CITY OF ATLANTA

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Secretary Anthony Foxx
U.S. Department of Transportation
1200 New Jersey Ave, SE
Washington, DC 20590

Dear Secretary Foxx:

It is a great pleasure for the City of Atlanta to submit our proposal for designation as an automated vehicle proving grounds pilot. Under your leadership, the U.S. Department of Transportation has fostered tremendous innovation and is clearly aimed to the future.

We would be honored to be included among those to form an initial network of multiple proving grounds, focused on the advancement of automated vehicle technology, be designated as a Community of Practice to develop and share best practices around the safe testing, demonstration and deployment of automated vehicle technology. Our current experiences and activities, well underway through the Renew Atlanta bond program and described in our proposal, make us uniquely suited to contribute as well as benefit from selection.

Thank you for your every consideration of our proposal. Should you or your staff have any questions, please contact me at (470) 218-1184 or fqdimassimo@atlantaga.gov.

Sincerely,

Faye Q. DiMassimo, AICP
Renew Atlanta General Manager

DOT-OST-2016-0233

December 19, 2016

Proposal for Designation of Automated Vehicle Proving Grounds Pilot

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Introduction

The City of Atlanta is poised to be one of the most transformative cities in America for transportation with a number of recently approved, taxpayer-supported finance initiatives including the Renew Atlanta bond program as well as the TSPLOST (transportation special purpose local option sales tax) and MARTA referendums. The overwhelming levels of public support for each, truly speaks to the engagement of Atlanta's residents in their transportation future.

Furthermore, transformative projects such as the Atlanta Beltline, a rehabilitation of an old rail corridor into 33 miles of walking and biking paths, along with the Atlanta Streetcar, usher in an era of transit, bike, and pedestrian focused improvements. A city that originally expanded its neighborhoods through streetcars in the late 1800's and early 1900's gets back to its roots.

In addition, the city has a new bike share program, Relay, targeted around MARTA rail stations and other key locations. Transportation Network Companies, such as Lyft and Uber, are thriving in Atlanta. Their technology-enabled platforms offer one more critical piece in the puzzle of multi-modal transportation options.

All of this speaks to a much-improved state of good repair, transit expansion, and multi-modal transportation focus for the city, a focus that will bring its residents more connectivity, options, improved air quality, contribute to economic prosperity and safer ways of transporting themselves.

The City of Atlanta is ready for the next step in this renewal – exploring how automated vehicles will become integrated into the city's mix of transportation options. An RFI was released by the city in October 2016 to "solicit strategies that could allow the City to enable the testing and deployment of autonomous vehicles systems in specific areas within the City. The City is seeking information on autonomous vehicles and Vehicle-to-Infrastructure (V2I) technologies and is seeking to identify industry participants."

With key institutional partners, such as Georgia Tech, metro-wide and state-wide partners such as the Atlanta Regional Commission, MARTA, and GDOT, business partners including Fortune 500 companies and community improvement districts, the City of Atlanta is ideally positioned to be a part of Automated Vehicle Proving Grounds Pilot. Additionally, with the City's participation as the only U.S. city selected for The Safer Roads Challenge (TSR) for North Avenue, the richness of available data and analysis as well as strength of partnerships focused on improving North Avenue in a transferable manner, offers a unique "best fit" for the U.S. DOT pilot.

Eligibility

All ingredients exist for North Avenue to be a successful proving ground for autonomous vehicles. The City of Atlanta's North Avenue Smart Corridor is eligible for designation as a USDOT Automated Vehicle Proving Ground because it meets the minimum criteria of being in the urban core, is a highway

North Avenue Smart Corridor is a major east-west arterial that connects universities, public and private transit hubs, Fortune 500 companies, shopping, and residents.

corridor, and includes an academic campus. North Avenue is a major east-west arterial through the heart of the city that connects universities, public and private transit hubs, Fortune 500 companies, shopping, and residents. As discussed below, North Avenue is also uniquely situated to leverage partnerships and implement emerging technologies in an impactful demonstration of the benefits of advanced transportation systems.

The City of Atlanta has long been a leader in the southeast, and looks also to be a leader for other major cities around the country when it comes to transportation innovation. To further establish itself as a leader amongst other major metropolitan areas, the City of Atlanta is working to create a new vision to become a "Smart City" of the future where technology and public services meet. The Smart City initiative is currently being deployed by the Renew Atlanta bond program in conjunction with key partners. Atlanta voters passed the $250 million Renew Atlanta infrastructure bond in March 2015 to make critical updates to the City's infrastructure. Renew Atlanta includes funding for a Smart Corridor demonstration project along North Avenue from the Georgia Tech campus to Ponce City Market. There is a unique opportunity to bring together the resources of Renew Atlanta and Atlanta's Smart City vision through the development of a Smart Corridor on North Avenue, including an autonomous shuttle demonstration, to address both safety and mobility challenges. The City aims to use:

- Technology to connect transportation assets into interactive, dynamic and evolving networks
- Stakeholder partnerships to address transportation safety challenges
- Intelligent Transportation Systems, connected vehicles and automated vehicles as the next step in transportation infrastructure
- Critical systems in vehicles and infrastructure that communicate with each other, allow for active citizen participation, and leverage a "sharing economy"

Figure 1: Why North Avenue?

