<u>**Changing How We Commute through Access and Innovation**</u>

City of Tallahassee Smart City Challenge Application

Part 1 – VISION NARRATIVE

1. <u>Define your vision for your Smart City</u>

The City of Tallahassee seeks to improve its sustainability and encourage sustainable transportation by using technology to provide commuters, residents, and visitors more information about the transportation network so they can make smart travel choices. The concepts of sustainability and sustainable transportation entail that present-day needs are met without sacrificing the ability of future generations to satisfy their own needs. In order to plan for sustainable transportation, the City of Tallahassee wants to make information about parking, traffic conditions, and location of buses available to all customers through mobile and web applications.

The City desires to have even "smarter" transportation, such as providing mobile bus fare payment options; transit signal prioritization at all traffic lights to improve on-time performance and system efficiency; and implementing automatic passenger counters on all buses while integrating the information into real-time bus location feed so customers can see how full a bus is. In addition, the City plans on creating an internet-utility to provide this information to everyone, regardless of income levels.

A major tenet of the City of Tallahassee's vision is to combat the unsustainable impacts associated with the current automobile-dominated society which include the depletion of nonrenewable fossil fuels, greenhouse gas emissions, climate change, and air pollution. These sustainability requirements are crafted into transportation planning systems and standards across the country. To incorporate sustainable transportation, the City projects "forward-looking analyses" of trends in job locations, market preferences, and demographics that is reflective of the changing needs and requirements of the generations in the future.

Accessibility-based measures evaluate different modes of transportation regarding their capabilities to meet the needs of travelers. The desired outcome of accessibility entails the capability to access preferred services, destinations, activities, and goods. The City focuses on improving accessibility by offering real-time traffic information on all mobile devices and providing a comprehensive bike and sidewalk map to incorporate that information into mobile devices for non-motorized trip planning. This set of transportation benchmarks is more sustainable because it does not emphasize automobile use over other alternative—and less environmentally damaging—forms of transportation such as bicycling, walking, and using public transportation.

Overall, the City's vision for sustainable transportation is to maximize existing technologies and technologies we intend to implement, such as the smarter transportation features noted above, and implementing remote parking tracking and reservation systems through an internet utility. These programs provide a wealth of

transportation information and a holistic approach to mobility improvements resulting in more accessible uses of land, traffic enhancements, and more sustainable mobility.

2. Population Characteristics

According to the 2010 Census, the population of Tallahassee, Florida is 180,741 and population per square mile is 1,809.3. The Tallahassee Urbanized Area has a population of 240,223. The population of Tallahassee represents over 75% of the population of the Tallahassee Urbanized Area.

In addition to being the most significant portion of the Urbanized Area, Tallahassee represents the central hub for employment, commerce, and entertainment in the region. Tallahassee is also a regional hub for scientific research and academics. While Tallahassee has a dense urban population itself, many rural communities serve as bedroom communities, and an estimated 25,535 workers commute into Leon County from another county. Of that total, 75% come from four adjacent counties: Gadsden County, 8,379; Wakulla County, 7,484; Jefferson County, 2,374; and Grady County, Georgia, 1,106 per the 2009-2013 5-Year American Community Survey Commuting (Journey to Work).

The City of Tallahassee operates a public utility. Relevant to the implementation of the proposed citywide internet utility described in this application, there are over 200,000 City of Tallahassee Utility customers.

3. Other characteristics and alignment with USDOT's Smart City Characteristics

The City of Tallahassee is the capital of the third most populous state in the country. It is home to Florida State University, Florida Agricultural & Mechanical University, and Tallahassee Community College. The City is the cultural mecca of the Forgotten Coast, with literary and music festivals, art, museums, theaters and a symphony orchestra. People from surrounding counties travel to the City for shopping, entertainment and employment. The City operates its own transit system, which transports more than 4 million people per year, including regional transit service from unincorporated Leon County and surrounding counties.

The City of Tallahassee is led by an active mayor and City Administration that is committed to use technology to improve the efficiency of government and provide more information so our community can make smart choices. For example, the Citywide roll out of the Smart Meter program provides customer real-time information on their utility usage. This allows them to make choices, such as running appliances during off peak hours, to save money on their utility bills. This commitment will carry over to the implementation of the Smart City program.

Tallahassee is entering the sharing economy scene. As a growing urban environment, shared car programs such as ZipCar have started operation in partnership with Florida State University. In addition, the City recently started a bike-sharing program to provide options for traveling around downtown. There is also an active Uber program in

Tallahassee. This sharing economy mindset carries over to the transportation program with the information on the transportation network made available to the public through mobile and web-based app. The proposed Smart City program will expand this by providing information on parking availability, parking reservation, congestion, and estimated travel times in one convenient application. If the customer so desires, the data streams will be made available to the public for further app customization, such as creating transportation apps for specific audiences (tourists, arts, etc.).

