City of San José, California

Proposal for Designation of Automated Vehicle Proving Ground Pilot

Image: Flickr, Mike Boening.

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1.0 Introduction

The City of San José is pleased to present this Proposal for Designation as a USDOT Automated Vehicle (AV) Proving Ground.

Autonomous Vehicles are one of the core innovation priorities for the City of San José. Facing rapid growth, the city is poised to add over 400,000 residents to the City by the year 2040 -- a 40% growth rate. Without dramatically reimagining our transportation infrastructure, we know that the notorious traffic, congestion, and safety concerns will only become greater for our community, and ultimately inhibit long-term economic prosperity. Additionally, we know that autonomous vehicles will ultimately lead to spillover benefits including allowing cities to densify by reclaiming parking land and highway infrastructure while reducing GHG emissions.

San José is strategically positioned to provide a safe and collaborative place for AV pilot programs by:

- Being located in the heart of Silicon Valley, a center of digital and automotive innovation;
- Utilizing strong public, private and institutional partnerships;
- Leveraging significant investment in transportation infrastructure;
- Building on established innovation, demonstration, and open data initiatives; and
- Using the City as a diverse, living laboratory.

The City of San José already has ambitious policies and programs for safety, transportation and innovation, which will provide a strong foundation for the Proving Ground program:

- **Smart Cities Vision** leverages the technology, prosperity, and innovation of Silicon Valley to make San José the most safe, sustainable, and user-friendly city.
- **Vision Zero San José** is a comprehensive road safety program across the city.
- **Demonstration Partnership Policy** to enter into partnership agreements, focusing on clean technology, sustainability, and green mobility.
- **Open Data Policy** to make the data the City collects and generates will be open by default.
- **Innovation Program** includes the Office of Civic Innovation and focused efforts in all City departments.
- **Transportation Innovation Zone** is an existing, living lab with established public-private partnerships to accelerate commercialization of transportation solutions in a real-world transportation network,

The City of San José is eager to become a designated USDOT Automated Vehicle Proving Ground and to contribute to the Community of Practice. We are excited by the opportunity to have a platform to share our best practices and lessons learned on providing safe testing

grounds for automated vehicle technology and to benefit from learning from other designated USDOT Automated Vehicle Proving Ground entities.

1.1 About the City of San José

San José is a unique place, playing a vital economic and cultural role within North America. The City recognizes its role and position passing several initiatives and policies that encapsulate its innovative foundation and pioneering spirit. San José is the 10th largest city in the country by population. San José is fortunate to be the largest and most urban city within Silicon Valley and is the third largest city in California. It is home to the nation's largest collection of leading innovative industries and is also home to an energetic, talented and diverse population.

San José is a city with various industries and land use intensities containing rural and suburban communities around an urban core. San José is also a multimodal city with its own airport, major rail connections to other major cities in the Bay Area, as well as extensive bicycle and pedestrian facilities.

1.2 City of San José Statistics

Population: 1,042,094 (2016)
Area: 180 square miles
Streets: 2,400 miles
Founded: 1777

2.0 Proposed Proving Ground Description

2.1 City/Urban Core Category

The City of San José is the ideal environment to provide a proving ground under the "City/Urban Core" category. San José encompasses a wide range of urban contexts that will allow for testing of technologies under a variety of real-world scenarios. The city is comprised of urban to rural places, which include many different associated street types and users of the street - from other automobile drivers, to pedestrians and bicyclists, to bus and rail transit riders. The diversity of land use and street contexts provides the perfect backdrop for safe testing of automated vehicle technologies to help improve the technologies to perform seamlessly in all situations.

Google's Self-Driving Fleet
Source: evercharge.net, Google.

San José's proximity to Silicon Valley provides direct access to the companies and startups who are the innovators of this technology. Automated vehicle technology has been operating up on our streets for several years. San José has taken a proactive approach to develop

strategic partnerships to work with the private sector to ensure that automated vehicle technology is safely deployed.

