In the Matter of	)	
	)	
NHTSA Pilot Program for Collaborative Research on Motor Vehicles with High or Full Driving Autonomation	)	NHTSA-2018-0092

ADVANCE NOTICE OF PROPOSED RULEMAKING
COMMENTS OF THE CITY OF ARLINGTON, TEXAS

The City of Arlington ("the City" or "Arlington") appreciates the opportunity to file these comments in response to the Advance Notice of Proposed Rulemaking released on October 10, 2018 in the above entitled proceeding. The City's comments directly answer the questions outlined in the above intitled proceeding and follow that structure.

At the broadest level, the City would urge NHTSA to focus any pilot program on the ultimate and overarching goal of assessing the public policy and public expenditure requirements of allowing Level 4 and Level 5 autonomous vehicles to operate safely on public rights-of-way in a wide array of settings, including urban and suburban settings. The City would also urge NHTSA to ensure that any pilot program include a focus on the local government role in autonomous vehicle policy. The vast majority of public rights-of-way are owned, maintained, and operated by local governments and the development of successful autonomous vehicle policy will have to fully address local government policy and needs.

The City of Arlington is well positioned to participate in any pilot program developed by NHTSA. The City has taken a proactive approach to autonomous vehicle development in providing autonomous vehicle developers to test products, bring awareness of this technology to the public and prepare the city for autonomous vehicle deployment through smart infrastructure development.

In August 2017, the City launched Milo, the first autonomous shuttle service offered by a U.S. municipal government to the general public on a continuous basis. Milo operated for one year in Arlington's Entertainment District, with the goals of testing autonomous vehicle technology in a real world environment, educating the public and raising awareness of autonomous vehicle technology, and positioning Arlington as an innovative transportation leaser. Over the course of one year, Milo served over 110 events at AT&T Stadium (Dallas Cowboys) and Globe Life Park (Texas Rangers), as well as at other Entertainment District venues. Milo shuttles offered free rides along three off-street routes at speeds of approximately 15 miles per hour. Public response was largely positive, with over 80 percent of surveyed riders strongly agreeing that they enjoyed riding Milo, felt safe riding Milo, would ride Milo again, and support autonomous vehicle technology.

Following up on Milo, the City recently launched an on-street autonomous vehicle pilot program in cooperation with drive.ai. The pilot program will be conducted with autonomous Nissan minivans in mixed traffic at speed up to 35 miles per hour along a fixed route in the Entertainment District, with five pickup locations at key locations. Rides will be free and open to the general public. The overall goals of the pilot program are the same as those of the Milo pilot program.

The City of Arlington's transportation solution strategy is inclusive of both autonomous vehicle deployment and the expansion of smart infrastructure. By including both sides, the City is prepared to aid in the development of connected vehicle technologies. The additional support of smart infrastructure and experience in autonomous vehicle programs, make the City of Arlington an innovative place where a pilot program would make an impact in the progression of autonomous vehicle transportation technologies.

The following serves as the City of Arlington's response to the questions asked in the Advance Notice of Proposed Rulemaking. A copy of Arlington's comments on Docket No. DOT-OST-2018-0149, Preparing for the Future of Transportation Automated Vehicles 3.0 (AV 3.0), is attached at the end of this section.

1. **What potential factors should be considered in designing the structure of a pilot program that would enable the Agency to facilitate, monitor and learn from on-road research through the safe testing and eventual deployment of vehicles with high and full driving automation and associated equipment?**
   There are a number of factors that should be considered in on-road pilot programs, including safety, technology, and public education. We recommend consideration of safety factors first and foremost, related to the deployment environment (separate and controlled lanes versus integrated into mixed traffic), the technological safety features onboard the vehicles, and how passengers would be able to stop and exit the vehicle in an emergency. Technology considerations should include both the hardware (lasers, radar, cameras, etc.) and software (pre-programmed paths, perception, machine learning, etc.) used on the vehicle. Educational factors should be robust and included throughout all stages of the pilot, from planning to testing to deployment to assessment, to ensure the public is aware, informed, and involved. The deployment environment is also critical to consider, and as many different use cases and environments should be tested as possible to widen the lessons learned.