4. **Provide an Annotated Preliminary Site Map** (See attachment)

5. **Holistic, integrated approach alignment to the 12 USDOT vision elements**

Vision Element #1: Urban Automation

Being Florida's Capital City is a great benefit to the implementation of connected and automated vehicles. In 2012, the Florida legislature adopted House Bill 1207 to make Florida one of four states (plus Washington D.C.) to legally allow the explicit use of autonomous technology within vehicles operating on public roadways for testing purposes. In 2014, the Florida Department of Highway Safety and Motor Vehicles provided a report to the Florida Legislature noting that no additional legislative action was needed for the safe operation and testing of autonomous vehicle technology in Florida. The Florida Department of Transportation continues to take significant steps in this direction, including establishing an Automated Vehicle Stakeholder Working Group, undergoing numerous pilot projects, supporting research projects and partnerships with Florida universities (including Florida State University here in Tallahassee), and hosting annual automated vehicle summits. Having support from the Florida Legislature, being the location of the Florida Department of Transportation's Central Office, and being home to Florida State University, Florida A&M University and Tallahassee Community College provides Tallahassee with the unique position of having various resources to implement connected vehicle technology, collect a broad range of data, and analyze the data from a safety, infrastructure and policy standpoint. FSU's new Jim Moran Institute for Global Entrepreneurship opens exciting new possibilities for partnerships as well.

The backbone of this proposal is a citywide internet utility that would allow for connectivity and expansion of existing urban automation. This utility would span the entire city to support the "Internet of Things" – a network of vehicles, buildings, devices, and physical infrastructure embedded with electronics, software, and sensors that enable the collection and exchange of data.

The proposed project would build on efforts completed by the City of Tallahassee and efforts that are currently underway related to smart transportation. The integration of smart parking would ensure that trip ends do not hinder the rest of the smart transportation network.

Smart parking implementation specifically improves mobility and provides environmental benefits by reducing vehicle miles traveled, congestion, and greenhouse gas emissions that result from vehicles inefficiently searching for available parking. Smart parking also allows for the development of better urban environments: a parking system is generally considered at or above capacity if there is not at least a 10 to 15% surplus in parking capacity. The more efficient use of parking allows for the surplus of parking need to be reduced, resulting in the ability to use urban land for more economically beneficial purposes.

Smart parking also allows users to make informed decisions about their transportation options. Understanding the availability and cost of parking prior to making a trip affords the user to factor in more data variables when deciding which mode of transportation to use for their travel needs.

Vision Element #2: Connected Vehicles

The City of Tallahassee currently employs vehicle to infrastructure (V2I) connectivity on its solid waste, paratransit, and fixed route buses. This V2I connection provides the dispatch center of the affected City departments real-time information on where the vehicle is located, its next destination, estimated arrival time, and vehicle diagnostics. With this information, dispatch can inform customers on the status of their trips and determine when and if maintenance is needed on the vehicles. This V2I connection is done through cellular connections. The real-time information on the fixed route buses is provided to customer through two transit applications.

Expanding the connected vehicles to include the parking information will provide additional information for the customer. The provision of a citywide internet utility provides the network connectivity necessary to allow communications between vehicles and transportation infrastructure. Smart parking infrastructure provides real-time mobility information related to end-of-trip decision making. Connected vehicles can communicate with the transportation network to identify available parking and to determine the most appropriate parking locations based on a variety of factors, such as the availability of electric vehicle charging infrastructure, parking for persons with disabilities, parking costs, and restricted parking.

Vision Element #3: Intelligent, Sensor-Based Infrastructure.

The City of Tallahassee currently collects vehicular and traffic information through intelligent, sensor-based infrastructure. This is accomplished through various programs and software packages.

Vehicular and Traffic Data

The Traffic Management subsystem communicates with the Roadway Subsystem to monitor and manage traffic flow.

Traffic signal control is the major method for controlling traffic within an urban or suburban area. Traffic signals operate as either independent, isolated controllers or as part of coordinated systems. For coordinated operations, there are two primary types of traffic signal control systems in use. In a centralized control system, a central computer monitors signal status and traffic demands at each intersection, in real-time, and sends commands to each controller when needed to change timing plans or other operational parameters. Because of the real-time nature of the communications, centralized systems require a dedicated link between the central control system and each intersection.

An integrated freeway management system requires coordination with the traffic signal control systems in the vicinity of interchanges. Often, traffic diversion is required to reduce traffic density along a freeway in the event of an incident. An integrated freeway and traffic signal control system will enable selection of appropriate traffic signal timing plans to facilitate movement off exit ramps and along surface arterials during incident conditions.

There are currently no active freeway management systems (FMS) on the Interstate highway system in the region. However, there is a conceptual plan for an FMS on I-10 in Leon County, which would include dynamic message signs (DMS), cameras, and vehicle detection.

The other primary type of signal control system is the closed loop system, in which control functions are distributed between the local controllers, field located master controllers, and a centrally located PC-based computer. Each local controller contains its own set of system timing parameters, and only requires a communications link with a master controller for occasional data transfer and traffic responsive plan selection commands. The operational intelligence of the system lies entirely in the field, and the central computer is used only for database maintenance and operator interface and monitoring. With such a system, the demands for an extensive communications network are minimized.

City of Tallahassee

The City of Tallahassee is currently engaged in a large-scale project to upgrade the region's signal control system. The Tallahassee Advanced Transportation Management System (TATMS) is a centralized system; it controls and monitors approximately 240 signalized intersections in Tallahassee and Leon County. Over 50 surveillance cameras have been installed for traffic monitoring, incident management (detection and verification), and signal timing evaluation. Other components include emergency preemption systems, and fixed and portable DMSs and traveler advisory radio, as well as emergency vehicle preemption.