2.2 Potential Proving Ground Locations

The City will take an incremental and collaborative approach to define Proving Ground areas within the City that will provide the most benefit to research and development programs. A prime location is the existing North San José Transportation Innovation Zone (TIZ), although the City is open to making the entire City available for consideration as testing locations, then work with partners and local communities to identify expansion areas. This will take advantage of the City's diverse streetscapes to selecting specific locations that are ideal for ground proving certain concepts as prioritized by technology developers. This approach will provide a unique level of flexibility for research and development. The TIZ is described below, as well as other locations that the City believes are ideal proving grounds.

Potential Proving Ground Locations
Source: City of San Jose.

2.2.1 North San José Transportation Innovation Zone (TIZ)

San José is already at the forefront of incubating innovative transportation technologies and ideas. San José has embarked on a bold path to establish itself as the global hub of urban technology innovation for smart cities by creating a "living lab" for infrastructure demonstration known as the North San José Technology Innovation Zone (TIZ). Together, the City of San José, Prospect Silicon Valley, and private sector partners have built an innovative public-private partnership to leverage temporary access to public and private infrastructure to test, evaluate, and demonstrate innovative solutions.

A joint project of the San José and Prospect Silicon Valley, the TIZ is a one square mile zone selected for it's proximity to companies and residents that are leading the innovation industry, including the Corporate Headquarters of Cisco Systems, the site of a major V2X Systems Demonstration incorporating traffic systems, automotive and transit vehicles, and light rail. It includes approximately 11 miles of roadway, 21 traffic signals, over 670 streetlights, and the Guadalupe and Tasman Light Rail Transit line.

Schematic of North San Jose Innovative Zone
Source: City of San Jose.

This network of combined auto/bus/rail/ streets provides a unique setting for testing not only

autonomous vehicles, but also next generation traffic analytics, new connected vehicle communications and vehicle-signal interaction, as well as other innovations addressing congestion and safety in a modern, tech-savvy urban environment. Expanding the role of the TIZ to be a designated AV Proving Ground would be a natural extension of the existing public-private partnership.

2.2.2 Downtown Core and Major Arterial Corridors

San José's Downtown is an ideal proving ground for testing in an urban context. The downtown includes narrow two-way and one-way streets, tight grids and hosts a variety of modes including walking, biking, bus transit, light rail and commuter rail lines. The diversity of modes, the built environment, and people density present many potential use cases for automated vehicles and testing their benefits and constraints.

In the Downtown, major corridors such as West San Carlos and Stevens Creek provide ideal proving grounds for testing automated vehicles along high capacity arterials. The West San Carlos street corridor is located in western San José running between Highway 880/17 and Downtown San José. Having been developed as a major suburban car-oriented arterial roadway in the 1950s and 1960s, West San Carlos Street acts a prime connecting route to Downtown San José. In addition to automobile traffic, Stevens Creek is one of the city's highest ridership bus transit corridors and is home to two major retail attractions: Westfield Vally Fair Mall and Santana Row. This is one of three corridors within Santa Clara that is being upgraded to Bus Rapid Transit (BRT) status.

2.2.3 Diridon Station and Mineta San José International Airport

Diridon Station is San José's rail transportation hub. With light rail, commuter rail, intercity rail and planned High Speed Rail, Diridon Station is one of the best connected stations in the Bay Area and will be one of the busiest stations in the nation. San José owns the 10 million annual passenger Mineta San José International Airport, located 7 miles north of Diridon Station. The area between them includes commercial and light industrial land uses as well as open space.

The Station, Airport and connections between them will provide unique opportunities to test curbside operations, parking, weaving, merging and other conditions that vehicles will encounter outside of typical street operation. They also present opportunities for future pilot programs for autonomous vehicle use cases such as first/last mile connections, intermodal connections, autonomous ridesharing, self-parking in large parking facilities, and goods movement.

