval Air Station Whiting Field, Naval Outlying Field Spencer Field, and the former Ellyson Field. The Pensacola Naval Complex in Escambia and Santa Rosa counties is a major driver of the economy of the region. The impact includes the employment of more than 16,000 military and 9,400 civilian personnel and annually contributes approximately \$1.2 billion to the local economy. This project will directly support the economic vitality of these military installations which are critical to the area.

4.1.4. Environmental Sustainability

It is increasingly more difficult and costlier to add traffic capacity through the construction of additional travel lanes to roadways within urban boundaries, and traditional capacity projects often require right-of-way acquisition and result in greater impacts to natural, social, cultural, and physical resources. A significant advantage to corridor and regional ATMS projects is that the use of emerging technology, in tandem with utilization of existing infrastructure, results in maximum avoidance and minimization of adverse environmental impacts while satisfying project goals. The proposed Escambia/Santa Rosa Regional ATMS project will have no adverse impacts on existing natural, social, cultural, or physical resources and will help improve air quality and reduce highway traffic noise in the project area.





#### 4.1.4.1 Natural Resources

The Gulf of Mexico, Pensacola Bay, and Escambia Bay play a significant role in both the economy and environmental protection of the Escambia/Santa Rosa Regional ATMS project area and are still recovering from the 2010 Deepwater Horizon oil spill. These scenic natural resources not only provide for tourist destinations and recreational areas that enhance the overall quality of life for residents and visitors, but also serve as natural buffers for coastal protection, water quality health, and flood mitigation during storm events. Much of these coastal waters serve as critical habitat for the federally threatened gulf sturgeon and essential fish habitats for numerous gulf species.

The Escambia/Santa Rosa Regional ATMS project provides a technology based, innovative solution to help alleviate traffic congestion in this area without the need of new roadways, bridges, and additional travel lanes that traditionally result in much more destructive construction techniques and natural resource impacts. This will facilitate more complete preservation of critical coastal and marine resources in this area that serve as fish habitat, tourist destinations, recreational areas, and coastal flooding protection during major storm events.

#### 4.1.4.2 Social Resources

The Escambia/Santa Rosa Regional ATMS improvements will be constructed within existing right-of-way, using primarily existing infrastructure, and will not require any residential or non-residential relocations or result in any significant land use changes. It is anticipated the project will greatly enhance mobility for all users in the region and will help spur economic development and employment opportunities in the region by improving traffic circulation and increasing overall transportation connectivity in the project area.

#### 4.1.4.3 Cultural Resources

This portion of northwest Florida is rich with cultural history; beginning with Native American peoples that inhabited the Pensacola area long before the arrival of Spanish and European explorers in the 16<sup>th</sup> century. Given the historical significance of the region, a high emphasis is placed on archaeological sensitivity and cultural resource investigation prior to any development in this area. Due to the utilization of existing transportation infrastructure as part of the Escambia/Santa Rosa Regional ATMS project, all work will occur within previously disturbed, periodically maintained right-of-way and will not result in significant ground disturbance that could potentially impact sensitive cultural resources in this area.

#### 4.1.4.4 Physical Resources

Highway traffic noise, contamination impacts, and air quality are major physical resource considerations for highway improvement projects. According to FHWA, Medium and Heavy Trucks (Gross Vehicle Weight Rating over 10,000 Pounds) can produce noise emissions up to 85 decibels (dB(A)) while stationary and 83 dB(A) while traveling under 35 mph. The deployment of the Escambia/Santa Rosa Regional ATMS project will result in a reduction of truck idle time and redundant deceleration and acceleration patterns associated with traffic signals and congested intersections. This will provide an overall reduction in the amount of noise pollution experienced by the residents and business located adjacent to the six project corridors and will not require any new noise abatement strategies as part of the project. By utilizing existing transportation infrastructure, the Escambia/Santa Rosa Regional ATMS project will also avoid major earthwork,



dewatering, and new ground disturbance that could result in the migration of potentially contaminated soil or groundwater. This will help protect the safety and well-being of project workers and the public.

4.1.4.5 Environmental Benefits

In addition to reduced highway traffic noise discussed above, a significant environmental benefit the Escambia/Santa Rosa Regional ATMS project generates is a reduction in fuel consumption and air pollution within urban areas along the six project corridors. Motor vehicle pollutant emissions from the combustion of fossil fuels have long been tied to air quality. Emissions of toxic gasses including carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), and nitrogen oxides (NO<sub>x</sub>) will be reduced by minimizing stops and idle time in congested traffic. A modern ATMS will facilitate TSM&O practices, including use of Automated Traffic Signal Performance Measures (ATSPM) for on-going monitoring and optimization of signal timing, which will generally help reduce energy use, air pollution, and highway traffic noise through congestion mitigation strategies. The anticipated environmental sustainability benefits of the project are summarized in Table 7.