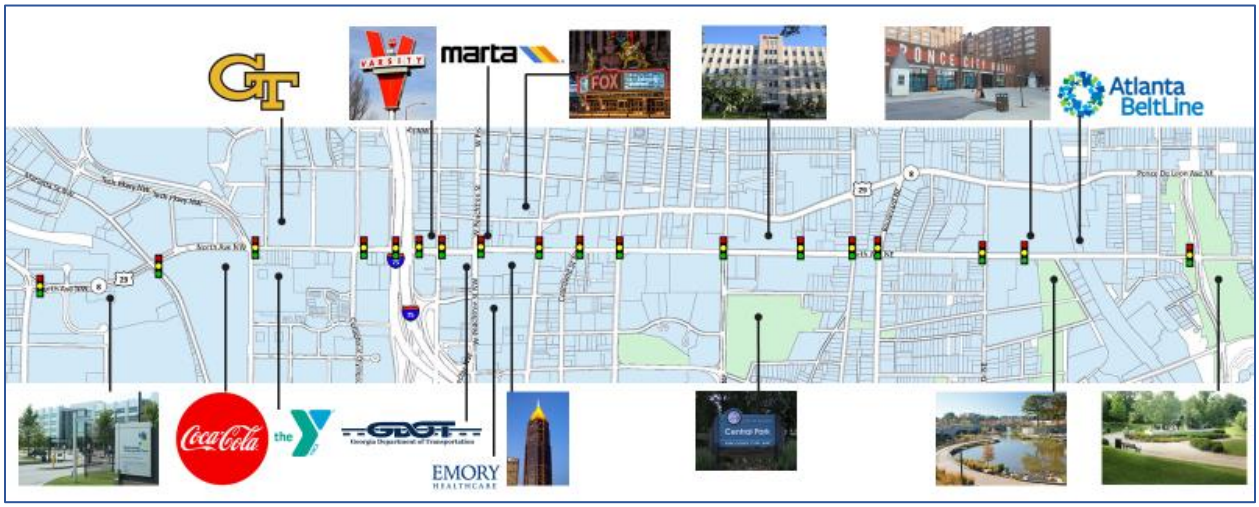
North Avenue was chosen for such improvements because it is a multi-modal high activity corridor with increasing development and a mixture of uses. There is demand for mobility improvements along the corridor as evidenced by the congestion and lack of traffic management. And, a real need for safety improvements is evidenced by the crash rate data. The crash rate per 100 million vehicle miles (MVM) on North Avenue as compared to the state averages is as follows:

- 2014 North Avenue crash rate per MVM: 646
- 2014 Georgia Statewide average crash rate per MVM: 292

An autonomous shuttle along with Smart City technology improvements along North Avenue will improve the safety and decrease the crash rate along the corridor.

Renew Atlanta's funding for a Smart Corridor demonstration project on North Avenue includes $3 million for Intelligent Transportation System (ITS), signals, multimodal safety, resurfacing, and restriping improvements. The proposed 2.6-mile east-west Smart Corridor, North Avenue, is in the heart of Atlanta's urban center straddling two major business mixed-use districts, Midtown and Downtown. Midtown is situated directly north of the corridor and Downtown is directly to the south. The North Avenue Metropolitan Atlanta Rapid Transit Authority (MARTA) heavy rail station is located on the corridor and multiple MARTA bus stops traverse the corridor. The Atlanta Beltline, a multi-purpose trail and future transit corridor that connects dozens of intown neighborhoods crosses the corridor near the eastern end. Numerous employers, entertainment destinations, parks, and residential uses help create a vibrant and varied urban landscape. Some of the major employers and destinations can be seen in Figure 2.

Figure 2: Destinations and Employment along North Avenue Smart Corridor



North Avenue is a designated state route for a portion of the proposed corridor. North Avenue is a designated US and state route (US 29/US 278/SR 8) between Northside Drive and Juniper Street/Piedmont Avenue. North Avenue is also significant as a state thoroughfare because it crosses and provides access to the Downtown Connector (I-75/I-85), and connects two well-traveled north-south state routes, Northside Drive (US 29/SR 3) and Freedom Parkway (SR 10). North Avenue has varied lane configurations and 18 signalized intersections along the length of the Smart Corridor.

The Georgia Institute of Technology (Georgia Tech), a premier public research university with a student body of over 25,000, is located at the western end of the corridor. Georgia Tech currently operates its Stinger Shuttle, Tech Trolley, for students, faculty, and staff with routes along and intersecting the North Avenue Smart Corridor.

Figure 3: Georgia Tech Stinger Shuttle

The proposed 2.2-mile autonomous shuttle route shown below includes the public road, North Avenue, from Ponce City Market to State Street. Ponce City Market is a 2,100,000-square foot adaptive reuse of the historic Sears, Roebuck & Co. building into vibrant mixed-use development. The proposed route traverses the majority of the Smart Corridor's length. It is intended that the shuttle would have a turnaround at either end of the route to make its return journey. The western turnaround includes a loop on State Street and Tech Parkway. The eastern turnaround is within the Ponce City Market drop-off circular driveway.

Figure 4: Potential North Avenue Smart Corridor autonomous vehicle route

Mandatory Criteria

The City of Atlanta's Designated Safety Officer for the Automated Vehicles Program will be Sowmya Maya, P.E., PTOE. Ms. Maya is a traffic engineer for City of Atlanta's Renew Atlanta infrastructure program and has an extensive background in traffic data gathering and analysis at the micro- and macroscopic levels, traffic studies, and project and program management. Renew Atlanta TSPLOST is

responsible for the implementation of over $550 million of infrastructure projects over the next seven years. These projects were funded through a voter-approved bond referendum and a voter-approved sales tax increase. Necessary infrastructure improvements on North Avenue to allow for automated vehicles are funded by Renew Atlanta.

As the Designated Safety Officer, Ms. Maya will participate in the Community of Practice's regular quarterly meeting of Safety Officers and be responsible for the Safety Management Plan. The Safety Management Plan is described in detail in the *Commitment to Safety* section. Additionally, the City of Atlanta will form a Safety Steering Committee to include representatives from other involved departments at the City as well as representatives from partner agencies. This Safety Steering Committee will support the Designated Safety Officer and aid and coordinate the sharing and analyses of the generated data. The following figure displays the different departments and partners that will each have 1-2 representatives on the committee.