3.0 Mandatory Criteria

3.1 Proposed Designated Safety Officer

Kevin O'Connor
Assistant Director of Transportation

Mr. O'Connor is a 28-year employee of the City of San José, spending the entirety of his career with the City working in the Transportation field. Mr. O'Connor started with the City in 1988 as a journeyman electrician in the Traffic Signal and Streetlight Maintenance program, where he constructed, configured and maintained the City's traffic signal and streetlighting systems. Mr. O'Connor's technical background and knowledge of the City's infrastructure has proven to be beneficial during his ascent through the management ranks and in his role as a senior manager in the Department of Transportation for the last 14 years. Mr. O'Connor is currently the Assistant Director of DOT, overseeing the day-to-day operations of the Department related to planning, operating and maintaining the City's massive and complex transportation system. In addition to providing executive leadership for variety of programs and projects designed to deliver a safe, balanced, high-quality transportation system, Mr. O'Connor also leads the Department's innovation and technology efforts. Mr. O'Connor has a B.A. in Business Administration from Saint Mary's College and lives in San José.

Mr. O'Connor will be responsible for the Safety Management Plan and will participate in the Community of Practice's regular quarterly meeting of Safety Officers.

3.2 Safety Data Sharing

The City of San José is committed to sharing safety data generated through testing and operation of AVs. Data will be shared using the following methods:

- Publishing of a Safety Management Plan;
- Quarterly safety program updates, documenting activities, specific safety measures employed, and documentation of any incidents;
- Maintenance of a project website with the above information; and
- Participation in regular quarterly Safety Officers' meetings.

4.0 Supplemental Criteria

San José is committed to becoming a true 'Demonstration City' and deploying the latest innovations and technologies in ways that can significantly benefit its community. In fact, the City of San José has a history of partnering with leading Silicon Valley companies to test and scale cutting edge technologies including a partnership with Facebook to launch free gigabit WiFi throughout the city as well as with Silver Spring Networks to deploy an IoT network.

4.1 Proposed Contributions

An Automated Vehicle Proving Grounds in San José will have profound impact on innovation in the autonomy sector. With more than 20 global automotive and mobility R&D Centers located in Silicon Valley, there is unprecedented need for a readily accessible, rapidly developing working environment that represents the urban centers that exist across the US. In addition, San José and Silicon Valley host global telecommunications and networking innovators such as Cisco, Qualcomm, Samsung, Silver Spring Networks, AT&T, Verizon, Ericsson, and others representing the onset of connected infrastructure and an emerging platform for integrating autonomous vehicles into our city transportation network. San José has recently made a $25 million investment to build the Advanced Traffic Management Center, is planning for transition to a high speed 5G WiFi network and continuing the conversion of the City's 64,000 streetlights to controllable LED lights next year, all which could be a connectivity platform of AV.

San José's proposed Proving Grounds environment provides USDOT an opportunity to link its national testbed program and Smart Cities investments to an ecosystem of technology innovation of global scale, focusing on emerging solutions addressing major transportation challenges. If so designated, activity occurring on the San José Proving Grounds would be communicated regularly through conference calls, invitation to participate in meetings, invited participation in local conferences alongside San José, and sharing of project abstracts and briefing reports resulting from Proving Ground projects.

San José is already at the forefront of convening the private sector, working with our regional cities and the state on policy, and utilizing the city-as-a-platform for testing and experimentation to inform and accelerate the adoption of AV in a safe and equitable manner for all our residents. In January 2017, Mayor Liccardo will convene a group of ~40 industry, academic, and regulatory players to input and refine the city's approach to autonomous vehicle testing and pilots, data sharing, and regulation. Additionally, the city is an active leader on a number of regional and national transportation consortiums and bodies to inform policy and strategy in the space (see below).