Table 7: Environmental Sustainability Benefits

|                         | Quantity | Sustainability Benefits Unit | \$/Year   |
|-------------------------|----------|------------------------------|-----------|
| Fuel Savings            | 161,507  | Gal/Year                     | \$565,275 |
| CO <sub>2</sub> Savings | 1,421    | MT/Year                      | \$33,826  |
| CO Savings              | 11,289   | kg/year                      | \$79,150  |
| NO <sub>x</sub> Savings | 2,196    | kg/year                      | \$20,098  |
| Total                   |          |                              | \$698,349 |

See the Benefit-Cost Analysis (BCA) in the [Supporting Documentation](#) for additional details on the derivation of the sustainability benefits of the Escambia/Santa Rosa Regional ATMS project. Using cost factors from FHWA, the Institute of Transportation Engineers (ITE), and other resources, the values of the sustainability factors used have been formulated and are included in the BCA.

Traffic operations and transit improvements are strategies identified in the publication *Moving Cooler* for immediate reduction of greenhouse gas (GHG) emissions:

*“...near-term strategies such as lower speed limits, congestion pricing, eco-driving, operational improvements, and improved transit level of service, if implemented, are among strategies that would achieve GHG reductions relatively quickly. Achieving early results would reduce the cumulative GHG reduction challenge in later decades.” (Emphasis added: Page 8; Moving Cooler – an Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions; Cambridge Systematics; Urban Land Institute; July 2009)*





## 4.1.5. Quality of Life

Multiple user needs and ATMS framework components identified as required features during conceptual development and planning for the Escambia/Santa Rosa Regional ATMS project also serve to enhance mobility. Upgrading to current technology will provide the region with additional capabilities that can be used for transit systems, including queue jumping, signal priority, and fleet management, if desired. This will help increase viable transportation choices in the region and expand access to essential services. The project also requires installation of a regional fiber optic network to support broadband communication to all signalized intersections throughout the region. This communication backbone will support the transportation needs of the region for the foreseeable future and provide the bandwidth necessary to support modern traffic operations, including interagency coordination, active traffic management, integrated corridor management, adaptive control, priority and preemption, connected and autonomous vehicle (CAV) applications, ATSPM data collection and analysis, and development of additional future systems to disseminate real-time traffic data and information to the public.

## 4.2. Secondary Selection Criteria

### 4.2.1. Innovation

The TPO LRTP recommends investments in ITS, corridor management, and transit. The TPO has identified ITS, ATMS, and corridor management as innovative approaches to maximize capacity and performance of the existing transportation network in the region in lieu of traditional capacity enhancement projects such as roadway widening. The Escambia/Santa Rosa Regional ATMS project aligns with the TPO LRTP goals.

The TPO recognizes that it is increasingly difficult to add capacity to roadways through the addition of more travel lanes. Capacity projects often require acquisition of right of way and negatively impact wetlands and other protective or sensitive areas. For these reasons, the TPO LRTP recommends investments in ITS, corridor management, and transit.

#### 4.2.1.1 Innovative Technologies

The ATMS envisioned in strategic planning documentation developed to date will be designed and deployed to serve as a platform for a variety of innovative future technologies and use cases. For example, the ATMS will be able to support future CAV applications that use V2I communications and knowledge of signal phase and timing to maintain speeds that help eliminate unnecessary stops, which improves fuel efficiency and reduces emissions. These applications could also be coupled with transit and freight priority applications based on rules established by a joint operations team comprised of staff from each participating agency.

