Proposal for Designation of Automated Vehicle Proving Grounds Pilot

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Introduction

The City of Beverly Hills, California is a general law city governed by a five-member City Council. The City Council appoints a mayor and vice mayor annually from the five Council Members. The City Council hires a city manager to carry out polices and serves as the City's executive officer.

Beverly Hills is located in Los Angeles County and is surrounded by the cities of Los Angeles, West Hollywood, Santa Monica and Culver City. Within its 5.7 square mile radius, Beverly Hills has approximately 34,000 residents with a business and commercial base that ranks next to cities with a population of several hundred thousand. The daytime population is estimated to be between 150,000 to 200,000.

As a full-service community, police, fire, water treatment, refuse collection, building inspections, among other services, are provided directly by the City. Beverly Hills has its own school district with a reputation for some of the best schools in the nation.

The City of Beverly offers a unique testing environment for autonomous vehicles. It is an urban area with streets of varying widths, speed limits, no parking zones, passenger drop off areas, and intersections with omnidirectional crosswalks. There will also be challenges for autonomous vehicles to navigate through once the construction of the Metro Purple Line Extension on Wilshire Boulevard begins.

Executive Summary

Advances in autonomous vehicle technology are coming at a rapid rate. Most prominent automobile manufacturers have made significant investments in autonomous vehicle programs. Additionally, technology companies such as Google and NVIDIA have well established autonomous vehicle initiatives underway.

While the timelines vary, autonomous vehicle technology is likely to become a reality in two to five years. Many vehicle manufacturers including Tesla and Audi are forecasting that they will have autonomous vehicles to market within this timeframe.

Based on the Solicitation of Proposals for Designation of Autonomous Vehicle Proving Grounds Pilot document, the City of Beverly is confident that we well exceed the selection criteria as detailed in the document.

Mandatory Criteria

As the City's chief executive officer, the City Manager shall designate a dedicated Safety Officer who will be responsible for the development and management of the City's safety management plan. This Safety Officer shall participate in the Community of Practice regular quarterly meeting for Safety Officers. Further, the Safety Officer shall commit to sharing the City's approaches to safety and safety data generated through testing and operation. The City does have a Safety Officer position that is currently staffed and could be assigned this role.

Proposed Contribution

John Mirisch, the Mayor of Beverly Hills, in his inaugural speech in March 2016 articulated a vision for the City's autonomous vehicle program that included the long-term goal of addressing 'first and last mile' issues as it relates to the extension of the Metro Purple Line to Beverly Hills, increasing mobility within the City, relieving traffic congestion, and creating new mobility options for seniors and the disabled. As envisioned, the program would include a fleet of City-operated autonomous vehicles that would provide on-demand, point-to-point mobility to members of the public.

On April 5, 2016 the City of Beverly Hills City Council unanimously approved Resolution 16-R-13071. This resolution fully supports the vision outlined by Mayor Mirisch. Since then, the City has attended meetings locally, regionally, nationally, and in Washington, D.C. with legislative representatives to advocate for autonomous vehicle technology. The Mayor, as well as City staff, have been working closely with both our state and federal lobbyists to consider legislation to promote autonomous vehicle development. The City, through our lobbyists and our Mayor, have been strong advocates for encouraging the testing of autonomous vehicles throughout California and the nation. It is our desire to see this technology advance quickly, yet safely, to benefit the community.

Additionally, Beverly Hill's Mayor Mirisch has been a panelist and attended several conference to support autonomous vehicle development including:

- The Autonomous Informa Conference in Santa Clara, California
- The Autonomous Vehicle Symposium in San Francisco, California
- The Autonomous Vehicle Summit in Detroit, Michigan

As part of the autonomous vehicle effort, the City anticipates establishing a comprehensive program in partnership with manufacturers, technology companies, and academia. The primary goals of the program are as follows:

- Identify and develop strategies for municipalities to address the potential impacts to land use issues due to the use of automated vehicles
  - Pick of and drop zones
    - Designation of alleyways for automated vehicle loading zones
  - Parking requirements for new construction
    - Potentially decreasing the required amount of parking for new buildings
  - Role of valet and taxi zones
  - Charging facilities requirements
  - Warehousing
  - Roads may have more capacity as vehicles will likely have shorter headways
  - Parking circulation may be reduced
- Model the public's behavior using on demand mobility via automated vehicles
  - Driverless interaction with automated vehicle technology
  - More people may travel due to increased mobility options for elderly, disabled and youth populations
  - People may be willing to live farther from the jobs which may increase urban sprawl
- Use of automated vehicles to facilitate first and last mile connections to public transportation systems
- Monitor real-world interactions between pedestrians and vehicle in a complex urban environment. In Beverly Hills this would include:
  - Omnidirectional cross walks
  - Multiple street types and speed limits (major arterials, quiet residential streets)
- Develop best practices for other municipalities and agencies to use a guide when widespread use of autonomous vehicles becomes commonplace. Including:
  - More efficient land use
  - Decrease in parking requirements
  - Adaptation of local and regional roadway infrastructure
  - Regional approaches for regulating autonomous vehicles
  - Updating and reconfiguring signage, speed limits, signal timing, and roadways

The City of Beverly Hills has a demonstrated record as a leader in autonomous vehicle technology adoption. The City has established numerous strategic relationships with manufacturers, academia, and technology companies. The City became the first municipal member of Stanford University Center for Automotive Research consortium. The City's Mayor is a strong advocate for the widespread adoption of autonomous vehicle technology as a means of democratizing public transportation and has spoken numerous time of conferences and industry events.