Transit Data

Transit information is provided through modules under the Trapeze Transit Management System. The modules include the Operation Support System (OPS)/Computer Aided Dispatch (CAD). OPS is an integrated operations management solution that streamlines many frequently performed operational tasks, including bidding, dispatching, timekeeping, workforce management and yard management. The Trip Planner screen allows schedulers to configure and build schedules by route and service.

The OPS system provides StarMetro with numerous important benefits:

- Increases productivity by automating/simplifying many labor-intensive operational tasks
- Increases dispatcher efficiency with day-to-day management tools
- Enables staff to handle updates to operator and vehicle information in real-time
- Keeps costs low by automating work assignments while supporting organization rules
- Protects and maximizes fleet value with adaptable vehicle and yard management tools
- Ensures accurate employee records, including seniority, absences, vacations, incidents, accidents, and administrative actions
- Provides deployment flexibility through a thin-client architecture
- Integrates operations management with fixed route and demand response scheduling sources, commendation/complaint, third-party payroll, human resources management, and other applications and data sources.

The Trapeze Computer Aided Dispatch (CAD)/Automatic Vehicle Locator (AVL) system is unique in its integration with in-vehicle technology as well as back office software applications. Functions of the CAD/AVL system include: (1) real-time vehicle location display and mapping (2) voice and data radio control (3) pull-out/pull-in monitoring (4) event management and incident reporting (5) schedule/route/adherence and headway management (6) vehicle data messaging "Email" or text messaging (7) a fixed-end component for real-time vehicle health monitoring (8) situation awareness maps, tables and graphics (status of all agency assets), and (9) security for emergency management.

Specifically, the CAD/AVL system:

- Improves the design of transit system service for customers and bus operators, reduces staff scheduling time and reduces operational cost by 4% to 9%.
- CAD/AVL reduces the number of vehicles required to provide service, reduce supervisor intervention, enhance dispatch/driver communications, provide service more efficiently and provide operational tools to greatly enhance service for customers. This system reduces travel times for customers and has been shown to reduce capital costs by as much as 9%.
- Providing traveler information helps passengers choose the correct route and wait at the right place at the right time. Studies have indicated that 67% of

waiting passengers thought service had improved with a real-time bus arrival system, even though there was no actual change in service levels. Real-time electronic signage at selected locations along with web-based information with real-time bus location and times makes traveler information very helpful for transit customers.

- Web Online Itinerary Planning and Schedule Information enhance customer service to allow users 24/7 access to plan trips and find transit information. Off-load call volume from the call center with a cost-effective, automated web solution.

Bicycle and Pedestrian Data:

The Tallahassee-Leon County Planning Department implemented a bicycle count pilot project utilizing volunteers to conduct manual counts related to bicycle infrastructure. The data collected through this program has been extremely useful and has served as the basis for numerous infrastructure enhancements in the community, including safety improvements and the development of protected bicycle lanes. The data has also been used by students at Florida State University for their research efforts. Because this data has proven valuable, a graduate student at Florida State University is currently developing a white paper on how the program can be improved and how manual counts can be replaced or supplemented with sensors and intelligent infrastructure.

Smart Cities Grant

If selected to receive the Smart Cities Grant, the City of Tallahassee plans to expand the sensor based infrastructure to include automatic passenger counters (APCs) and track parking space usage in the MultiModal Transportation District. APCs will provide much more accurate information on transit usage. Currently, StarMetro uses the farebox to track ridership. This information while reliable may not provide completely accurate information since it requires customer and/or operators to interact with the farebox in order to track ridership. Volume of customers, farebox malfunctions, driver error, etc. could all affect the ability of the farebox to track accurate information. In addition, the information is stored on the farebox and is not available to be broadcasted in real-time. APCs, however, track boarding and alighting data through strategically placed infrared laser beams that record ridership when the beams are broken. This information provides much more accurate ridership information and could be broadcasted in real-time to dispatch, decision makers, and the public. This information could then be used to improve system efficiency and allow customers to make informed decisions on when to use transit, such as avoiding an overcrowded bus, as they make travel plans to their destinations.

Likewise, tracking parking spaces will help decision makers and the public make informed choices about the transportation system. Decision makers would be able to better track parking space utilization to determine if additional spaces are needed, if the number of spaces need to be reduced, and create competitive pricing models to incentivize different modes of travel. Specifically, managing parking utilization would allow for smart land use decisions to promote higher density and the use of other

modes of transportation. For the public, it means seeing what parking is available before they even leave the house. For example, if their destination is downtown, they could see how many spaces are available in the downtown parking garage (Kleman Plaza), the cost for parking, and the transit routes in proximity to Kleman Plaza. The customer could then decide to go ahead and reserve the space before they leave their house or find alternative parking locations if that facility if full and how they could use the transit system to get to their destination.

Vision Element #4: Urban Analytics

The City of Tallahassee includes platforms for understanding and analyzing data to address complex urban challenges (e.g., personal safety and mobility, network efficiency, and environmental sustainability) and/or measure the performance of a transportation network.

TLCGIS

The Tallahassee-Leon County Geographic Information Systems Department (TLCGIS) is a joint interlocal agency formed in 1990 between the Leon County Board of County Commissioners, City of Tallahassee, and the Leon County Property Appraiser's Office. Funding for this effort is divided equally with the program's partners. TLCGIS provides support services with the responsibility of developing and maintaining the base map. Some of those components include: spatial analysis; database design, creation and management, automation of data processing, data development and maintenance, application development, and GIS integration into other business systems.