Figure 5: Safety Steering Committee representatives

The City is committed to open sharing of all approaches to safety and safety data generated through testing and operation. The Safety Steering Committee will be responsible for the sharing, analysis, and maintenance of this safety data. The City of Atlanta was selected to be part of the Together for Safer Roads (TSR) program. TSR is an innovative coalition that brings together global private sector companies, across industries, to collaborate on improving road safety. The coalition brings together

members' knowledge, data, technology, and global networks to focus on five areas that will make the greatest impact: road safety management, safer roads and mobility, safer vehicles, safer road users, and post-crash response. Details and findings regarding North Avenue from the participation in this program are described in detail in the *Commitment to Safety* section. TSR developed an analytics tool for North Avenue that can be used as a means to share these approaches to safety and generated safety data. This tool includes an in-depth map view of risk prediction and historic elements, a detailed historical collision analysis, and traffic congestion analysis by visual classification among other data.

Proposed Contributions

The City of Atlanta, in conjunction with its partners, has already established a Smart City initiative. Efforts are already underway as part of the Smart Corridor and autonomous shuttle deployment in the areas of safety data collection and analysis (through the TSR program detailed in other sections), and infrastructure improvements (resurfacing, restriping, signal communications, detection, etc.) through Renew Atlanta.

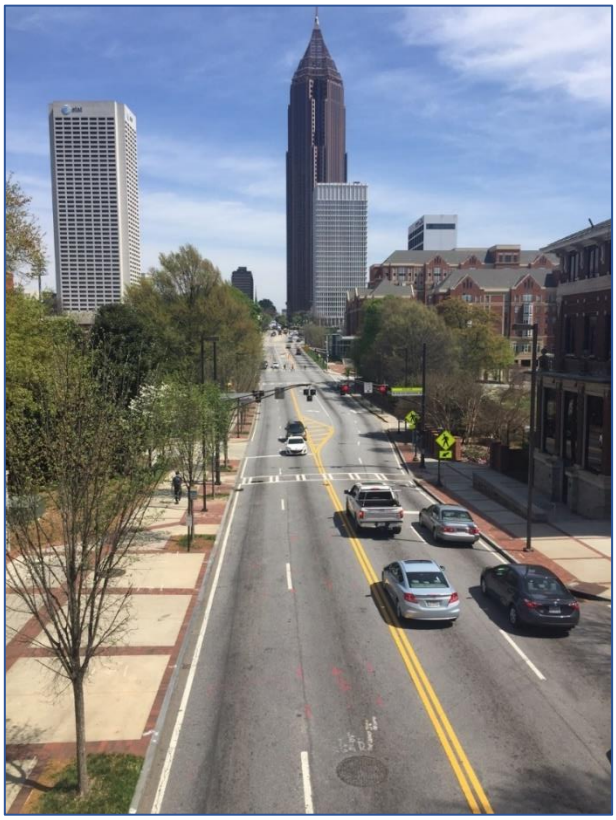
The City of Atlanta has shown great leadership by identifying and investing in a Smart Corridor where the potential of autonomous and connected vehicles can be explored in an urban center, an academic campus, and a state highway setting all in one. The City's Beltline corridor is evidence of the City's capability to be visionary for a solution to long-range and immediate mobility challenges and implement that vision. As a major influencer in the Southeast with connections to educational/research institutions, Fortune 500 companies, and civic and government agencies as partners directly on the corridor, the City has a distinct competitive advantage. The City will make regional and national contributions to the solution of mobility challenges through the testing and deployment of the Smart Corridor and the autonomous shuttle. TSR's national and global network is one method to share data analytics that support better infrastructure mobility planning. Contributions have and will continue to be made through conferences, speaking engagements, and through the City's partners such as Georgia Tech on academic research and publications. This is the first Smart Corridor and autonomous shuttle in Georgia, and the City's partner, ARC, will provide leadership at the MPO level as well.

> "We have been working closely with the City to re-envision North Avenue as a smart corridor that integrates best practices in urban street design with cutting edge technology, including autonomous vehicles. Our collective goal is to maximize the safety, comfort, and efficiency of this vital corridor."
> – Kevin Green, Midtown Alliance

The City of Atlanta has already begun a robust stakeholder engagement effort and has the ability to generate results that have broad applicability across the City, region, and nation. In March 2016, the City of Atlanta brought together key stakeholders for a kick-off visioning workshop to brainstorm and discuss smart infrastructure opportunities and options for the North Avenue Smart Corridor, including autonomous vehicles. A major goal of the workshop was to convene all the stakeholders and begin building partnerships. Each stakeholder's unique perspectives on transportation mobility, access, data, technology, and emerging trends were extremely valuable to this effort. North Avenue includes multiple mode operators and has numerous regional destinations and employers, resulting in many stakeholders. The workshop had 46 attendees representing public, private and non-profit sectors. The key stakeholders included:

- AT&T
- Atlanta Beltline Inc. (Multi-purpose trail and future transit corridor)
- Atlanta Committee for Progress (Coalition of business, universities, and philanthropic leaders)
- Atlanta Regional Commission (ARC) (Metropolitan Planning Organization)
- Central Atlanta Progress (Downtown Area Community Improvement District)
- Coca-Cola (World Headquarters)
- Georgia Department of Transportation (GDOT)
- Georgia Tech
- Google
- Invest Atlanta (Economic Development Agency)
- MARTA (Metropolitan Atlanta Rapid Transit Authority)
- Midtown Alliance (Midtown Area Community Improvement District)
- Ponce City Market (large mixed-use private redevelopment on corridor)
- Uber

Figure 6: View of North Avenue adjacent to Georgia Tech heading east



The City is underway with a Comprehensive Transportation Plan (CTP) to be completed in late 2017. This effort includes extensive collaboration with stakeholders and input from the community. Though this CTP is city-wide and will include many facets of transportation planning beyond this Smart Corridor and

autonomous vehicle, it is significant that this will be included in that future-oriented policy and planning document. Additionally, the Safety Management Plan will be included in the CTP.