The City of Beverly Hills is excited to participate within the Community of Practice and plans to share all finding with stakeholders with the autonomous vehicle community. Additionally, the City has enjoyed working with the United States Department of Transportation and is interested in expanding this relationship. As such, we welcome additional participation with the Department at conferences, meetings, and joint research efforts as well as submitting significant activity reports to the Department on a routine basis.

The City of Beverly Hills is currently in the planning stages to host an autonomous vehicle conference for legislative personnel in the Spring of 2017. The one-day conference will feature speakers, panels and small group discussions. Topics will include:

- The emerging technology and its impacts over the next few years
- The long term impacts of autonomous vehicle oriented development
- Anticipated municipality infrastructure changes and regional standardization in response to autonomous vehicle technology
- Urban planning and potential changes to land use

The participation of the Westside Cities Council of Government in this conference will assist Beverly Hills in launching a coordinated regional effort for an autonomous vehicle transportation system. The City is also working with the Southern California Association of Government on this conference as they realize that a coordinated approach to autonomous vehicles will benefit all of the communities within region.

Commitment to Safety

The safety of the City's residents, businesses, and visitors will be of paramount importance. As such a robust set of safety precautions will be established as part of a published safety management plan. To better achieve this, the City will leverage its own Police Department, Transportation Department and Fire Department to minimize risk and to maximize safety considerations. Clear safety protocols will be developed and followed when using public roads to test autonomous vehicles.

Research and Application of Data Sharing

Local and regional governments should proactively plan for and develop policies in all of the areas associated with the emerging autonomous vehicle technology and the future impacts it will have on government agencies. It will be vital that, in the near-term, local and regional government organizations follow both driverless and connected vehicle developments. Moreover, states will likely continue to be responsible for driverless cars' licensing and testing requirements. This

includes establishing the standard for who can "drive" (or be responsible for) an autonomous vehicle, and how and where it must be tested. In the medium to long-term future, these government organizations will need to consider more significant actions, including proactively managing congestion, altering the transit service model, investing in relevant infrastructure, and updating their financial mechanisms.

The City of Beverly Hills actively participates with its surrounding municipalities in numerous, multifaceted projects. As part of the autonomous vehicle effort, the body of knowledge that is developed will be shared amongst our local jurisdictions and regional partners to improve mobility through the advancement of automated vehicle technology.

As a city in California, Beverly Hills is required to share all date in accordance to the Public Records Act. This Act is designed to give the public access to information in possession of public agencies. The City has up to ten days to provide information to the requestor. As such, the City is able to share data, performance metrics and results of objective tests in its possession except where there are specific exemptions for disclosure as provided for by law. The City does not anticipate that any City records association with autonomous vehicle testing would be exempt from disclosure.

The City is involved with the Westside Cities Council of Government (COG). Many of the issues discussed at the COG involve regional solutions for traffic flow and improved conditions for travel in the area. The COG will be a participant and contributor to the upcoming autonomous vehicle conference.

Demonstrated Investment

The City has been examining the feasibility of automated vehicle technology as part of its Technology Committee and Autonomous Vehicle Ad Hoc Committee for over a year. The Ad Hoc committee has been actively involved in discussions with manufacturers and technology sector companies on how the City can partner with them for testing.

Since the adoption of City Resolution 16-R-13071, the City has invested thousands of hours of staff time to actively participate in the autonomous vehicle community to assist in bringing this technology from conception and into reality. Additionally, funding has been set aside for the City to continue its partnership with Stanford, attend conferences as panelist, and to pursue the implementation of Phase 1 of the City's autonomous vehicle work plan. This plan has a long-term goal of expanding the City's autonomous vehicle program with the goal of addressing 'first and last mile' issues as it relates to the extension of Metro's Purple Line to Beverly Hills, increasing mobility within the City, relieving traffic congestion, and creating options for transporting senior

citizens. As initially envisioned, the program would include a fleet of City-owned autonomous vehicles that would transport members of the public via these vehicles in an attempt to reduce traffic and improve parking.