2. **If NHTSA were to create a pilot program, how long would there be a need for such a program? What number of vehicles should be involved? Should NHTSA encourage the conducting of research projects in multiple locations with different weather conditions, topographical features, traffic densities, etc.?**
   AV technology is changing so quickly that we recommend the creation of an on-going, over-arching pilot program that can shift and adapt to accommodate and test new technologies as they become available. Different vehicles should be involved in the individual pilot programs, to test a wide range of vehicle types and capabilities. At least two, if not more, of each vehicle type should be included for quality control and to understand how the vehicles interact with each other. NHTSA should conduct research projects in various locations with different environmental conditions, user types, and purposes served, to better understand how AVs function and can provide utility in different settings.

3. **What specific difficulties should be addressed in designing a national vehicle pilot program for vehicles with high and full driving automation either through the exemption request process relevant for FMVSS or more broadly related to other areas of NHTSA and/or other authorities?**
   The current exemption request process for the use of AVs regarding the Federal Motor Vehicle Safety Standards will likely become unwieldy as AV technology advances and more manufacturers seek to test their vehicles and technology. There needs to be a streamlined, efficient, and transparent process in place to allow AV manufacturers to obtain clearance to test vehicles, while still maintaining rigorous safety, public education, and oversight controls. This process also needs to be flexible, to allow for rapid technology advances, and there should be frequent evaluation of the process to ensure it is keeping up with technology and the specific testing requirements.

4. **How can existing statutory provisions and regulations be more effectively used in implementing such a pilot program?**
   Existing statutes and regulations should be evaluated to ensure they are flexible enough to allow for rapid change and new types of vehicles, deployments, and use cases. At the same time, safety, education, and oversight must remain robust. Using our regulations to signal that the United States is open for testing and learning about AVs will help ensure we remain on the cutting edge of technological advances.

5. **Are there any additional elements of regulatory relief (*e.g.,* exceptions, exemptions, or other potential measures) that might be needed to facilitate the efforts to participate in the pilot program and conduct on-road research and testing involving these vehicles, especially those that lack controls for human drivers and thus may not comply with all existing FMVSS?**
   The FMVSS either need to be modified to allow for vehicles without human drivers and traditional controls (such as steering wheels and brake pedals) or the exemption process needs to be improved to allow AV manufacturers access to these exemptions in a timely manner. The pilot program should allow testing of a wide range of vehicles in a wide range of settings, while still controlling for safety at all times.

6. **What vehicle design elements might replace existing required safety equipment and/or otherwise enhance vehicle safety under reasonably anticipated operating conditions?**
   The advanced detection systems onboard AVs, as well as the ability for vehicles to communicate with each other, provide a high level of safety. However, passenger safety should continue to remain of utmost importance. AVs during testing phases should be equipped with airbags, seatbelts, and other similar features to ensure passenger safety. While the AV may be reasonably expected to avoid collisions and operate as programmed, as AVs are tested in real-world environments, it will be impossible to control for the behavior of human-driven vehicles and other environmental conditions which could compromise safe AV operations or pose a threat to passenger safety.

7. **What types of performance measures should be considered to ensure safety while allowing for innovation of emerging technology in vehicles with high and full driving automation participating in a pilot program?**
   There should be a combination of software/hardware performance measures and general operating performance measures. The latter should include total miles driven in fully autonomous mode, miles driven in various environmental conditions (highways v. local streets; urban v. rural settings; etc.), miles driven in various weather conditions (rain, snow, heat, wind, fog, etc.), total miles driven without a safety driver, miles driven without passengers v. with passengers, etc. Software performance measures should include collision avoidance, perception, communication with other vehicles and infrastructure, etc. Hardware performance measures should include the presence of airbags, seatbelts, crumple zones, and other proven safety features, as well as passenger-focus metrics such as climate control, seat comfort, etc.

8. **How should the Operational Design Domains of individual vehicle models be defined and reinforced and how should Federal, State and local authorities work together to ensure that they are observed?**
   Any AV ODD should be stipulated clearly and in great detail as a requirement of obtaining a NHTSA exemption or other permission to operate. The ODD should specify geographic boundaries for operation, weather conditions, and operational conditions, such as speed, roadway classification, and interaction with infrastructure, such as stop signs or stop lights. There must be a clear mechanism for this information to be transferred from the authorizing agency to the relevant state and local authorities. The authorizing agency will need to be responsible for certifying that the vehicle and the manufacturer has the capability to perform as specified in the ODD, while enforcement will largely fall to agencies overseeing the day-to-day pilot operations, which may include federal, state, and local authorities. Local law enforcement and first responder personnel in the ODD must be briefed on all details before and during any deployment.