Twenty-eight web applications provide mobility data for drivers, bicyclists and trails; allow residents to pay utility bills online; show details of tax rolls, zoning/land use and proposed development; and list safety information such as FEMA flood maps and locations of fire hydrants (http://tlcgis.org/index.html).

Several web applications specifically address complex urban challenges (e.g., personal safety and mobility, network efficiency, and environmental sustainability):

- Tops (crime mapping application)
- Bike Tallahassee (bike routes and comprehensive bicycling resources)
- Trailahassee (Bike, Walking, kayaking trails application)
- Leon County Growing Green (community gardens, farmers markets, local farms)
- Farm Tour (region wide farm map app)
- FEMA flood application
- Natural Features (natural features in Leon County)
- Parks Finder Application (All parks in Leon County)
- TAPP (Think About Personal Pollution-water resource protection app)

In addition to the bike applications mentioned above, driver information and a bus route application measure the performance of the transportation network and are used to

reduce congestion and delays, improve incident response and clearance times; and to report transit usage.

Analytics that predict future conditions include the Local Mitigation Strategy, a countywide comprehensive hazard mitigation plan intended to make our community safer and more resistant to natural and other types of hazards, as well as a Post Disaster Redevelopment Plan.

Real-Time Transit Data

In 2012 Florida State University (FSU), one of the City of Tallahassee partners, set out to improve the mass transit experience on the main campus in Tallahassee, FL. FSU surveyed the bus ridership and asked one simple question, "Have you ever found yourself waiting at the bus stop wondering when your campus bus will arrive?" The answer was a deafening "YES." Immediately, the City began a competitive procurement process to find the best solution for FSU. The team reviewed all proposed solutions including features, cost, and companies' track records for innovation. FSU chose Translōc as our vendor of choice for real time bus information.

Translōc's solution was simple. Install GPS systems on all buses, configure bus stop telemetry, assign buses to routes, and offer an industry-leading mobile app to both Android and Apple users. The mobile app provides FSU users accurate arrival predictions, route and stop level alerts, and up-to-the-second updates to keep riders informed, on time, and pleased. In addition to the mobile app, Translōc offers a website for those FSU users that require access to the system from a computer (http://fsu.Translōc.com/). On the management side, Translōc offers FSU an intuitive management interface to run critical management and stakeholder reports, spot issues, provide riders with up-to-the-second information on their iPhone, Android, or SMS-enabled phone view, and observe up-to-the-second vehicle location, speed, load, and directions.

Most recently FSU and StarMetro have worked with Translōc to integrate FSU's campus bus routes and all city wide StarMetro bus routes; thus providing an innovative and integrated way to better traverse the City of Tallahassee. This project between FSU, StarMetro and Translōc has greatly enhanced, not only, the bus system on and around FSU's campus, but the customer service experience city wide. TransLoc Rider is a mobile application connecting users to a variety of local transit information. Users can select specific transit systems, StarMetro and Florida State University for Tallahassee, and can select all or specific routes within those systems to get real-time information on real time bus location and stop times. From StarMetro's perspective, TransLoc allows the transit agency to analyze ridership data, develop and distribute surveys to customers, and create messages to alert customers to route changes, detours, and other useful announcements.

The real-time information is provided to the customer through a GPS device on the bus and that information is then broadcasted to Transloc who disseminates it to customers via a smartphone app. Give riders up-to-the-second information on their iPhone, Android, or SMS-enabled phone and communicate easily with custom announcements.

From a transit agency standpoint, policymakers are able to track a person usage of the system through a 'ping' of their smartphone by the Transloc app. The Transloc app broadcasts back to the server the customers' bus stop location, the bus they board, and where they get off. This provides valuable information on travel patterns that transit agencies can use to assess the system and evaluate route changes.

DigiTally

In Tallahassee, citizens can download DigiTally, TallyParks, StarMetro Trip Planner, and TransLoc Rider. DigiTally is the City of Tallahassee's primary mobile application that connects citizens to a variety of services including reporting an electric outage, paying a utility bill, finding a park, browsing pets available at a shelter, reporting a crime, getting real-time StarMetro bus information, and receiving various news and announcements from the city. TallyParks is a more specialized mobile application that allows citizens to explore Tallahassee's many parks and trails. StarMetro Trip Planner gives users basic information on the StarMetro system, including bus stops and times by route and a trip planner that allows users to view transit options between two chosen locations arriving or departing at a chosen time. This recent ability for citizens to have essential city services and a great deal of transit information in the palms of their hands allows for Tallahassee to move forward in becoming more transit-oriented environment.

DigiTally is the City of Tallahassee's Mobile Citizen Engagement APP. Digitally provides users with an efficient means of interacting with the City of Tallahassee, often reducing physically traveling to city offices to conduct business.

Customers can access City services, such as turning on your utilities thereby saving a trip to the Utility Customer Service office. Other transportation related services include reporting problems such as abandoned cars in the right of way, sight impairment concerns, signs damaged, sidewalk and street issues such as potholes, damaged sidewalks, street sweeping requests, trees down in the right of way street lights out, traffic signal problems, illegal signage and drainage issues.

DigiTally empowers citizens to help the City respond to issues more efficiently. When a problem is submitted to staff for review the citizen user can also send a photo and the geographic coordinates for the problem. This often saves the city the time and resources to perform field inspections prior to assigning a crew to address the problem.