The City's vision is to be a leader in Smart City technologies including autonomous vehicle integrations, and being a participant and contributor into the Community of Practice and Designated Proving Ground will propel that mission. The City's partners are committed to be leaders and supporters of this effort, as well. The partners' support for the Designated Proving Grounds opportunities and responsibilities is expressed in the letters of support included as attachments to this document. As part of the vision and commitment, the City and partners are excited to share information, lessons learned, and best practices through conferences, meetings, joint research efforts, and submission of significant activity reports to the DOT on a routine basis. Conferences the City and/or partners will participate in include the Transportation Research Board annual meeting, American Planning Association conferences, Intelligent Transportation Systems conferences, American Public Transportation Association meetings and conferences, and others. Meetings with peer cities across the country, with the DOT, as well as with industry professionals will be essential to further improving the positive impact of these technologies. Joint research efforts with Georgia Tech and other research institutions will look at testing and validation of autonomous vehicles. Research efforts at Georgia Tech are already going a step further to better understand the travel behavior implications of driverless vehicles, such as:

> "The City of Atlanta has shown great leadership by identifying and investing in a corridor where the potential of autonomous and connected vehicles can be explored"
> – Douglas Hooker, ARC

- Are people going to take more trips with driverless vehicles?
- How could shared driverless vehicle scenarios work?
- How will driverless vehicles affect behaviors, land use policies and densities?
- How will Internet of Things (IOT) improve productivity with reduced natural resource use?
- What policies would have to be in place to ensure VMT is reduced with driverless vehicles?
- Other technology research relating to smart signals concepts and Smart City drone application. The Georgia Tech Research Institute (GTRI) has some of the nation's top experts in drones and is interested in these applications.

Commitment to Safety

The City of Atlanta has the capability to control risks though the implementation of robust safety precautions detailed in the Safety Management Plan. The Safety Management Plan which will cover the entire North Avenue Smart Corridor will be completed in two phases and will include a section on autonomous vehicles. Phase 1 of this Safety Management Plan will be completed prior to the ribbon cutting of the autonomous shuttle. Phase 2 will be completed within a year of the autonomous shuttle demonstration implementation and will be geared towards continued operations of the autonomous shuttle and Smart Corridor. The City is in the process of developing the Safety Management Plan and is using multiple sources as a foundation for this plan. One, the City is using NHTSA's Federal Automated Vehicle Policy *Accelerating the Next Revolution in Roadway Safety* as a rubric of all necessary items to be addressed. Two, the City will incorporate the insights and expertise learned from the Request for

Information (RFI) Autonomous Vehicle Demonstration responses. More information regarding the RFI is included in the *Demonstrated Investments* section. Three, The City will use the analysis and findings from the Together for Safer Roads (TSR) program. The City of Atlanta was the only American City chosen to part of the 2016 TSR program. Safety issues on North Avenue were reviewed under this TSR challenge grant which allowed the City a deep dive into crash data and predictive analytics. For example, one of the issues the TSR will help the City examine is the impacts of weather and big events on traffic incident spikes at key intersections on the corridor. Another example would be to evaluate the safety impacts of an increasing population of autonomous vehicles along the North Avenue corridor. Therefore, solutions are developed in a manner that address root causes that are predictive not just reactive.

Research, Application and Data Sharing

The North Avenue Smart Corridor, including the autonomous vehicle demonstration, is designed as a living laboratory in which the City and its partners can learn from and apply to other corridors in the City, and ultimately to the broader region, state, and nation. The City will maximize partner's networks in sharing the best practices with others. The ARC's MPO network, GDOT's statewide network, and Georgia Tech's academic and research community network will be instrumental for local, regional, and national sharing. The City will also use the learned best practices in future peer exchanges as a way to share knowledge with other cities either domestically or internationally.

In addition to the research and resources provided by the City and partners as described above, the City of Atlanta's Information Management (AIM) office has already begun data and performance measurement on the Smart Corridor, including establishing baselines, which will enable and promote the advancement of automated vehicle technology and integration. The AIM office SMARTATL Initiative allows the City to use a strategic and data-centric approach to improving safety, mobility, and sustainability, ultimately enhancing citizen well-being and fostering economic growth. The SMARTATL has outlined the following five pillars to measure success.

Figure 7: SMARTATL Five pillars of success

Data and performance measurement are key to any project as they allow the City of Atlanta to measure and validate success and maintain the necessary organizational credibility needed for future funding. It is imperative to get a baseline of performance data before anything is implemented.

Data collection and data analytics will be key for this project and both will be made part of any future and ongoing deliverables by the City or any outside parties engaged and delivering projects to the City on an ongoing basis. The issue of data security needs to be resolved carefully working with the City's AIM office to eliminate any potential privacy threats associated with such activities and to allow the City to share such data with the public without fear of backlash from real or perceived privacy issues.

GDOT and the City have recently purchased traffic control software and hardware that will be used to measure performance. The City of Atlanta Traffic Control Center (TCC) will be connected to the Smart Corridor and will be able to monitor conditions and deploy resources into the field as needed. The City recently had an outside assessment done of the TCC and is currently implementing recommendations from that assessment so that it will be properly staffed to support the Smart Corridor and autonomous vehicles.