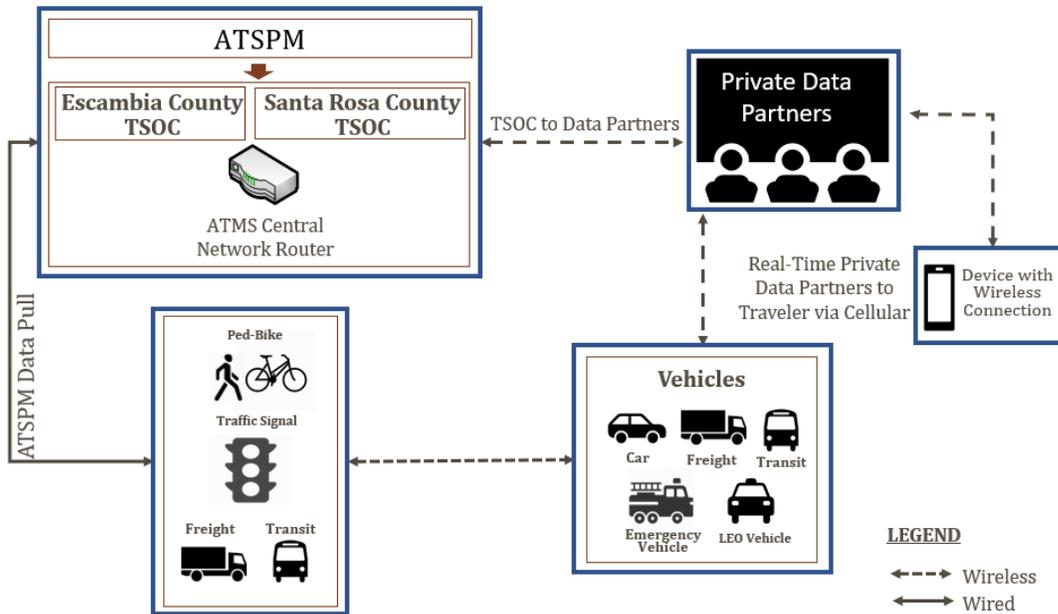


Figure 6. Proposed Data Exchange Diagram

The Escambia/Santa Rosa Regional ATMS project will interconnect and upgrade regional intersections using a fiber optic broadband network and ATC to make all intersections ready for ATSPM and CAV functionality. The proposed data exchange diagram is shown in Figure 6. This new system will also allow collection, aggregation, and dissemination of traffic data. This includes collection and use of ATSPM data for signal monitoring and optimization, probe data for travel-time and origin-destination information, and a multi-jurisdiction data warehouse for CV data archiving and distribution. For example, every connected intersection will not only broadcast signal phase and time and Map data and receive basic safety messages locally, but all the “over-the-air” data will be aggregated on a central server using FDOT’s Data Integration and Video Aggregation System (or similar system). This will allow the regional ATMS to archive data and produce a data feed that can be consumed and used by other systems for governmental, commercial, or academic purposes.

#### 4.2.1.2 Innovative Project Delivery

This project will be procured using the innovative design-build model which relies on a single entity to deliver both the design and construction services for the project. In contrast to conventional design-bid-build model, the design-build method expedites the delivery schedule and encourages collaboration between the designer and contractor. This innovative model also allows for the potential inclusion of incentives for early completion. By combining design and construction into a single contract mechanism, issues such as the integration of technology components are avoided as the two entities work collaboratively.

There is no financing being sought for this project. The funding for the project is being pursued through local match, FDOT state funds, and BUILD grant federal funds. The local agencies, consisting of Escambia and Santa Rosa counties and the Cities of Pensacola, Milton, and Gulf Breeze will support the maintenance and operations cost upon completion of the project. The TPO has allocated \$300,000 per year to focus on these ATMS efforts, which increases to \$400,000 annually starting in 2024.





## 4.2.2. Partnership

FDOT has served as the lead agency in this grant application. As previously stated, the City of Pensacola supported the development of the *Escambia/Santa Rosa Regional Traffic Management System Feasibility Study and Implementation Plan*, which is a driving document behind the prioritization of corridors from the overall ATMS program included within this application.

There are major stakeholders at the federal, state, regional TPO, and county and city levels supporting this project. The Federal Highway Administration (FHWA) is a stakeholder, by default, as the project supports goals associated with the deployment of TSM&O strategies. In fact, this project specifically addresses the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects by addressing the larger transportation network beyond individual corridors.

Escambia and Santa Rosa counties are key partners and have included letters of support for the project. The Florida-Alabama TPO and the Emerald Coast Regional Planning Council have also provided letters of support for the project. The Cities of Milton and Pensacola have also provided letters of support. See [Supporting Documentation](#) for additional information.

In addition to the support for the project, the counties and cities are executing Memorandums of Agreement which outlines the specific roles and responsibilities of each agency, including the annual operating and maintenance cost of the ATMS. See [Supporting Documentation](#) for additional information.

As the benefits of this new ATMS will be shared by all modes including the general public, the military, the port, transit services and freight carriers, all are considered as partners. While the primary funding partnership will exist between the USDOT (BUILD Grant) and FDOT, two counties and three cities will have lead roles during design, construction, integration, and ongoing operations and maintenance of the system. Existing agreements are already in place that address shared state and local funding responsibilities for continued operations and maintenance of key elements of this new ATMS.

## 5. Project Readiness

This section describes technical feasibility, project schedule, required approvals, and assessment of project risks and mitigation strategies.

### 5.1. Technical Feasibility

FDOT has implemented numerous regional ATMS projects throughout the state. The FDOT *Standard Specifications for Road and Bridge Construction*, *Standard Plans*, and *FDOT Design Manual* are fully developed and ready to be applied to this proposed project. Fiber optic communication networks for ATMS have also been designed and implemented across the state. District Three has already implemented fiber optic communication networks and ITS field elements such as CCTV cameras, dynamic message signs and the Truck Parking Availability System along the interstate system, as well as ATMS components in the Pensacola and Tallahassee regions, and in Bay County.