9. **What type and amount of data should participants be expected to share with NHTSA and/or with the public for the safe testing of vehicles with high and full driving automation and how frequently should the sharing occur?**
   While some proprietary data related to vehicles and operational software should be protected, the

open flow of data between vehicle manufacturers, regulating agencies, operational locations, and the general public is essential to awareness and acceptance of AV technologies. Data on established performance measures, as described above, should be shared on a weekly basis to ensure safety standards are maintained, ODDs are preserved, and operations are proceeding as permitted. All participants should commit to including a public outreach and education campaign to share data, raise public awareness, and work toward increasing public perception of AV technologies.

10. In the design of a pilot program, how should NHTSA address the following issues—

a. confidential business information?

Any information participants wish to remain confidential should be disclosed in the application for participation. If any participant is unable to share data on the performance measures, a detailed justification should be provided for not sharing this data, to be reviewed by NHTSA and any other authorizing agency.

b. privacy?

Privacy of passengers and user data is of utmost concern. Applicants should include a privacy plan, which clearly details what information the vehicle will collect regarding users, how that information will be used, how it will be stored, and how it will be destroyed at the end of the pilot.

c. data storage and transmission?

A data management plan should be part of the application, which should clearly address data storage, transmission, retention, and reporting. All data storage and transmission should be secured for privacy's sake.

d. data retention and reporting?

A data management plan should be part of the application, which should clearly address data storage, transmission, retention, and reporting. Data should be retained for a set period of time and then properly disposed. Reporting should be at frequent and regular intervals to all involved parties.

e. other elements necessary for testing and deployment?

If the vehicle manufacturer or operator requires any interface with existing infrastructure, this should be clearly described and explained, in order to understand data flows and potential security issues as the vehicle communicates with local signals or other infrastructure.

11. In the design of a pilot program, what role should be played by—

a. The 12 safety elements listed in A Vision for Safety?

The 12 safety elements should all be present in the pilot program. Applicants should clearly articulate how their vehicle, software, and operating practices will address each element. Technical elements, such as safety systems, object/event detection and response, validation methods, cybersecurity, and data recording should be functioning throughout all stages of the pilot. Operating elements, such as the ODD, transition to minimal risk conditions when warranted, human-machine interface, crashworthiness, and post-crash behavior should be maintained and reported to NHTSA on a regular basis, with protocols in place for reporting of any unexpected operations, such as a crash. Data sharing, consumer education, and adherence with applicable laws and regulations should be robust.

b. The elements listed below:

i. Failure risk analysis and reduction during design process (functional safety)?

Various scenarios should be explored before pilot deployment to plan and prepare for contingencies. Environmental conditions, software/hardware malfunction, and human interface should all be considered in this risk analysis.

ii. Objective performance criteria, testable scenarios and test procedures for evaluating crash avoidance performance of vehicles with high and full driving automation?
NHSTA should establish a set of performance criteria, scenarios, and procedures that will apply across the pilots, so results from each pilot and from each vehicle can be compared.

iii. Third party evaluation?
Robust third-party evaluation is necessary to ensure accurate and timely data sharing, as well as outcomes that are replicable and generalizable to other settings.

iv. Occupant/non-occupant protection from injury in the event of a crash (crashworthiness)?
Human safety is paramount, so injury protection for both passengers and non-passengers should be robust. Protocols should be in place to ensure detailed analysis and reporting after any crash or near-crash event.

v. Assuring safety of software updates?
Any software updates or patches should be rigorously tested in a fully controlled environment before being introduced to the pilot program or ODD of any vehicle.

vi. Consumer education?
Consumer education is central to consumer acceptance. All pilot programs must have an extensive public outreach, education, and communication plan for engagement before, during, and after the pilot time period.

vii. Post deployment Agency monitoring?
A full report should be prepared by all participants post-deployment.

viii. Post-deployment ADS updating, maintenance and recalibration?
It is expected that all participants would take lessons learned from the deployment and incorporate these lessons into their operations moving forward.

c. Are there any other elements that should be considered?
Financial cost and resource needs should be part of the reporting and analysis for each deployment. AV deployments currently have very high resource demands on the local jurisdictions in which they deploy, including needs from public education to infrastructure upgrades to environmental changes. These needs and costs should be disclosed and analyzed across deployments to more fully understand the demands on jurisdictions deploying AVs.