> "We have collaborated with the City of Atlanta on traffic management technology throughout the City, including on North Avenue, ensuring that North Avenue has the most advanced traffic management technology in use." - John Hibbard, GDOT

The City's partners, ARC and GDOT, will be instrumental in leading region and state-wide educational programs and best practices knowledge to support deployment of automated vehicle technology. The Safety Steering Committee can be used to help develop an education program and data-driven approach. Additionally, Georgia Tech and the City's membership in the MetroLab Network provides a platform for disseminating research results. The MetroLab Network's purpose and capabilities are discussed in detail in the *Readiness* section.

The City of Atlanta is uniquely equipped to receive leaders and professionals from all over the country to visit the North Avenue corridor- via the world-renowned Hartsfield-Jackson Atlanta International airport, easy MARTA rail connection to the North Avenue corridor, abundance of hotel accommodations, and presence of both Georgia Tech and GDOT right on the corridor.

The City of Atlanta will provide access to relevant public data on it existing portal, DataAtlanta. Led by Mayor Kasim Reed, the City of Atlanta has made significant progress in making its data open, machine-readable and accessible, discoverable and usable by the public. In 2015, the Mayor's Office of Innovation Delivery and Performance launched DataAtlanta, a portal allowing access to all of the city's publicly-accessible performance data. This has allowed the City to become more transparent and currently ranks 17 out of 109 cities in the amount of open data that it delivers. This ranking is compiled by the Open Data Census, a joint effort by the non-profits Code for American and The Sunlight Foundation. Data and performance metrics will also be shared through MetroLab, TSR, the Safety Steering Committee, and the City's partners.

Demonstrated Investments

One of the goals in the North Avenue Smart Corridor plan is to provide the optimal conditions for autonomous vehicles and possible vehicle-to-infrastructure (V2I) technology. V2I technology is a type of autonomous vehicle technology in which roadside infrastructure, such as devices at an intersection, communicates with vehicles in a corridor, potentially warning of red lights violations, excessive speed, or pedestrian/bicycle elevated awareness alarms. V2I can improve safety and traffic flow. In some examples that will be tested, the technology sends a warning to the driver, or potentially even alert the driver to slow down to optimize traffic flows or even autonomously takes action to stop to avert a crash. The City's North Avenue Smart Corridor plan will provide optimal conditions for autonomous vehicles and possible V2I through capital investments. These investments include fiber along the corridor, access points for wireless communications and sensors, and reliable high-speed communications to the City's traffic control center. Renew Atlanta is funding and implementing signal communications, traffic responsive signal timing, road resurfacing and restriping, and other related pedestrian, bicycle, and vehicle improvements. ATLNET through the AIM office is developing a municipal fiber optic communications infrastructure that will support other Smart City initiatives. The City is leveraging its street light and traffic signal LED conversion by connecting poles to the fiber network and attaching cameras and sensors and wireless devices to create smart utility poles. The City is also developing a partnership with Georgia Power that will include the ability to use utility poles for the Smart City. Partners have also made capital investments for the advancement of smart technology and autonomous vehicles. GDOT is funding and implementing signal software and hardware upgrades and corridor signal timing improvements. The Atlanta Beltline is installing fiber for signal communications on North Avenue from Argonne Street to Ponce City Market.

The Georgia state law does not provide any regulatory challenges for autonomous vehicles. In fact, this autonomous shuttle demonstration could help inform future state and local laws and regulations. The Georgia state legislature reports and actions regarding autonomous vehicles are described in detail in the *Adherence to Laws, Regulations, and Federal Policy* section.

The City of Atlanta recently received multiple responses to a RFI regarding the Autonomous Vehicle Demonstration. The purpose of this procurement was to solicit strategies that could be taken by the City to enable the testing and deployment of automated vehicle systems in specific areas with the City as well as to select a specific vehicle demonstration. The City will use insights from these proposals for future management and operations of the autonomous vehicle demonstration.

Readiness

North Avenue autonomous shuttle ribbon cutting: September 14, 2017

The Mayor's Office of Communications has committed to a North Avenue Smart Corridor and autonomous shuttle ribbon cutting date of September 14, 2017. This date has been discussed with partners and a formal press release will be made as the date draws closer. The autonomous shuttle will be brought online for testing in the two months prior to this date.

The North Avenue Smart Corridor will have ample power and fiber-optic network infrastructure to support a variety of cameras, sensors, connected traffic signals, wireless infrastructure (including for

communications to vehicles) and public-facing services designed to provide real-time feedback, analysis, and alerts, adaptive traffic control, increased public safety, and enhanced mobility. The smart intersection demonstration is also underway within this corridor with live camera feeds providing traffic data collection, analysis, and alerts.

The smart intersection demonstration supports testing by multiple users. There are 3 separate deployments underway which are currently being tested by 3 different users. The City's AIM office has already deployed cameras and sensors along the corridor with varied capabilities in terms of data collection:

- The City has contracted with Metro Tech to aggregate the data and perform analytics from AIM's cameras. These cameras detect pedestrian, bicycle, and vehicle lane level counts. They also detect lane level average speed.
- The City has contracted with MotionLoft to place cameras with sensors at locations on the corridor. These sensors detect temperature, weather conditions, and precipitation. The cameras detect vehicles, bicycles, and pedestrian counts, as well as details such as vehicle size and color, and demographics of persons (age, race, sex, etc.). The cameras detect movement including approach direction, depth perception, path tracking, and dwell time.
- Georgia Tech has deployed cameras with sensors along the corridor. One is currently in place at Old Fourth Ward Park and another at Spring Street. These sensors detect temperature, air pressure, visible light, UV index, carbon monoxide, audio decibel level, infrared heat radiation, and path detection and counts of pedestrians, bicycles, and vehicles. Georgia Tech's cameras with sensors are monitored by the MetroLab Network. MetroLab Network is a group of more than 35 city-university partnerships focused on bringing data, analytics, and innovation to city government. It pairs university researchers with city policymakers to undertake research, development, and deployment projects that improve our infrastructure, public services, and environmental sustainability.