Citizens can follow requests submitted and receive updates on their statuses to know when the request is acknowledged, when the work is assigned, and when it is completed. DigiTally also provides City staff with tools to track and report requests and communicate with citizens and each other.

DigiTallyWidgets

Beyond trouble reporting DigiTally also provides users with "widgets" or applications within the mobile APP platform. One of these widgets is called "Find My Bus". This

application provides users with real time GPS locations of buses relative to the route and stop locations. Routes and schedule information are also included.

Another helpful DigiTally widget is a quick viewer for Parks and Trails. This widget provides users with search tools and maps of park facilities and trail maps throughout the metropolitan area.

For people on the road, The Tallahassee Driver Information System "Widget" accesses our state-of-the-art Advanced Traffic Management System. Users can find out real time information about congested streets, traffic accidents, and road closures. The site also provides volume and capacity information for engineers and planners and is available both on the City web site talgov.com or via DigiTally.

The Tallahassee Online Police Statistics provides crime, traffic crash, and quality of life data to the Tallahassee community and is taken directly from the Computer Aided Dispatch (CAD) application of the Consolidated Dispatch Agency. Crime data is searchable through numerous formats such as date range, activity, proximity to an address, geographic boundaries, neighborhood associations, etc. This is also available via Talgov.com or DigiTally.

http://www.talgov.com/main/digitally.aspx,
https://itunes.apple.com/us/app/digitally/id613160617?mt=8,
https://play.google.com/store/apps/details?id=com.publicstuff.tallahassee

To date, DigiTally has been downloaded by 14,126 users who have submitted over 33,417 requests for City services.

TallyParks

The TallyParks app, available on iTunes and Google Play, allows citizens to find the best parks and trails that Tallahassee has to offer. Residents can search for a nearby trail with the "Near Me" feature or find parks by available amenities, like basketball courts or bathrooms.

Tallahassee Parks' trails make extensive use of QR codes on trail markers. The app allows you to find your bearings by scanning the code and locating your proximity on the map and trail route. TallyParks is hugely successful with our outdoor oriented Tallahassee residents. To date, the app has over 4,500 users.

https://play.google.com/store/apps/details?id=com.talgov.tallyparks&hl=en

https://itunes.apple.com/us/app/tallyparks/id833684894?mt=8

http://www.talgov.com/gis/roads/default.aspx

Trailahassee

Launched by Leon County Division of Tourism Development (Visit Tallahassee) to promote nearly 600 miles of trails, this site features interactive maps, blogs, social media features, GPS functionality, and information on outfitters and associations. With user-friendly design suitable for laptops, smartphones and tablets, users explore rotating featured trails including the Apalachee Regional Park, Cadillac Mountain Bike Trails and Leon Sinks Geological Area, through videos, blog entries and Instagram feed photographs.

The "Find a Trail" tab includes an interactive map displaying trails either in map view, list view, or based on various activities (walking, hiking, biking, running, mountain biking, equestrian, motorcycle, canoe/kayak, ATV). Users can also make selections based on the type of surface and skill level. Maps are shown through three options — street view, satellite view or relief view.

User generated content is an important part of the overall strategy for Trailahassee.com. Live content from outdoor enthusiasts is featured using the hashtag #Trailahassee through Twitter, Facebook and Instagram feeds. The site also links directly to the county's consumer tourism site (www.VisitTallahassee.com) for other information about the area's upcoming events, hotels, restaurants and attractions.

Smart Parking

The Smart Cities Program would expand the use of urban analytics to better track parking usage in the downtown. By knowing the parking utilization rates, competitive pricing could be implemented to encourage other modes of transportation. In addition, it would allow for smart land use choices to promote higher density and more walkable environments.

Vision Element #5: User-Focused Mobility Services and Choices

The City of Tallahassee provides many innovative solutions supporting efficient goods movement in ways that use data or deploy technology to create opportunities for a more efficient supply chain approach that delivers safer logistics management, improved on-time pickups and delivery, improved travel time reliability, reduced fuel consumption, and reduced labor and vehicle maintenance costs.

Bicycling

The City of Tallahassee and Leon County both support the Bike Tallahassee initiative. This program includes an internet presence with a web-application to help cyclists make informed decisions about their transportation choices. The web application provides designated bicycle routes, identifies comfort ratings for roadways, identifies trails and bike lanes, and shows bike rack locations. This application works on desktop computers, tablets, and smartphones.

Transit

Within the Seminole Express campus circulator routes for Florida State University, Nite Nole is a route that provides students with transit options late at night. The route currently has service Tuesday through Saturday between 10:30 pm and 3:00 am with a bus arriving at a stop every 15 minutes. These hours allow students to study on campus in the 24-hour Robert Manning Strozier Library, exercise at the Bobby E. Leach Student Recreation Center, attend sporting events, or any other campus activity and return safely to their on-campus or off-campus housing. The Nite Nole route has the highest passengers per trip of all routes in the Seminole Express system (about 21) as identified from the Transit Boardings Estimation and Simulation Tool (TBEST). Just like all campus circulator routes, Nite Nole is free for Florida State University students to ride. This route is connected to TransLoc Rider so that students are able to access real-time bus location and stop information from their smartphones.