San José has an ambitious goal of deploying a pilot AV program before the end of 2017. San José's autonomous vehicle initiative is based on four core pillars:

- **Equity** - ensuring increased access for currently underserved populations
- **Shared mobility** - utilizing multi-model transportation, integrating with public transportation infrastructure, and lowering barriers to usage by consumers
- **Safety** - piloting and testing impacts on safety
- **Sustainability** - lowering GHG emissions and providing cleaner transportation options

These pillars are in line with San José's Smart City Vision passed early this year unanimously by the City Council. San José's Department of Transportation will take the lead role in this initiative and recently formed an innovation team within the department to lead these efforts. This team works closely with the Mayor's Office as well as the Office of Civic Innovation and

Digital Strategy in the City Manager's Office to ensure coordinated strategy across all Smart City initiatives, such as ensuring adequate network connectivity through the transition to 5G and to smart infrastructure by continuing the conversion of the City's 64,000 streetlights to controllable LED lights next year.

4.1.1 Innovation and San José

San José is dedicated to innovation in the public sector. Further, San José is also dedicated to encouraging private sector innovation to improve quality of life and increase economic vitality. A selection of San José's innovation programs, policies activities are described below.

Smart Cities Vision

In early 2016, Mayor Liccardo appointed the first Chief Innovation Officer for San José as well as introduced San José's Smart City Vision framework to make San José the most innovative city in the nation by 2020. The vision sets goals and priorities for bringing new digital skills and capabilities into City government and rapidly adopt innovative solutions from across sectors. The primary goals of the vision are to leverage the technology, prosperity, and innovation of Silicon Valley to make San José the most safe, sustainable, and user-friendly city. Additionally, the document laid out organizational restructuring to form an Office of Civic Innovation as well as a new Council Committee to oversee the implementation of the Smart City Vision.

Office of Civic Innovation

The Office of Civic Innovation (OCI) was created in 2016 to capitalize on innovation and technology opportunities to enhance the quality and efficiency of city operations. The OCI oversees and coordinates a wide range of projects, programs, and opportunities related to the San José Smart City Vision that aim at making the City more efficient and effective, such as public safety, demonstration projects, data analytics, sustainability, and public-private collaborations. Located in the City Manager's Office, the OCI includes a new Deputy City Manager, a data analytics team, and oversight of the IT Department amongst other substantive organizational changes to elevate the role of technology and innovation in the City

City Council Committee on Smart City and Continuous Improvement

To oversee progress against the Smart City Vision, including high priority initiatives like AV testing and policy in San José, a new City Council Committee will form in early 2017. The workplan will be introduced for approval at the committee's first meeting, but AV is already targeted as one of the top priorities for the work of this group.

Demonstration Partnership Policy

On June 3, 2008, the City Council adopted a framework for engaging in and evaluating demonstration partnerships with the aim of developing, testing, and demonstrating innovative solutions in San José in support of the City's Economic Development Strategy and City operations. Through these partnerships, the City hopes to create new markets and new jobs and/or support existing local innovators; advance the City's Green Vision and Economic Development Strategy; and educate the public about innovative solutions. This policy allows the

City to enter into a Demonstration Partnership Agreement with the purpose of testing, evaluating and/or demonstrating innovative solutions where these partnerships follow set goals and meet the requirements of established guiding principles. This policy was originally designed to focus on three major elements: Clean Technology, Sustainability, and Green Mobility. However, in recent years it expanded to include many different types of innovation solutions and will be revised in 2017 to take learnings from the past eight years and help to make it easier for the private sector to partner and test a wider range of technologies more easily with the City, including AV.

Pilot Programs and Demonstration Projects
San Jose has been actively initiating innovative projects such as:

- Traffic Signal Phase and Timing Data Project
- Traffic Light Synchronization Program and Adaptive Traffic Signal Projects
- Emergency Vehicle Preemption Service Project
- Digital Roadways Project
- High-Speed Wireless Network Pilot Project
- East Side Union High School District WiFi Project
- Starfish Network Pilot
- Streetlight LED Conversion Project

4.1.2 State and National Leadership

The City of San José is well positioned as a leader in the AV space among other cities. Silicon Valley is home to many leading AV companies. In addition, the City of San José has a well-established network with peer cities throughout the state and region on transportation issues.