Additionally, AIM is working with AT&T to install 4G modems at all signalized intersections along the corridor to cover communications from their cameras and sensors back to the TCC and AIM.

In addition to supporting testing by multiple users, the data generated by the autonomous vehicle proving ground will be shared openly with the public through DataAtlanta which is described in detail in the previous section *Research, Application and Data Sharing*.

North Avenue Smart Corridor designated point of contact:
Faye DiMassimo, Renew Atlanta TSPLOST General Manager

The North Avenue autonomous shuttle route is primarily on public roads and in one location, is on private property (Ponce City Market turnaround at the eastern end). The City has and will continue to engage with all affected communities. As described previously, the City held a North Avenue Smart Corridor Visioning Workshop with stakeholders that focused on the autonomous shuttle back in March 2016. This workshop included 46 participants and was intended as a first of future meetings to engage the affected communities. Additionally, Renew Atlanta will host public engagement sessions leading up to the ribbon cutting of the autonomous shuttle.

Other methods of public and stakeholder engagement include through the City's Comprehensive Transportation Plan public outreach program and through the City's partners on this effort. The City's

Community Improvement District partners, Midtown Alliance and Central Atlanta Progress, work with the adjacent business communities and will help address their specific questions. Georgia Tech will actively address students' and administrations' questions. The ARC will engage with communities who live, work, and/or play in the area to address their questions.

Adherence to Laws, Regulations, and Federal Policy

In September 2016, the National Highway and Transportation Safety Administration (NHTSA) provided groundwork guidelines addressing the safe development and testing of highly autonomous vehicles (HAVs). The policy has four parts: Vehicle performance guidelines; Example state policy; NHTSA's Regulatory tools; Regulatory Actions. The policy stipulates that states retain the responsibility for vehicles licensing and registration, establishing and enforcing traffic laws and insurance requirements. It also provides 15 best practices for the design, developments, and testing of HAVs prior to operation on public roads (or sale to the general public). Policies at a national level like this are beneficial in forming the foundation for autonomous vehicle and connected vehicle development and testing.

The Georgia House Autonomous Vehicle Technology Study Committee was created through the passage of House Resolution 1265 in 2014. The Committee published a report in December 2014, discussing the levels of autonomy, legislation introduced in the U.S., liability, infrastructure impacts, and challenges in Georgia. The report states that regional surveys will be conducted by the ARC to assess public opinion regarding benefits of autonomous vehicles and barriers. The report also points out that the Committee shows interest in the further development of autonomous vehicles in Georgia, but any new regulations, definitions, or changes to the existing system would shock the market and cause delay in this technology. The Committee recommends promoting the development of the autonomous vehicle technology in Georgia, and continuing in the path to provide pro-business climate with low taxes and minimal regulation, develop highly skilled educated workforce, and provide adequate funding to higher education facilities and research laboratories.

The Georgia Senate recommitted Senate Bill 113 to the Senate Committee on Science & Technology in January 2016. This Bill entitles an Act to amend Title 40 of the Official Code of Georgia relating to motor vehicles and traffic, so as to create a new class of motor vehicles to be known as autonomous vehicles; to provide for definitions, requirements to operate an autonomous vehicle, operation of autonomous vehicles on public highways for testing purposes, indemnity of vehicle manufactures in certain instances, regulation of autonomous vehicles, penalty, and related matters; and to repeal conflicting laws.

A large portion of the liability could be transferred to the City of Atlanta and manufacturers in the insurance underwriting process. Such legal concerns, and the question of who "owns" the risk, will need to be addressed. The parties that can be held accountable for an autonomous vehicle crash range from the car manufacturer to the manufacturer of an autonomous vehicle component, the software engineer who programmed the code for the autonomous operation, or the road designer in the case of an intelligent road system that helps control the vehicle.

Commercial wireless communications to and from autonomous vehicles such as dedicated short range communications (DSRC) will be subject to monitoring by law enforcement under the Communications Assistance for Law Enforcement Act (CALEA). CALEA requires telecommunications carriers to facilitate

law enforcement access to telecommunication networks through CALEA solutions switches that enable law enforcement interception.

DSRC services operate in a protected frequency band (i.e., 5.850-5.925 GHz), which means operators must obtain a license from the Federal Communications Commission (FCC) in order to legally operate DSRC-based devices. In the case of the road-side unit (RSU), the operating agency must apply for a DSRC license for their territory and each RSU must also be registered with the FCC such that other operators are aware of their existence.

The City of Atlanta has not passed any local laws related directly to the owning, operating, or maintenance of autonomous or connected vehicles. The City is committed to following the Smart City Safety Management Plan and will adhere to all city, state, and federal laws.

The North Avenue autonomous shuttle route primarily makes use of public roads in its route including North Avenue, State Street, and Tech Parkway. The City will adhere to the primary subject areas outlined in NHTSA's policy for automated vehicles for the safe design, development, testing, and deployment of autonomous vehicles. The City will submit a safety assessment letter to NHTSA outlining how the guidance has been met for the deployment of a L3-L5 system, the autonomous shuttle, on public roads including: data recording and sharing, privacy, system safety, vehicle cybersecurity, human machine interface, crashworthiness, consumer education and training, registration and certification, post-crash behavior, federal, state, and local laws, ethical considerations, operational design domain, object and event detection and response, fall back, and validation methods.