The Rhythm route was created as a way to both highlight the exciting nightlife that Tallahassee has to offer and promote transit. The route currently has service on Friday and Saturday evenings between 6:00 p.m. and 2:30 a.m. with a bus arriving at a stop every 20 minutes. This route is free for all riders and uses advertised trolleys instead of traditional buses. The Rhythm has a separate advertising campaign in addition to the current StarMetro advertisements in order to attract ridership. The route services three sections of the City of Tallahassee: Midtown, Downtown, and College Town/Gaines Street. These areas have high concentrations of restaurants, bars, music venues, and hotels perfectly suited for citizens and visitors alike. The Rhythm route is connected to both the StarMetro Trip Planner and TransLoc Rider mobile applications so that users can plan their night out on the town and access real-time bus location and stop information from their smartphones.

StarMetro, as the Community Transportation Coordinator (CTC) for Leon County, provides countywide transportation services to elderly, disabled and low-income citizens who lack adequate transportation to meet their medical, educational, employment and life sustaining needs. Over 70,000 countywide demand response (Para-transit) trips were provided in 2009, and the demand for transportation-disadvantaged transportation continues to increase every year.

In an effort to identify more cost effective ways to meet growing transportation-disadvantaged demand services, StarMetro proposed to develop a program in which flexible or 'flex' routes would serve the transportation needs of citizens in the rural communities surrounding the City of Tallahassee, particularly rural areas. StarMetro extended services to an area that did not have any transportation services. This service, known as Lake Jackson FLEX, was designed to enhance customer service and provide greater transportation options to those residents who live in the Lake Jackson area.

The "FLEX" provides a flexible route within a specific area. This curb- to curb service picks up and drops off customers at any location within the FLEX area. The Flex route has set time points at the one location in order to connect with two of StarMetro's fixed routes. This connection will allow customers to access all of StarMetro's routes.

Reliable transportation is critical to helping rural communities and community members remain healthy, active and productive. Rural residents need access to medical, educational, employment and life sustaining needs, and many other services just as their urban counterparts. The Lake Jackson flex route was established to enhance the quality of life for the community and its residents, allowing them to remain active and engaged with their community. The "FLEX" covers an area of approximately 11 square miles with a population of approximately 7,000. This service is the first of its kind in Tallahassee and, therefore, has been used as a pilot program for future "flex" routes. Partners include Florida Department of Transportation, Commuter Services of North Florida and Capital Regional Transit Planning Agency.

The programs mentioned above along with information on road conditions are available through many different programs and applications. The Smart Cities initiative would allow the City to place all this information including parking details in one mobile and web-based application. This application would provide information about traffic congestion, real-time transit data, the price and availability of parking, condition of existing pedestrian facilities and bike route information. This would allow commuters to make informed decisions about their transportation choices. Data could also integrate directly into connected vehicles and infrastructure through the provision of a citywide internet utility. This information would provide policymakers real-time information on how transportation is being used and the urban analytics to propose solutions to improve its efficiency in operation.

Vision Element #6: Urban Delivery and Logistics

The Tallahassee Advanced Transportation Management System (TATMS) is a centralized system; it controls and monitors approximately 350 signalized intersections in Tallahassee and Leon County. Over 100 surveillance cameras have been installed for traffic monitoring, incident management (detection and verification), and signal timing evaluation. The recent designation of the Tallahassee Airport with the international designation will increase the amount of goods traveling through the region by facilitating the ease of people and goods to the Tallahassee area.

The Sales Tax projects and will promote the efficient movement of freight with extra funds flowing into those objectives. Our Smart City Project should improve the movement of goods by decreasing congestion by taking cars off the road through smart transportation choices. Tracking parking spaces will help decision makers and the public make informed choices about the transportation system. Decision makers would be able to better track parking space utilization to determine if additional spaces are needed, if the number of spaces needs to be reduced, and create competitive pricing models to incentivize different modes of travel. Specifically, managing parking utilization would allow for smart land use decisions to promote higher density and the use of other modes of transportation.

Vision Element #7: Strategic Business Models and Partnering Opportunities

The City of Tallahassee has a long history of coordinating transportation plans and decisions with the universities in the community. The Tallahassee-Leon County

Planning Department has representation on Florida State University's Transportation Steering Committee and on the Bicycle and Pedestrian Committee. Planning Department staff is also involved when Florida State University and Florida A&M University update their campus master plans. A representative from Florida State University also serves on the Joint City of Tallahassee/Leon County Bicycle Working Group.

Both Florida State University and Florida A&M University are engaged in transportation research and engineering. For example, Florida State University is currently working with the Florida Department of Transportation to plan and evaluate policies and infrastructure for automated vehicles. Through the ongoing coordination between the City of Tallahassee and the universities, information can be shared and collaboration on smart infrastructure can continue.
Florida State University is a Tier 1 University Transportation Center and Florida A&M University is a sub-grantee. The Smart City Challenge is an opportunity for the City to expand the already significant cooperation with both universities.

The City has also had a long relationship with the Center for Urban Transportation Research at the University of South Florida to help to evaluate and improve the transit system. If awarded the Smart Cities grant, the City would reach to them to serve as the analytical arm of the program to see if the established goals and benchmarks are being reached.

Other relationships include working with Sustainable Tallahassee to promote alternative modes of transportation and Commuter Services of North Florida to educate the public on their transportation choices. These partnerships will be utilized in the implementation on the Smart City Proposal.