As an example, San José is a member of the **California Big Cities Coalition**. This network includes the Transportation Departments of the cities of Los Angeles, San Francisco, Oakland, Fresno, Sacramento, Long Beach, and San Diego. The group works on a variety of transportation policies and initiatives and has a subcommittee focused on AVs where San José is an active member. The coalition provides an opportunity to share information and learnings from various cities. The coalition also is focused on developing a common local government policy framework on AVs in order to avoid a patchwork regulatory environment in California. Most recently, the coalition developed comments on California's DMV's draft AV regulations on behalf of our cities.

San José is also a designated and active member of the **National Association of City Transportation Officials (NACTO)** and participates in their AV discussions. Recent work included policy recommendations for AVs at the federal level.

San José was one of sixteen cities from the United States in **Transportation for America's Smart Cities Collaborative**. Through this effort, the City is working with other cities in the nation on urban mobility challenges with a particular focus on AVs.

Through the leadership of San José's Mayor Sam Liccardo, the City was successful in having our regional Metropolitan Planning Organization, the **Metropolitan Transportation Commission (MTC),** and the county Congestion Management Association, the **Valley Transportation Authority (VTA)**, include supporting AV technology in their legislative programs. The Mayor currently sits on the MTC and serves on the VTA Board of Directors.

4.2 Commitment to Safety

San José is has a proven commitment to transportation safety. San José continues to be one of the safest large cities in the nation for transportation operations, with an injury crash rate about half the national average. Over a 28-year period, San José's injury crash rate has declined 68%, and stabilized at approximately 2.4 injury crashes per 1,000 residents in recent years. Historically, there has been a strategic investment in capital projects that were largely based on analysis of crashes; deployment of enforcement at high crash locations; and the prioritized delivery of traffic safety education to school children and seniors. Key components of San José's safety program include:

Vision Zero San José

In May 2015, San José became the fourth city in the nation to formally adopt a Vision Zero transportation safety initiative, which aims to eliminate fatalities and reduce severe injuries caused by traffic collisions. The Vision Zero San José (VZSJ) plan identifies a series of actions centered on continuing and enhancing efforts related to *Evaluation, Engineering, Education,* and *Enforcement*; with emphasis placed on *Technology, Policy Alignment,* and *Partnerships*.

Annual Transportation System Safety Report

Every year the Director of Transportation prepares the Annual Transportation System Safety Report with updates on safety statistics, actions and planning efforts. A section on the AV Proving Grounds could be added to this report.

4.2.1 Demonstration and Pilot Program Experience

In its commitment to safety and innovation, the City of San José has implemented several technology solutions, demonstrations and pilot programs in the public realm. Several project examples are summarized below:

Traffic Signal Phase and Timing Data

All of the City's 936 signalized intersections are internet connected, linked to the City's traffic management data feed. These data include the status of all the City's traffic signals in real time and allows the City to provide the data for demonstration purposes. Prospect Silicon Valley and partners offer a platform of signal data and other streaming data for use on the Proving Ground.

Smart Cities Traffic Management Software Demonstration

RSM Technologies, Inc. will demonstrate sensor fusion to analyze vehicle and pedestrian activity within a series of intersections at the City's TIZ and other suitable locations. RSM

provides analytics that incorporate sensors, vehicle data, and other inputs to augment existing control schemes across multiple signals, to improve the efficiency of traffic management systems. Data produced from this platform will be shared openly with San José.

Digital Roadways
Cisco Systems, the City, and the Santa Clara Valley Transportation Authority are collaborating to pilot innovative V2X connectivity at the City's TIZ. This pre-commercial pilot will securely link cars, traffic systems, pedestrians and local infrastructure throughout a corridor to reduce congestion, improve safety, and enable networks of connected and automated vehicles.