Appendix

ATLANTA REGIONAL COMMISSION

40 Courtland Street, NE
Atlanta, Georgia 30303
atlantaregional.com

December 19, 2016

The Honorable Anthony Foxx
Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave, SE
Washington, DC 20590

Dear Mr. Foxx:

The Atlanta Regional Commission (ARC) is pleased to provide this letter of support for the City of Atlanta's application for North Avenue to be designated as a USDOT Automated Vehicle Proving Ground. ARC is the designated Metropolitan Planning Organization for the City and all or parts of the surrounding 20 counties.

Autonomous and connected vehicles have the potential to transform how people move around and how our cities are designed and function. ARC is nearing completion of a visioning exercise through a SHRP2 grant which examined how technology and other drivers of change could create major disruptions in the transportation industry. We anticipate the SHRP2 work to form the foundation for future planning activities and look forward to leveraging the City's efforts along North Avenue to make those plans a reality.

The City of Atlanta has shown great leadership by identifying and investing in a corridor where the potential of autonomous and connected vehicles can be explored in an urban setting featuring distinct variations in land use types, densities, lane configurations and topography along its length. Safety issues on North Avenue were recently reviewed under a Together for Safer Roads challenge grant. The City is currently seeking development partners to investigate issues related to possible implementation of advanced technologies along the facility. And perhaps most importantly, the Renew Atlanta Infrastructure Bond Program, approved by 88% of voters in 2015, includes funding for a smart corridor demonstration project on North Avenue.

All the ingredients exist for North Avenue to be a successful proving ground. ARC strongly encourages USDOT to include the facility in its initial round of designees in 2017.

Sincerely,

Douglas R. Hooker
Executive Director

cc: Faye DiMassimo - City of Atlanta
Mike Alexander, John Orr - ARC

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

December 14, 2016

The Honorable Anthony Foxx
Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: City of Atlanta's Automated Vehicle Proving Grounds Pilot proposal

Dear Secretary Foxx,

To any transportation-focused effort, Atlanta brings truly unique qualifications: Atlanta's history as a transportation hub, our nationally-recognized need to improve regional mobility and our demonstrated history of transportation innovation.

Please accept this letter of support to the City of Atlanta for their Automated Vehicle Proving Grounds Pilot proposal. Their proposal focuses on North Avenue in the City of Atlanta, part of which is Georgia State Route 8. We have collaborated with the City of Atlanta on traffic management technology throughout the City, including on North Avenue, ensuring that North Avenue has the most advanced traffic management technology in use. On behalf of the Georgia DOT, we will show our cooperation with this proposal through the recognition that much of the effort will be implemented and/or make use of the state transportation network and its support infrastructure.

We appreciate your leadership and are confident that this Pilot will serve both the automotive industry and transportation infrastructure well as we advance into an increasingly automated transport future.

Sincerely,

John L. Hibbard, P.E.
Director of Operations

marta
2424 Piedmont Rd. N.E.
Atlanta, GA 30324-3330

December 12, 2016

Faye Q. DiMassimo, AICP
Renew Atlanta General Manager
City of Atlanta
55 Trinity Avenue, SW Suite 4310
Atlanta, GA 30303

Dear Ms. DiMassimo:

The Metropolitan Atlanta Rapid Transit Authority (MARTA) is pleased to support the City of Atlanta's proposal for the Automated Vehicle Technology "Proving Grounds," sponsored by the United States Department of Transportation. As the transit agency for the Atlanta region, MARTA plans, funds and delivers projects and programs to improve the performance of the region's multimodal transportation system and strives to improve multimodal mobility and safety.

The Transportation – Special Purpose Local Option Sales Tax that was passed in November 2016 showed that the constituents of Atlanta are willing to invest in and improve the City of Atlanta's transportation network. By focusing on the challenge of making people feel safer, reducing pedestrian-vehicle crashes, improving sustainability, and growing the economy, this challenge is consistent with MARTA's key initiatives – creating a region that is well-prepared to compete in the 21st Century economy.

Given the City's major role as a transportation hub for the Atlanta region, as well as the state of Georgia, we believe it could be an important transportation innovation demonstration site that could provide important and far-reaching benefits. MARTA fully supports the City of Atlanta's proposal and will work closely with Atlanta to carry out the project.

Sincerely,

Keith T. Parker, AICP
MARTA General Manager/CEO

MIDTOWN
Alliance

December 2, 2016

Anthony R. Foxx
Secretary of Transportation
United States Department of Transportation

Re: *City of Atlanta: North Ave Designation as Automated Vehicle Proving Ground*

Dear Secretary Foxx:

Midtown Alliance is pleased to submit a letter of support for the City of Atlanta's application for North Avenue to be designated as a USDOT Automated Vehicle Proving Ground.

Midtown Alliance is a non-profit organization of business, residents and property owners supported by a professional staff that works directly with the City of Atlanta and other key stakeholders to plan, construct, maintain and program Midtown's built environment. Our footprint consists of a very fast-growing, dense urban area known as the Midtown core. This 1.2 sq mile area includes the North Avenue corridor, and is home to more than 65,000 daytime workers, 20,000 residents, more than 6M annual visitors. There are currently 22 large scale residential, commercial and institutional development projects under construction.

In sum, this is an area that requires new and bold ways to manage the transportation and mobility needs of citizens and very "smart corridors." Within this district, North Avenue is a critically important east-west corridor.

We have been working closely with the City of Atlanta to reenvision North Avenue as a smart corridor that integrates best practices in urban street design with cutting edge technology, including autonomous vehicles. Our collective goal is to maximize the safety, comfort, and efficiency of this vital corridor.

We believe North Avenue is a tremendous candidate for testing autonomous vehicles and this opportunity to partner with the City of Atlanta and the United States Department of Transportation cannot come at a better time. With the recent passage of Atlanta's historic transportation referenda, North Avenue has been identified by the community as a top investment priority and will receive several millions of dollars in enhancements in the coming years.