## 5.1.1. Engineering and Design Studies Completed to Date

The following engineering and design studies have been completed and are ready for use in the deployment of this project:

- Regional ITS Architecture
- Regional ITS Strategic Plan
- Draft Scope for ATMS Implementation Plan
- Regional Intelligent Transportation Systems (ITS) Plan, Florida-Alabama TPO, Okaloosa-Walton TPO and Bay County TPO, Final Report, Adopted September 2010
- 2040 Florida-Alabama Long Range Transportation Plan Final Report, Adopted November 3, 2015
- Pensacola Urban Area ITS Master Plan, FDOT District 3 Traffic Operations, 2003
- Escambia/Santa Rosa Regional Advanced Traffic Management System Feasibility Study and Implementation Plan, User Needs Technical Memorandum, v.1.0, October 26, 2015.
- Escambia/Santa Rosa Regional Advanced Traffic Management System Feasibility Study and Implementation Plan, ATMS Framework Technical Memorandum, v.1.0, August 18, 2015.
- Escambia/Santa Rosa Regional Advanced Traffic Management System Feasibility Study and Implementation Plan, Technology Review Technical Memorandum, v.1.0, September 4, 2015.
- Escambia/Santa Rosa Regional Advanced Traffic Management System Feasibility Study and Implementation Plan, Technical Data Collection Report, v.2.0, January 27, 2016.
- Escambia/Santa Rosa Regional Advanced Traffic Management System Feasibility Study and Implementation Plan, Traffic Management Center Design Concept Technical Memorandum, v.1.0, May 23, 2016
- Escambia/Santa Rosa Regional Advanced Traffic Management System Feasibility Study and Implementation Plan, Implementation Plan Technical Memorandum, v.3.0, March 16, 2017

## 5.2. Project Schedule

The project is ready to move forward in an accelerated fashion, as has been demonstrated by previous FDOT projects which have received federal grant support, such as the FASTLANE-supported Truck Parking Availability System.

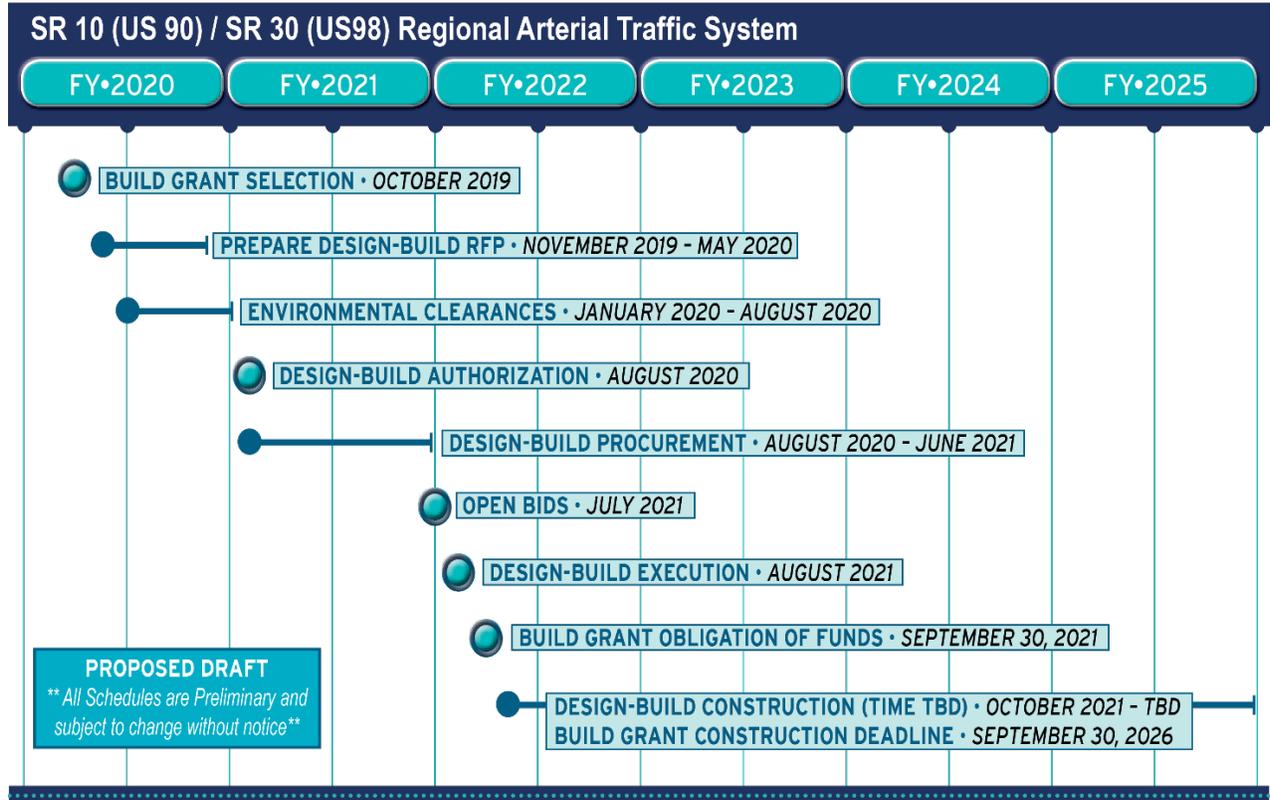
It should be noted that since this project has been identified consistently throughout the planning process, the amendments necessary to incorporate funding into the FDOT Work Program are supported by the local agencies, which eliminates risk associated with amending the State Transportation Improvement Program (STIP).