Vision Element #8: Smart Grid, Roadway Electrification, and Electric Vehicles

The City of Tallahassee is home to Four Tesla electric vehicle charging stations are currently located in the City at the Tallahassee International Airport, the Fresh Market shopping center, Whole Foods, and Four Points. If awarded the Smart Cities Grant, those locations with electric charging stations would be highlighted and incentivized for use by the public.

In 2010, the Federal Transit Administration (FTA) awarded StarMetro over $5 million dollars from the Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER) grant to replace diesel buses with all electric buses and associated equipment. The following year, StarMetro signed a contract with Proterra, Inc. (http://www.proterra.com) to purchase three zero-emissions, all-electric buses and a charging station, which would be installed at the transfer center, C.K. Steele Plaza. In 2012, the FTA increased the grant award to StarMetro by $2 million dollars to purchase two additional buses. The total award was $6,466,003 ($4,900,000 for the buses, $1,165,000 for infrastructure, $52,000 for vehicle introduction, and $349,003 for program management and data collection and reporting). The Center for

Transportation and the Environment (CTE) (http://cte.tv/) was engaged by StarMetro to manage the project. StarMetro's Electric Bus Deployment Schedule:

- June 2013 - Received two Proterra battery electric buses
- July 2013 – Received three additional Proterra battery electric buses
- July 2013 - Deployed fast charger and two shop chargers
- August 2013 - Service began

The electric buses were manufactured by Proterra, a company which was founded in 2004 and to date has sold to 12 different agencies throughout North America. Proterra specializes in electric bus technologies with fast charging capabilities. The fast-charge system allows for maximum run time and minimum wait time. On route charging can be completed in the time to stop for passengers. Once the Proterra bus is within range of the charging station, the station connects with the bus and automatically limits the bus speed to allow for connection. Although the bus is speed limited, the driver remains in full control of the bus at all times during the charging station process.

Feature	Benefit
Fast-Charge	24/7 operation keeps the bus on the road No special overnight storage/charging requirement
On-Route	Maintains route schedule/simultaneous passenger loading
Semi-Autonomous	Charger guides bus into position
Overhead Charge	Attaches to existing structure or dedicated pole
Composite Body	Doesn't conduct electricity
Regenerative Braking	Reduces brake wear and increases efficiency via energy recovery

StarMetro's fast charge station is located at our transfer facility at C.K. Steele Plaza. The fast charge station utilizes software and hardware that allows the batteries to rapidly charge from 10 to 95% in 10 minutes or less. The charging station is comprised of a charger, charger head and a bus communication system. Additionally, C.K. Steele Plaza is the stop for 6 of the 12 StarMetro service routes which makes expansion of additional electric bus routes possible. In addition to the fast charge station at the transfer center, StarMetro also has two stationary/shop chargers located at our bus facility.

Vision Element #9: Connected, Involved Citizens

DigiTally is the universal Mobile app platform for providing citizens with City Services on mobile phones and tablets. The City of Tallahassee has taken the approach that everything is mobile. We live in a community with two universities and a large Community College. An educated and talented workforce expects to have services at

their fingertips; however access to information via traditional web sites is still significant. The City has implemented a strategy to engage the public anywhere on any device. All web sites and applications are develop with a responsive design which allows the application to function on any type of device whether it is a desktop computer, tablet, hybrid device or any smart phone. All of the functionality of DigiTally or any of the application widgets within it are also available to users on the web.

DigiTally is by its nature a crowdsourced app that provides broad access to open government. Citizens provide input directly to City departments for services needed or problems with infrastructure and ultimately serve as co-creators of new ideas.

Enterprise-Wide Use of GIS

The City of Tallahassee has invested deeply over the past two decades in GIS technology. GIS has become an integral part of operations across the enterprise. Examples of new and upcoming applications such as Find My Bus, a new mobile friendly web application, helps citizens using the City bus system find their bus. Often, bus riders know their route, but they don't know if they are early to the stop or if they have just missed the bus. This new system uses a newly created GIS database for routes and stops. The application provides real time GPS location information to your mobile device so you can track the progress of the bus on its route. Tallahassee is a City with over 60,000 college and university students, and Find My Bus is an important tool in keeping riders on schedule.

http://www.talgov.com/gis/findmybus/index.html

http://www.talgov.com/gis/driverinfo/default.aspx

http://www.talgov.com/gis/tops/default.aspx

Financial Transparency - City Checkbook

The City's Checkbook webpage provides citizens with a transparent look at City expenditures from our operating budget. You can view those expenditures by City department, vendor, or expenditure category. You can view payments for the current fiscal year-to-date and the previous two fiscal years, with the City's fiscal year running from October 1 to September 30.

http://www.talgov.com/dma/financialtransparency.aspx

Open Data Portal

The City is currently implementing and Open Data Portal. The intent of this portal is to provide the computer application development community and data analytics community direct access to data sets the City maintains. It is intended to promote innovative use of the data to generate additional applications, products and services in the community.

The City plans to foster the use of this data by sponsoring "Hackathons" and encouraging the Universities and business incubator communities to participate.