12. Are there any additional critical areas to consider in the design of a safe pilot program for the testing and deployment of vehicles with high and full driving automation?
We strongly recommend that another critical area to be considered in the pilot program design is a requirement that all participants be able to provide proof of appropriate, well-underwritten insurance from a carrier with known capacity to handle autonomous vehicles and related issues.

13. Which of the following matters should NHTSA consider requiring parties that wish to participate in the pilot program to address in their applications?
All the following elements are worthy of being required from applicants to the pilot program. See additional details below.

a. "Safety case" for vehicles to be used in the pilot program (*e.g.*, system safety analysis (including functional safety analysis), demonstration of safety capability based on objective

performance criteria, testable scenarios and test procedures, adherence to NHTSA's existing voluntary guidance, including the submission of a voluntary safety self-assessment, and third party review of those materials).
HIGH PRIORITY

i. What methodology should the Agency use in assessing whether an exempted ADS vehicle would offer a level of safety equivalent to that of a nonexempted vehicle? For example, what methodology should the Agency use in assessing whether an ADS vehicle steers and brakes at least as effectively, appropriately and timely as an average human driver?
Applicants should be required to provide logs from vehicle tests, including miles driven in autonomous mode, performance, information about emergency stops and human driver intervention, safety procedures tested or activated by the vehicle, etc., to assess the safety of the vehicle.

b. Description of research goals, methods, objectives, and expected results.
HIGH PRIORITY

c. Test design (*e.g.,* route complexity, weather and related road surface conditions, illumination and institutional review board assessment).
HIGH PRIORITY

d. Considerations for other road users (*e.g.,* impacts on vulnerable road users and proximity of such persons to the vehicle).
HIGH PRIORITY

e. Reporting of data, *e.g.,* reporting of crashes/incidents to NHTSA within 24 hours of their occurrence.
HIGH PRIORITY

f. Recognition that participation does not negate the Agency's investigative or enforcement authority, *e.g.,* independent of any exemptions that the Agency might issue to program participants and independent of any terms that the Agency might establish on those exemptions, the Agency could conduct defect investigations and order recalls of any defective vehicles involved in the pilot program. Further, the Agency could investigate the causes of crashes of vehicles involved in the program.
HIGH PRIORITY

g. Adherence to recognized practices for standardizing the gathering and reporting of certain types of data in order to make possible the combining of data from different sources and the making of statistically stronger findings.
HIGH PRIORITY

h. For which types of data would standardization be necessary in order to make such findings and why?
All participants should be required to report the following data in a standardized format, to make comparison and analysis possible: miles driven in autonomous mode, miles driven with passengers, range of environmental conditions experienced (including weather, urban v. rural setting, type of other pedestrians or vehicles encountered), use and performance of safety systems, financial cost and resource needs of deployment, and type and amount of public outreach and education.

i. To what extent would standardization be necessary for those types?

Standardization should be required for all data, to enable meaningful comparison and analysis.

j. Occupant/non-occupant protection from injury in the event of a crash (crashworthiness).
HIGH PRIORITY

k. Assuring safety of software updates.
HIGH PRIORITY

l. Consumer education.
HIGH PRIORITY

m. Post-deployment monitoring.
HIGH PRIORITY

n. Post-deployment maintenance and calibration considerations.
MEDIUM PRIORITY

14. **What types of terms and conditions should NHTSA consider attaching to exemptions to enhance public safety and facilitate the Agency's monitoring and learning from the testing and deployment, while preserving the freedom to innovate, including terms and conditions for each of the subjects listed in question 13? What other subjects should be considered, and why?**
We strongly recommend that a condition of the exemption process is a requirement that all participants be able to provide proof of appropriate, well-underwritten insurance from a carrier with known capacity to handle autonomous vehicles and related issues.