High-Speed Wireless Network Pilot Project
The City is piloting gigabit-WiFi Terragraph technology developed by Facebook, to be deployed as part of a mesh-designed, backbone network that connects to existing City access points. Terragraph may pose a cost-effective alternative to traditional telecom infrastructure, and broaden access for unconnected and underserved communities. The first-phase deployment of Terragraph devices is underway in Downtown San José, one of three proposed Proving Ground locations. Facebook plans to test and stabilize this technology in San José and deploy in cities around the world in 2018 to provide internet access to the two-thirds of the world's population yet to be connected.

Starfish Network Pilot
Silver Spring Networks (SSN) is piloting Starfish, a wireless IPv6 network service for IoT, providing secure, reliable and scalable connections to devices and sensors using a wide variety of wired and wireless communication protocols across the city. This versatile network will support sensors and analytics on pedestrian, motor vehicle, and light rail traffic movement, and augment our AV Proving Grounds activity.

4.2.2 Safety Management Plan
The City will develop a Safety Management Plan to identify the major safety risks for testing in the public realm and will lay out a preliminary plan to promote the safety of the participants and surrounding road users, including pedestrians, bicyclists, and transit riders. The plan will describe the potential safety risks assess the level of risk, and provide a safety operational concept.

4.3 Research, Application and Data Sharing
The City of San José is well placed as an AV Proving Ground because it can meet all four of the research, application and data sharing objectives. The City has:

- Real-world needs for the application of AV technology;
- Research relationships with local universities and the private industry;
- A platform for disseminating results of AV research; and
- A commitment to open data sharing performance metrics and results of testing.

4.3.1 Real-World Needs and Applications for AV Technology

The City has needs for AV technology as a solution for improving safety, providing a solution to the first/last mile problem, and reducing SOVs and VMT in suburban areas. The City sees AV technology as an important part of achieving its citywide Vision Zero objectives of zero traffic fatalities. AV technology can play an important role in making our streets safer and dramatically reduce traffic related deaths and severe injuries. Specific locations that would benefit from AV technology research include streets that have high crash and fatality rates. Specific places in San José where this could be tested are busy corridors in the downtown where there are a number of conflicts between pedestrians, bikes and cars.

To explore the application of AV technology to help the first/last mile problem, the City is interested in research involving the Diridon Station area. The Diridon Station area connects people to the downtown via Caltrain, VTA light rail and other modes. However, once people arrive to the downtown, it can be challenging to reach their end destination. AVs could be an important part of this solution.

Sprawl has led to increased VMT and SOVs in the region. AV technology could be a part of the solution to reduce this. The City's TIZ provides an area for safely testing mobility applications in a suburban context.

4.3.2 Demonstrated Research and Extension Resources

The City of San José has strong partnerships with world class academic institutions and other extension resources. The City would engage the following academic research partners: San José State University (SJSU), SJSU's Mineta Transportation Institute (MTI), Stanford University, California Partners for Advanced Transportation Technology (PATH) and UC Berkeley Transportation Sustainability Research Center (TSRC). The Mineta Transportation Institute at SJSU is a member of the Mineta National Transportation Research Consortium, which is funded through the federal University Transportation Centers program and by state and regional partners including Caltrans.

In addition to academic institutions, the City would tap into and expand upon its partnerships with private AV companies and non-profits. Through the City's TIZ, the City is partners with a number of leading tech and auto companies including Cisco, Ford, GM, and many others. Through Prospect Silicon Valley (ProspectSV), the City has access to numerous public-private sector partnership opportunities, including a variety of consultants, such as Arup who is program managing AV testing programs such as UK AutoDrive.

4.3.3 Dissemination

The City understands the importance of sharing best practices and findings from research for AV technology. The City would take a holistic approach to sharing information through its broad network of academic, industry and agency partners. The City would work with its partners, such as MTI through the Mineta National Transit Research Consortium, which is funded by the

USDOT and Caltrans, to disseminate practical guidance to other cities, agencies and practitioners.