Immediately following the BUILD grant selection notification, the FDOT, with consultant support, will begin the preparation of the Request for Proposal (RFP) for procurement of the design build firm for the final design and construction of the project. During the RFP development, all required documents will be completed, including the environmental clearance, utility clearance, right of way clearance and railroad clearance certificates. At this time, approximately August 2020, the FDOT will be eligible to apply the BUILD grant funds to the project, allowing funds to be obligated to the project prior to the BUILD deadline of September 30, 2021 for FY 2019 funds as shown in Figure 7.



The design build firm procurement has an anticipated duration of nine months to advertise, review and select. Concurrent with the design build firm procurement, the FDOT will procure a firm to provide construction engineering inspection oversight of the design build firm. Following execution of the contract, the construction, inspection, integration, and final acceptance of the project is anticipated to require 24 months, with a completion date of approximately October 2024. Overall, the project will be complete prior to the BUILD deadline of September 30, 2026.

Figure 7. Project Schedule



### 5.3. Required Approvals

#### 5.3.1. Environmental Permits and Reviews

Deployment of the Escambia/Santa Rosa Regional ATMS project will be designed and constructed in accordance with all applicable state and federal environmental regulations. Environmental clearances and certifications will be coordinated and approved through the FDOT District Three Environmental Management Office (DEMO) whose jurisdiction this project lies within.

As described in Section 1, Escambia and Santa Rosa counties are a mix of rural, urban, and transitioning areas that support several local and regional economic drivers including a deep-water sea port, the Pensacola International Airport, multiple military installations, and numerous tourist destinations anchored by the Gulf of Mexico coastal areas. For these counties to continue to provide economic development and employment opportunities for its approximately 450,000 residents, the ongoing congestion and mobility challenges must be overcome. This project will deploy innovative traffic signal systems, CV technologies, and ITS devices that will not only address these mobility issues and support the critical regional economic vitality but will also





inherently bring environmental benefits without the need of severe degradation to existing environmentally sensitive features in this coastal area.

The Escambia/Santa Rosa Regional ATMS project's use of emerging technologies such as freight signal priority, real-time arterial traffic management, and transit signal priority will significantly reduce idle time of heavy vehicles. This will improve air quality and highway traffic noise since redundant deceleration and acceleration techniques associated with traffic signals and congested intersections will be reduced. Since all improvements related to the Escambia/Santa Rosa Regional ATMS project are within existing, maintained right-of-way that has been previously disturbed, it is anticipated there will be minimal involvement with any significant environmentally sensitive areas.

### 5.3.1.1 National Environmental Policy Act Status

Pursuant to 23 United States Code (U.S.C.) 327 and the implementing Memorandum of Understanding (MOU) executed on December 14, 2016, the FDOT has assumed FHWA's responsibilities under NEPA for highway projects on the State Highway System (SHS) and Local Agency Program (LAP) projects off the SHS. Based on the federal funds associated with the BUILD Grant under the FHWA, the proposed project would constitute a federal action. Therefore, the Class of Action for this project is anticipated to be a Type 1 Categorical Exclusion. It is anticipated that the project will comply with the provisions of 23 *Code of Federal Regulations* 771.117(c)(21):

*“Deployment of electronics, photonics, communications, or information processing used singly or in combination, or as components of a fully integrated system, to improve the efficiency or safety of a surface transportation system or to enhance security or passenger convenience. Examples include, but are not limited to, traffic control and detector devices, lane management systems, electronic payment equipment, automatic vehicle locaters, automated passenger counters, computer-aided dispatching systems, radio communications systems, dynamic message signs, and security equipment including surveillance and detection cameras on roadways and in transit facilities and on buses.”*

Federal regulatory agency coordination, review, and approval has been initiated with FDOT District Three DEMO. All necessary federal permits, approvals, and clearances will be obtained for any minor impacts to natural, cultural, or socioeconomically significant features within the limits of construction of the Escambia/Santa Rosa Regional ATMS improvement areas.