This conforms to goals and objects of Tallahassee's dynamic business environment, complete with many start-ups. Domi Station, for instance, supports technology-driven startups engaged in developing and validating repeatable, scalable business models. Programs accelerate startup growth by providing a network of mentors, investors, and collaborators. From a Lean Launchpad-infused Get Started cohort to a four-month Incubator Program, they strategically assist different phases of the entrepreneurial journey. In a time when progress demands innovation, the City applauds innovation and these types of initiatives.

http://talgov.tlcgis.opendata.arcgis.com/

Leon County offers residents, including residents of the City of Tallahassee, the ability to use the Citizens Connect platform app. This application provides access to online services like online permitting and job applications, a directory to connect the user to a live person, the ability to make an inquiry that is routed to the appropriate department for a response, and the ability to report and track problems in the community.

Vision Element #10: Architecture and Standards

Florida Department of Transportation

A major telecommunications project, the Florida Fiber Network (FFN), is expected to provide a significant communications infrastructure for deployment of ITS technologies within the state.

The project will deploy a statewide fiber optic communications backbone along the Interstate rights-of-way. Public-private partnership opportunities with major telecommunications companies are being considered for sharing of Interstate and expressway rights-of-way in exchange for sharing of communications backbone. The appropriate leases have been signed, and system design and funding is underway.

The Department also maintains a microwave repeater system along portions of the Interstate System for its motorist aid call box systems. Individual call boxes transmit messages to one of a series of receivers located along the Interstate; these messages are then relayed along the system to the appropriate dispatch center.

An inventory of existing communications resources is necessary to plan for the future integration of ITS technologies across the District Three regional areas, of which the City of Tallahassee is a part. The table below summarizes the existing ITS infrastructure within the region.

Agency	System Type	Description	ITS Technology	Status
FDOT District Three	Motorist Aid Call Box	Telephones linked to a central emergency communications center	• Microwave	Active
FHP	*FHP Cellular call response Routine monitoring	Cellular *FHP system	• *FHP cellular system	Active
Tallahassee	Computerized traffic control system	Centralized system with control and monitor capability of 240 intersections	• Vehicle detection • Signal control • CCTV for traffic monitoring from City control center	Active
All Cities and Counties	No integrated systems- Only wireless radio	NA	Wireless radios, in-vehicle text messaging for communication	CAD and other EMS related systems are being explored

City of Tallahassee

The Tallahassee Advanced Transportation Management System (TATMS) field communications have been upgraded to a citywide fiber optic cable network – over 70 miles of fiber cable interconnecting a majority of the signalized intersections in the area. This cable network intersects Interstate 10 at four locations.

Orchard Pond Road, a toll facility currently under construction, will accept electronic toll collection (ETC) through Florida's SunPass program. The ETC architecture is designed by Florida's Turnpike Enterprise and is used statewide. Consistent with MAP-21 requirements, SunPass is utilizing technology to ensure that transponders are interoperable with other systems nationally. Currently, SunPass is interoperable with Georgia's Peach Pass program and North Carolina's NC Quick Pass program. Leveraging this architecture, Tallahassee will be able to provide a uniform architecture for the implementation of future toll facilities, including express lanes or other managed lanes.

Vision Element #11: Low-Cost, Efficient, Secure, and Resilient Information and Communications Technology (ICT)

The Smarter Cities grant would enhance the communications network systems and provide solutions to interact efficiently and reliably with the citizens of Tallahassee. Leveraging the citywide Internet Utility solution, all citizens of Tallahassee will have more opportunities to connect to the Internet and provide valuable information to decision makers. Engaging and partnering with the citizens, business, and other organizations of Tallahassee may cultivate new ideas and open new opportunities.

With the increase of information received, it is vital to ensure the information is accurate and useful for decision makers. The decision makers would also need to communicate to the citizens in an efficient and secure manner. Information about the citizen would need to be secure and measures would need to be taken to prevent any data breach.

Mechanisms, such as smartphone apps, web services, and a data warehouse, would be developed to increase the information exchange between the City departments, between the City and businesses, and between the City and citizens. The information exchange would lead to a well-informed citizen about the overall operation of the transit system, as well as the city operations.

Vision Element #12: Smart Land Use

According to the report *A longitudinal study of changes in urban sprawl between 2000 and 2010 in the United States* by Reid Ewing and Shima Hamidi of the University of Utah, the City of Tallahassee led the nation in reducing the City's sprawl index. Over the 10-year period, Tallahassee grew in compactness more than any other community in the United States. This distinction as the community that sprawled the least is a result of the City's smart land use policies.

The Tallahassee-Leon County Comprehensive Plan, a unified Comprehensive Plan addressing both the City of Tallahassee and Leon County, promotes smart land use. The Comprehensive Plan specifically states that the community will "direct development to those areas which have in place, or have agreements to provide, the land and water resources, fiscal abilities, and the service capacity to accommodate growth in an environmentally acceptable manner." This is accomplished primarily by directing growth into the Urban Service Area. The smart land use policies also promote infill development and redevelopment, offering incentives to make this type of development more appealing than developing greenfield areas of the community.

Consistent with the smart land use policies, the Multimodal Transportation District (MMTD) became effective for the central area of the City in April of 2009. The goal of the MMTD is to facilitate the use of multiple modes of transportation, leading to a reduction in automobile use and vehicle miles traveled. The MMTD is implemented through the MMTD Code. The MMTD Code covers all areas within the MMTD, including our downtown. The code seeks to improve the urban fabric of the Capital City through an increased emphasis on urban design and the public realm, thereby creating a pedestrian-friendly and transit-supportive district.