Phase I of the plan also calls for education on the current state of the regulatory environment for autonomous vehicles, exploration of grant opportunities for the program, outreach to autonomous vehicle manufacturers for potential partnerships, and the hosting of an autonomous vehicle - focused forum in Beverly Hills. The proposed forum would include panel discussions by experts and potentially demonstrations of autonomous vehicles. This has been scheduled to occur in the Spring of 2017.

Realizing the full vision of having a City-owned fleet of autonomous vehicles in operation will take time and will require considerable investment of resources. What is envisioned for Phase I of this effort; however, is taking modest steps that will lay the foundation for the larger project. Key components include establishing a clear understanding of the regulatory environment both at the state and federal level, and working to impact that environment to achieve City goals. To this end, the City plans to work with its contacts in both Sacramento and Washington.

Additionally, the City will explore potential partnerships with manufacturers, transportation network companies, and other governmental organizations with the intent of establishing pilot programs, developing policy, and architecting first and last mile connectivity solutions for public transportation. To facilitate this process, Mayor Mirisch has enlisted the support of Technology Committee members AJ Willmer and Grayson Brulte. Leveraging their intellect, their many contacts and their keen interest in this technology, it is anticipated that a great deal will be accomplished in a relatively short period of time.

As part of this process, it is anticipated that the City will need to develop written material that portrays the City's vision for autonomous vehicles. These materials will be helpful as the City works to establish partnerships with manufacturers and others working in the autonomous vehicle arena. The materials will also be useful as part of our outreach program which anticipates various informal discussions with policy makers, business communities, and transportation organizations.

Readiness

The City intends to allow manufacturers of autonomous vehicles to use public roadways for testing their technology in accordance with any guidelines established by the California Department of Motor Vehicles, California State Law, and United States Department of Transportation. Our City has strong relationships with the neighboring cities of West Hollywood, Los Angeles, Culver City

and Santa Monica. The City envisions a regional approach in establishing reasonable testing guidelines for these vehicles so that they can not only be tested in Beverly Hills but potentially be tested throughout Los Angeles County as the nature of autonomous vehicles evolves.

Additionally, the Planning Commission for the City of Beverly Hills has started to assess the effect that the use of autonomous vehicles will have on the City's land use policies. It is our intent to influence regional policies in urban areas by being on the forefront of modifying land use policies. By working with the Westside Cities Council of Governments, Southern California Association of Governments, and our neighboring jurisdictions, the City believes it can establish land use policies that will be embraced by the region.

Adherence to Laws, Regulations, and Federal Policy

As part of the pilot program for the designation of automated vehicle proving grounds, the City will fully comply with the primary subject areas outlined in the National Highway Traffic Safety Administration's (NHTSA) policy for automated vehicles (*Federal Automated Vehicles Policy: Accelerating the Next Revolution in Roadway Safety*) for any testing or deployment of L3-L5 systems on public roads. The City will also require manufacturers and technology companies to comply with a regulations set forth by the California Department of Motor Vehicles or any new law established by the State legislature and enacted by the Governor of California.

Summary

The City of Beverly Hills has been on the forefront of supporting the development and testing of autonomous vehicles. On April 5, 2016 the City formally adopted a resolution to increase mobility within the City, relieve traffic congestion, address first and last mile connection issues with public transportation, and create new mobility options for seniors and the disabled. As envisioned, the program would include a fleet of City-operated autonomous vehicles that would provide on-demand, point-to-point mobility to members of the public.

Our City understands that when people can obtain an affordable, reliable ride across town that things will change for the better for our City and our region. Our City will become safer, cleaner, more efficient and commuting will become more affordable. Using an autonomous vehicle to ride share will reduce the number of automobile-related deaths and injuries as many accidents are caused by human error. More importantly, by getting people into fewer cars we can reduce traffic congestion and air pollution.

The City has attended meetings locally, regionally, nationally and meet with key legislatures in Washington, D.C. to advocate for autonomous vehicle technology and will continue to do so as

this technology continues to evolved. The City supports a regional approach to developing best practices for municipalities and agencies to use as a guide when widespread use of autonomous vehicles becomes commonplace. To that end, the City's program is aimed at:

- Identifying and developing strategies for municipalities to address the potential impacts to land use issues due to the use of automated vehicles
- Modeling the public's behavior using on demand mobility via automated vehicles
- Using automated vehicles to facilitate first and last mile connections to public transportation systems
- Utilizing regional approaches for regulating autonomous vehicles

Based on the Solicitation of Proposals for Designation of Autonomous Vehicle Proving Grounds Pilot document, and information provided for the United States Department of Transportation's consideration in this document, the City of Beverly is confident that we can provide a safe testing ground for the advancement of automated vehicle technologies. The information obtained from this testing will be disseminated regionally, throughout the state, nationally, and with the Department of Transportation. It is our goal top assist the Department with understanding the long-term societal and ethical impacts that autonomous vehicles may pose. We also will strive to develop and share best management practices within the Community of Practice for the deployment of automated vehicle technology.