Federal agency coordination includes, but is not limited to:

- Federal Highway Administration (FHWA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (USEPA)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Coast Guards (USCG)
- National Marine Fisheries Service (NMFS)
- National Park Service (NPS)
- Natural Resources Conservation Service (NRCS)





## 5.3.1.2 Reviews, Approvals, and Permits by Other Agencies

State environmental resource permitting (ERP) is conducted under rule chapter 62-330 of the Florida Administrative Code (FAC). If required, ERP permits authorizing work associated with the Escambia/Santa Rosa Regional ATMS deployment will be prepared, coordinated, and approved through open communication with jurisdictional FDOT District Three DEMO and applicable state regulatory agencies.

State agency coordination includes, but is not limited to:

- Florida Department of Transportation (FDOT)
- Florida Department of Environmental Protection (FDEP)
- Florida Fish and Wildlife Conservation Commission (FWC)
- Florida Department of Agriculture and Consumer Sciences (FDACS)
- Florida Department of Community Affairs (FDCA)
- Florida Department of State, Division of Historic Resources (SHPO)
- Northwest Florida Water Management District (NFWFMD)

## 5.3.1.3 Environmental Studies and Project Readiness

An initial Environmental Resources Desktop Analysis (ERDA) was prepared for the six corridors detailed in the Escambia/Santa Rosa Regional ATMS project and is included in the [Supporting Document](#). Resources utilized for this assessment included the FDOT Efficient Transportation Decision Making (ETDM) tool, Environmental Screening Tool (EST), state and federal literature and database review, FDOT coordination, and preliminary field reviews of the project location. The Escambia/Santa Rosa Regional ATMS project location is within the FDOT District Three jurisdictional boundaries. Coordination with the District Three DEMO office has been initiated and the ERDA has been completed in support of the anticipated Type I Categorical Exclusion.

All work will be performed within existing right of way and will utilize existing transportation infrastructure to the greatest extent possible. As necessary, field surveys will be performed at the appropriate time of year to identify and avoid potential impacts to protected species, wetlands, or critical habitats. However, considering conclusions developed during the ERDA and the nature of the field elements of the project (namely communication, technology, and traffic signal devices replacing existing infrastructure or being placed onto existing infrastructure) it is anticipated impacts to existing natural, social, cultural, and physical resources will be avoided entirely as part of the Escambia/Santa Rosa Regional ATMS project.

Due to time-to-construction expiration dates on state and federal permits, those permits required for authorization of construction activities will be obtained from the design-build team based on the final design configuration. Permit activities will include the appropriate measures to control construction related protection for storm water discharge.

## 5.3.1.4 Other Approvals

No other approvals are anticipated at this time based on the known project parameters. Should issues be identified during the final development of this project, the appropriate FDOT offices will be engaged for coordination and approval.





## 5.3.1.5 Public Engagement

Extensive public engagement has occurred since the initial development of this project, through the LRTP development project as well as directly to the Florida-Alabama TPO, the Technical Coordinating Committee, and Citizens Advisory Committee.

In the development of the LRTP, numerous public workshops were conducted in accordance with the governing criteria, including early and continuous public involvement, timely and reasonable access to information, adequate public notice of public involvement activities and ample time for review and comment, explicit consideration and response to public comment, and coordination of the TPO public involvement processes with statewide efforts whenever possible.

The Public Information Officer for FDOT District Three where the project will be deployed, has been engaged. As a result of this coordination, no known concerns or potential controversies have been identified. During the construction phase of the project, notices to the public will be made communicating the construction status and any impacts to the traveling public. Should the project identify new issues that require public engagement, all federal processes will be followed during the outreach and engagement process.

## 5.3.2. State and Local Approvals

The TPO identified ITS and ATMS projects, corridor management studies, corridor management projects, and traffic signal support activities as Fiscal Year 20-24 Project Priorities. The Escambia/Santa Rosa Regional ATMS project is specifically identified as the number one priority of the Non-Strategic Intermodal System (Non-SIS) Project Priorities List adopted by the TPO. The project has broad local and regional support with local agencies and municipalities providing matching funds to the overall project. As the project is not currently included in the FDOT's adopted work program, a STIP amendment may be necessary.

## 5.3.3. Federal Transportation Requirements

As this project is associated with technology deployment, it falls within the requirements of 23 CFR 940. FDOT has adopted Procedure 750-040-003 to define how projects in Florida are implemented in conformance with this federal requirement. FDOT is currently updating the Procedure, FHWA has approved the content and it is in the final stages of adoption process with FDOT senior leadership.

The FDOT will follow the Procedure to develop appropriately tailored Systems Engineering documents, as a minimum including a Concept of Operations (ConOps), Risk Register and Requirements Traceability Verification Matrix. In anticipation of the safety and mobility benefits, the project will also include development of a Systems Validation Plan to define after analysis to be conducted to validate that the ATMS delivers the anticipated benefits.