Within the region, there are agency and industry leadership around AV technology that San José can work with to disseminate information. The Metropolitan Transportation Commission (MTC) Future Mobility Research Program is undertaking a broad-ranging investigation of how automated vehicles may transform local and regional mobility to understand the policy opportunities with emerging mobility and to explore travel demand scenarios with automated vehicles to gauge greenhouse gas emissions impacts. In addition, the Santa Clara Valley Transportation Authority (VTA) has a record of leading innovation trials, and partnering with private companies. San José will share research findings with these agencies which could lead to more effective pilot programs, policies and guidance.

Furthermore, ProspectSV has connections to industry leaders which can help to create partnerships and disseminate information amongst industry leaders, consultants, agencies, and academic institutions and other partners. In addition, findings can be disseminated through project team members who are active in Transportation Research Board (TRB) and many other professional associations to produce practical guidance and lessons learned.

4.3.4 Open Data and Sharing

The City of San José is committed to open data and sharing performance metrics and results. San José has a progressive Open Data Policy. San José's existing Open Data Platform is up and running. San José's Open Data Policy affirms the City's commitment to open, honest, and effective government. In addition, the City is currently piloting a data-sharing partnership with VTA to place all VTA and City of San José data on a shared, open data portal to garner more robust insights into transit and city data and foster regional data-sharing. The City strives to consistently meet the community's expectations for excellent services in a positive and timely manner, and in full view of the public. It is the policy of the City that the data it collects and generates will be open by default. To facilitate the collection, opening, and analysis of additional data and information assets, to the extent practicable, the City will endeavor to acquire rights to the data generated by the City's vendor or other third parties where the information collected has the potential to inform operational decision making and public policy. In an effort to maximize the impact of this Policy, the City will endeavor to engage and share datasets with other local, regional, and national government entities, non-profit groups, businesses and community interest groups and stakeholders as appropriate with the goal of maximizing the flow of information to the community.

In addition to its Open Data Policy, the City has experience working with companies in the TIZ in setting up data sharing agreements. The role of City is to provide data that is suitable for the agency to collect, or that the agency has to maintain, such as signal timing data, and facilitate the use of the data to further common goals with technology developers. The City expects participating companies to provide data that helps demonstrate how their technology will improve conditions for the community, such as increases in safety, accessibility, mobility, and

efficiency. There is ample opportunity to successfully navigate the balance between public and private interests. Companies will be encouraged to participate in socially-beneficial research along with academia. Academia and third party advisors can also help bridge some gaps, for example, with funding, the City would explore setting up neutral research clearinghouse similar to how UC Berkeley TSRC performs this role for ridesharing service providers.

4.4 Demonstrated Investments

San José has benefited from significant and ongoing investment in the multi-modal transportation systems. Major infrastructure investments include Bay Area Rapid Transit (BART) Phases 1 and 2, High Speed Rail, Caltrain Electrification, Diridon Station development, and the recently passed Santa Clara County Measure B, bringing over $6 billion to the county, much of which is going to San José for highway improvements, local street projects, and bike and pedestrian improvements. These investments have created modern and diverse transportation infrastructure that is ideal as for the testing of advanced technology. In addition, San José has invested heavily in city-scale Intelligent Transportation Systems. Examples include:

Technology Demonstration Center

Opened in 2014, Prospect Silicon Valley operates San José's $12 million, 23,000 sq. ft. Technology Demonstration Center. The Center provides work space, lab facilities, specialized equipment and meeting rooms for emerging technology companies to accelerate commercialization of emerging urbantech solutions. The Center is home to critical resources including ITS Lab, a full-scale working intersection integrated with multiple roadside and mobile V2X systems, live traffic sensors, and integration with San José's SPaT data streams. The Center is also home to fkaSV, a partnership of ProspectSV and Aachen University, featuring SimLab, a full Driving Simulation R&D facility complete with research staff.