Through this designation and the hard work that will follow, we will see a highly attractive and inviting corridor emerge that unites neighborhoods and provides for the efficient movement of people, goods, and ideas.

Thank you very much for your consideration of Atlanta for this exciting opportunity.

Sincerely,

Kevin Green
President and CEO

999 Peachtree Street, Suite 730 Atlanta, Georgia 30309
OFFICE 404-892-0050 MidtownATL.com

Georgia Institute of Technology
Office of the Executive Vice President for Research

December 19, 2016

The Honorable Anthony Foxx
Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: City of Atlanta Automated Vehicle Proving Grounds Pilot Proposal

Dear Secretary Foxx:

The Georgia Institute of Technology is pleased to support the City of Atlanta's application for the Automated Vehicle Proving Ground, sponsored by the United States Department of Transportation. As a research and technology educational institution located directly on the corridor, Georgia Tech is a key player in educating the workforce and developing new ideas, methods, and technologies to improve the lives of citizens in our community and the world. Georgia Tech has a long history of support and partnerships with the City and with the community.

We believe the North Avenue corridor is an excellent candidate for testing autonomous vehicles and partnering with the City of Atlanta and the United States Department of Transportation cannot come at a better time. Autonomous and connected vehicles will transform how people move around and how our cities are designed and function. We are very interested in these impacts and relationships, evidenced by our research in the related areas of technology and policy. Georgia Tech intends to be a partner on this effort and transformation through our research and development of autonomous systems and 'smart cities' technologies to support the North Avenue corridor and the autonomous shuttle pilot project.

The City's proposal focuses on the North Avenue corridor, which we have already been collaborating with on smart corridor data collection and applications. Georgia Tech has already invested in smart corridor technology through the placement or cameras and sensors at two locations along the corridor to monitor traffic patterns, air quality, and environmental conditions.

We encourage that North Avenue is designated as an Autonomous Vehicle Proving Ground. We are excited for this opportunity and confident that the City of Atlanta and the North Avenue corridor would make a successful proving ground with far-reaching benefits.

Sincerely,

Stephen E. Cross

Stephen E. Cross
Executive Vice President for Research

Georgia Institute of Technology
Atlanta, Georgia 30332-0325 U.S.A.
PHONE 404.894.8885 FAX 404.894.7035

A Unit of the University System of Georgia *An Equal Education and Employment Opportunity Institution*

Central Atlanta Progress
Atlanta Downtown Improvement District

December 15, 2016

Faye Q. DiMassimo, AICP
Renew Atlanta General Manager
City of Atlanta
55 Trinity Avenue, SW, Suite 4310
Atlanta, Georgia 30303

RE: Automated Vehicle Proving Grounds Pilot – City of Atlanta Letter of Support

Dear Faye:

On behalf of Central Atlanta Progress and the Atlanta Downtown Improvement District, it is with great pleasure that we endorse the City of Atlanta's application for participation in the U.S. Department of Transportation's (USDOT) Automation Proving Ground Pilot Program for the North Avenue Smart Corridor/Safer Roads Challenge project. As a multimodal, growth corridor connecting the Georgia Institute of Technology, Georgia Department of Transportation (GDOT) headquarters, MARTA North Avenue heavy rail station, Coca Cola headquarters, and Ponce City Market, opportunities for this corridor as an autonomous vehicle demonstration are strong.

CAP/ADID believes that a stronger transportation system is the foundation for Smart City innovation. Indeed, new technologies and coordinated conversations like those being created through public-private partnerships between the City, federal government, community stakeholders, and technology professionals from the private sector are mobilizing collaborations in new ways that improve the quality of life for all of our people.

We believe that Atlanta is uniquely qualified for this USDOT program: Our history as a transportation hub, our need to improve economic mobility across the region and our "can do" culture will ensure that we deliver on the promises of the North Avenue project and this proposal. CAP/ADID applauds the City for its progress to date as you continue to demonstrate commitments that showcase best-practice Smart City technologies in thoughtful, strategic applications:

Earlier this year the City was awarded a grant through The Safer Roads Challenge to analyze root causes of collision risk within the North Avenue corridor and identify warning alerts that could mitigate the risk and thereby promote a safer corridor. Through that program, and with leveraged partnerships, you have completed The Safer Roads Challenge analysis of North Avenue. That body of work is being utilized for advancement of a City-led procurement (Number FC-9338) for the active recruitment of industry partners to identify and develop strategies to allow the City to enable testing and deployment of Autonomous Vehicles systems in specific areas of the City, including North Avenue. The Request for Information (RFI) specifically seeks information on autonomous vehicles and Vehicle-to-Infrastructure (V2I) technologies. The City of Atlanta's selection as a participant in the Automation Proving Ground Pilot Program would assuredly bolster these implementation efforts through designation of qualified facilities as proving grounds for safe testing, demonstration and deployment of automated vehicle technology.

84 Walton Street NW, Suite 500 • Atlanta, Georgia 30303 • Phone 404-658-1877 • Fax 404-658-1919
www.atlantadowntown.com

Central Atlanta Progress
Atlanta Downtown Improvement District

CAP/ADID strongly supports the City of Atlanta and USDOT in their collective objective to foster a safe environment to advance new transportation technologies and share best practices related to development and testing. On behalf of Atlanta's central Community Improvement District, CAP/ADID supports the vision created by the City's Smart City initiatives and endorses its proposal for participation in the USDOT Automation Proving Ground Pilot Program.

Best regards,

A.J. Robinson
President

CC: Dan Gordon, City of Atlanta

84 Walton Street NW, Suite 500 • Atlanta, Georgia 30303 • Phone 404-658-1877 • Fax 404-658-1919
www.atlantadowntown.com