The seven FHWA requirements are:

- Identification of portions of the Regional ITS Architecture (RITSA) being implemented
- Identification of participating agencies roles and responsibilities
- Requirements definitions
- Analysis of alternative system configurations and technology options to meet requirements



- Procurement options
- Identification of applicable ITS standards and testing procedures
- Procedures and resources necessary for operations and management of the system

ITS Architecture Procedure (750-040-003), besides requiring a Risk Assessment (Form 750-040-05), requires:

- Architecture Change Request (FDOT Form 750-040-04)
- Systems Engineering Project Checklist (FDOT Form 750-040-06)

#### 5.4. Assessment of Project Risks and Mitigation Strategies

Project risks are listed in Table 8 along with their mitigations. While all the risks are considered solvable, they indicate the likelihood and costliness of running into a delay in addressing the issue.

Table 8. Project Risks and Mitigation

| Project Risks  | Mitigation   |
|--|--|
| <p>Delay in updating the Implementation Plan could delay the start of the project beyond the mandated date.</p>  | <p>District Three has successfully completed a number of ITS studies and implementation plans in this time. Additionally, the Implementation Plan will build on the District Three Regional ITS Architecture and ITS Strategic Plan for Escambia and Santa Rosa Counties. These efforts contain about 50 percent of the details needed for the Implementation Plan.</p>  |
| <p>Delay in completing the Request for Proposal (RFP) could delay the start of the project beyond the mandated date.</p>   | <p>District Three has successfully completed the design-build (DB) RFP. As an example, for the I-10 Freeway Management System (Financial Project Number: 428103-1-52-01; Contract Number E3L90), they were able to develop an RFP, advertise it, qualify and short list potential DB teams, receive technical proposals, and award the DB contract is just over six months from the date funds were made available to District Three. There is more time in this schedule to complete these critical activities.</p> |
| <p>Utility conflicts will be a major concern for placement of the underground conduit for the fiber optic cable and CCTV camera poles in the heavily urbanized areas in the region. Ineffective utility coordination could delay the project completion.</p> | <p>The DB firm will be required to have a dedicated and experienced utility coordinator who will work closely with utility owners. The design will avoid utility relocations by making minor adjustments to horizontal locations to avoid any underground and overhead utilities. District Three has managed several ATMS projects in urbanized areas and have successfully prevented utilities from being a delaying factor.</p>  |





## 6. Benefit-Cost Analysis

The expected benefits and costs of the project are evaluated using the ‘Benefit-Cost Analysis (BCA) Guidance for Discretionary Grant Programs’ published in 2018 by USDOT. The technical memorandum along with the spreadsheet for BCA analysis is provided in the [Supporting Documentation](#). The cost associated with the project includes the initial deployment cost and the operations and maintenance (O&M) cost. The benefits are derived from three major outcomes – savings in travel time, increased safety due to decrease in crashes, and savings in emissions.

The following assumptions were made for the BCA analysis:

- Service life of the project is 20 years.
- Analysis period for the BCA is 20 years (2019-2039).
- Base-line year for the no-build scenario is 2019.
- Discount rate used at three percent and seven percent to obtain the net present value (NPV).
- AADT growth - first ten years one percent annually; then 2030-2039 no increase is assumed.
- Baseline risk is 1, which suggests that for future year no-build alternatives, the crashes would be the same as the average annual crash in the baseline year.
- A test corridor from Pinellas County, District Seven is used to compute the reduction of travel time, savings in delay, and number of stops. The Pinellas County corridor has similar traffic and crash statistics and number of lanes as primary corridors as in the Escambia/Santa Rosa Regional ATMS project.

The project cost is \$24.38 million and the O&M cost over a 20-year period is \$14.25 million (as shown in Table 9). The value of travel time savings for the future operational year of analysis are discounted at a seven percent yearly rate to obtain vehicle total travel time savings of \$43.73 million accrued from improved incident management and from upgrades to the signal system. The safety benefit is obtained by estimating the crash reduction factor (CRF) of 41 percent for the future year. The discounted monetized value of the project’s safety benefits is \$646.39 million for all vehicles. The discounted monetized value of emission (CO2, CO, and NOx) savings for the project is \$6.56 million for all vehicles.