San José Advanced Traffic Management

San Jose has recently made a $25 million investment in smart traffic management.
In April 2016, San José unveiled a new Advanced Traffic Management Center (TMC). This center allows the city to proactively manage manage and monitor local and regional transportation system operations for a variety of scenarios, including daily commutes, special events and emergencies. San José's Traffic Light Synchronization Program Project (TLSP), completed in June 2013, employs the latest signal equipment, timing, coordination, and communication technology available for optimizing and monitoring traffic conditions. The City is currently working on a project to deploy Emergency Vehicle Preemption (EVP) Service at all signalized intersections, linking a centralized EVP system with the central traffic management system, central computer-aided dispatch system, and automated vehicle location system to coordinate response vehicle priority.

4.5 Readiness

4.5.1 Ability to Open for Testing

San José already has the framework in place to initiate the Proving Ground. Key components include the designation of the Transportation Innovation Zone (TIZ), supporting policies (e.g.

Demonstration Projects, Open Data, Vision Zero). Further, Mayor Liccardo and City Staff have already been working to identify other suitable testing areas and to form critical public, academic, non-profit and industry partnerships. Tasks planned for completion in 2017 include defining the formal administrative structure, coordination with partners to define the specific Proving Ground locations and requirements, prepare the Safety Management Plan, and complete community outreach. There is already interest from a variety of potential users. Data sharing has been described previously in this proposal.

4.2.1 Designated Point of Contact

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4.5.2 Community Outreach

San José engages extensively with its residents, employers and stakeholders in all aspects of planning and operations. A multi-layered structure is in place to communicate and collaborate ranging from City Council meetings and subcommittees, boards and commissions, ten geographic council districts, and neighborhood associations.

4.6 Adherence to Laws, Regulations and Federal Policy

San José is committed to adhering to all state and federal regulations. At the City level, San José will be supportive in developing necessary local policies and legislation. In addition, San José is working closely with the Big Cities' Departments of Transportation Coalition to weigh in collectively on DMV's Draft AV Regulations to ensure that the regulations can accommodate future pilot projects.

The San José Proving Ground would make use of public roads. Therefore, the City will adhere to the Federal Automated Vehicles Policy: Accelerating the Next Revolution in Roadway Safety. This document takes a strong stance for the potential benefits of automation, a viewpoint the City of San José echoes.

The City's priorities for managing Proving Grounds mirror NHTSA's priorities. First and foremost, the City will work with automakers and technology providers to achieve the highest level of safety possible, working with organizations to clarify traffic laws and situations and operate with a realistic urban environment. Other priorities in common over which the City can have some impact include:

- Data sharing
- Privacy
- Vehicle cybersecurity
- Consumer education and training
- Ethical considerations
- Environmental detection and response

Because California has a draft legal framework for testing automated vehicles, the City of San José can uniquely demonstrate how to consider the model state policy detailed in the *Federal Automated Vehicles Policy* when finalizing state policy.

Further, the City will support testing organizations in employing NHTSA's regulatory tools, such as crafting letters of interpretation and seeking exemptions as needed, and in advancing national and international policy knowledge by publishing research, sharing data, and investigating new metrics and strategies.

5.0 Partnerships

Designation as a USDOT AV Proving Ground anchors San José's Autonomy Innovation Program. We will form partnerships across the technology sector in addition to nonprofits and public agencies to accelerate productive application of Autonomy to improve mobility and goods movement throughout the City. Key collaborators are listed below. Supporting letters are included in an Appendix to this Proposal.

Public Agency/Non-Profit Partners	**Corporate Partners**
● CalTrans ● California Partners for Advanced Transportation Technology (PATH) ● Governor's Office of Business and Economic Development (GO-Biz) ● ITS California ● Metropolitan Transportation Commission (MTC) ● Mineta Transportation Institute (MTI) ● Prospect Silicon Valley ● Santa Clara Valley Transportation Authority (VTA)	● Cisco ● Nvidia ● NextEV ● Proterra ● Renesas ● Wayfarer ● Zoox