Table 9. Benefit-Cost Ratio Summary

| Escambia/Santa Rosa ATMS BCA - 20 Years |                         |                         |                       |
|---|-------------------------|-------------------------|-----------------------|
| Benefits                                | Undiscounted            | NPV (3% Discount)       | NPV (7% Discount)     |
| Safety                                  | \$ 1,445,154,600        | \$ 1,092,638,400        | \$ 646,393,200        |
| Travel Time                             | \$ 74,983,700           | \$ 56,381,900           | \$ 43,734,800         |
| Environmental                           | \$ 14,665,300           | \$ 11,088,000           | \$ 6,559,500          |
| <b>Total Benefit</b>                    | <b>\$ 1,534,803,600</b> | <b>\$ 1,160,108,300</b> | <b>\$ 696,687,500</b> |
| <b>Project Cost</b>                     | <b>\$ 24,381,100</b>    | <b>\$ 24,381,100</b>    | <b>\$ 24,381,100</b>  |
| <b>O&amp;M Cost</b>                     | <b>\$ 14,250,000</b>    | <b>\$ 11,065,100</b>    | <b>\$ 8,294,300</b>   |
| <b>B/C</b>                              | <b>62.37</b>            | <b>47.13</b>            | <b>28.23</b>          |





# Escambia/Santa Rosa Regional Advanced Traffic Management System

The **disbenefit** for this project is **zero** since the operation of the traffic would not be affected during the deployment. The residual cost is zero since the analysis period is 20 years of operation and the service life of the Escambia/Santa Rosa Regional ATMS project is also assumed to be 20 years. The O&M costs and all the benefit costs for future operational years are discounted by seven percent to obtain a base-year analysis value. The **benefit-cost ratio based on the seven percent discount rate is 28.23** for the project. The benefits achieved through this project will support regional economic vitality as evidenced by the expected safety and mobility improvements for the vehicles. Figure 8 shows the Escambia/Santa Rosa ATMS project benefits.



Figure 8. Escambia/Santa Rosa Regional ATMS Project Benefits





## *List of Acronyms*

|                     |   |
|---------------------|---|
| AADT                | Average Annual Daily Traffic  |
| AAM                 | Active Arterial Management  |
| ADA                 | Americans with Disabilities Act   |
| ATC                 | Advanced Transportation Controllers                                     |
| ATMS                | Advanced Traffic Management System                                      |
| ATSPM               | Automated Traffic Signal Performance Measures                           |
| BCA                 | Benefit-Cost Analysis   |
| BSM                 | Basic Safety Message(s)   |
| BUILD               | Better Utilizing Investments to Leverage Development                    |
| CAV                 | Connected and Autonomous Vehicles                                       |
| CE                  | Categorical Exclusion   |
| CEI                 | Construction Engineering and Inspection                                 |
| CCTV                | Closed Circuit Television   |
| CLMATS®             | Closed-Loop Multi-Arterial Traffic Control System                       |
| CFR                 | Code of Federal Regulation  |
| CO                  | Carbon Monoxide   |
| CO <sub>2</sub>     | Carbon Dioxide  |
| CV                  | Connected Vehicle   |
| DB                  | Design-Build  |
| DHR                 | Division of Historic Resources of the Florida Department of State       |
| DIVAS               | Data Integration and Video Aggregation                                  |
| DMS                 | Dynamic Message Sign  |
| DOT                 | Department of Transportation  |
| ECAT                | Escambia County Area Transit  |
| FDEP                | Florida Department of Environmental Protection                          |
| FDOT                | Florida Department of Transportation                                    |
| FDOT OEM Management | Florida Department of Transportation Office of Environmental Management |
| FFWCC               | Florida Fish and Wildlife Conservation Commission                       |





# Escambia/Santa Rosa Regional Advanced Traffic Management System

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|              |  |
|--------------|--|
| FHWA         | Federal Highway Administration                   |
| FL511        | Florida 511                                      |
| GHG          | Greenhouse Gas                                   |
| ITE          | Institute of Transportation Engineers            |
| ITS          | Intelligent Transportation System(s)             |
| LOS          | Level of Service                                 |
| L RTP        | Long-Range Transportation Plan                   |
| NEPA         | National Environmental Protection Act            |
| NMFS         | National Marine Fisheries Service                |
| NOLF         | Naval Outlying Field                             |
| Non-SIS      | Non-Strategic Intermodal System                  |
| NOX          | Nitrogen Oxide                                   |
| NWFWMD       | Northwest Florida Water Management District      |
| PNS          | Pensacola International Airport                  |
| RFP          | Request for Proposal(s)                          |
| RIGHT-OF-WAY | Right of Way                                     |
| RTMC         | Regional Transportation Management Center        |
| SIS          | Strategic Intermodal System                      |
| SITSA        | State ITS Architecture                           |
| SOV          | Single Occupant Vehicle(s)                       |
| TPO          | Transportation Planning Organizations            |
| TSM&O        | Transportation Systems Management and Operations |
| TSOC         | Traffic Signal Operation Center                  |
| USACE        | United States Army Corp of Engineers             |
| USCG         | United States Coast Guard                        |
| USFWS        | United States Fish and Wildlife Service          |
| UWF          | University of West Florida                       |
| V2I          | Vehicle-to-Infrastructure                        |
| VOCs         | Volatile Organic Compounds                       |