15. **What value would there be in NHTSA's obtaining one or more of the following potential categories of data from the participants in the pilot program? Are there other categories of data that should be considered? How should these categories of data be defined?**
See answers regarding specific elements below.

a. Statistics on use (e.g., for each functional class of roads, the number of miles, speed, hours of operation, climate/weather and related road surface conditions).
HIGH VALUE

b. Statistics and other information on outcome (e.g., type, number and cause of crashes or near misses, injuries, fatalities, disengagements, and transitions to fallback mechanisms, if appropriate).
HIGH VALUE

c. Vehicle/scene/injury/roadway/traffic data and description for each crash or near miss (e.g., system status, pre-crash information, injury outcomes).
HIGH VALUE

d. Sensor data from each crash or near miss (e.g., raw sensor data, perception system output, and control action).
HIGH VALUE

f. Difficult scenarios (e.g., scenarios in which the system gave control back to an operator or transitioned to its safe state by, for example, disabling itself to a slow speed or stopped position).
HIGH VALUE

g. Software updates (e.g., reasons for updates, extent to which updates are made to each vehicle for which the updates are intended, effects of updates).
MEDIUM VALUE

h. Metrics that the manufacturer is tracking to identify and respond to progress (e.g., miles without a crash and software updates that increase the operating domain).
HIGH VALUE

i. Information related to community, driver and pedestrian awareness, behavior, concerns and acceptance related to vehicles with high and full driving automation operation. For example, if vehicles with high and full driving automation operated only in limited defined geographic areas, might that affect the routing choices of vehicles without high and full driving automation? For another example, if vehicles with high and full driving automation are programmed to cede right of way to avoid collision with other vehicles and with pedestrians and cyclists, might some drivers of vehicles without such automation, pedestrians and cyclists take advantage of this fact and force vehicles with high and full driving automation to yield to them?
HIGH VALUE

j. Metrics or information concerning the durability of the ADS equipment and calibration, and need for maintenance of the ADS.
HIGH VALUE

k. Data from "control groups" that could serve as a useful baseline against which to compare the outcomes of the vehicle participating in the pilot program.
HIGH VALUE

l. If there are other categories of data that should be considered, please identify them and the purposes for which they would be useful to the Agency in carrying out its responsibilities under the Act.

m. Given estimates that vehicles with high and full driving automation would generate terabytes of data per vehicle per day, how should the need for data be appropriately balanced with the burden on manufacturers of providing it and the ability of the Agency to absorb and use it effectively?
Vehicle manufacturers should be responsible for securely storing all data, and then creating a summary data set of the high priority, standardized data necessary for robust comparison and analysis. All data should be able to be made available to the Agency if necessary for auditing purposes.

n. How would submission of a safety assurance letter help to promote public safety and build public confidence and acceptance?
A safety assurance letter is necessary, but extensive public outreach and education, as well as the opportunity for the public to see and ride in AVs, will also be necessary to promote safety and build acceptance.

o. For all of the above categories of information, how should the Agency handle any concerns about confidential business information and privacy?
Participants should disclose in their application any potential conflicts regarding confidential or proprietary information, and they should suggest a mitigation plan to be able to provide the necessary

information to the Agency. Privacy is also important to public acceptance, so strict, standardized methods should be established by the Agency for data security and de-identification.

16. **How should the Agency analyze safety in deciding whether to grant such exemptions under each of the separate bases for exemptions in section 30113? Can the exemption process be used to facilitate safe and effective ADS development in an appropriate manner?**
Yes, we believe the exemption process can be used to facilitate safe and effective ADS development, and we would prefer to see AV deployments happen within a framework that provides oversight to ensure safety. Safe performance should certainly be considered as part of the exemption granting process, with exemption applicants required to provide detailed data regarding operating conditions, performance, and safety measures, all adding up to a demonstrable safety track record.

17. **Could a single pilot program make use of multiple statutory sources of exemptions or would different pilot programs be needed, one program for each source of exemption?**

18. We believe it would be possible to structure the pilot program so that multiple sources of exemptions could be accommodated, as long there is standardization of data reporting, so performance can be compared across the pilot. Additionally, there must be a clearly described case for different exemptions, linked to ODD, environmental conditions, testing with passengers, vehicle capability, etc.

19. **To what extent would NHTSA need to implement the program via new regulation or changes to existing regulation? Conversely, could NHTSA implement the program through a non-regulatory process? Would the answer to that question change based upon which statutory exemption provision the agency based the program on?**
We recommend the Agency to pursue implementation of the program through a non-regulatory process to allow freedom for innovation and flexibility for various scenarios.

20. **How could the exemption process in section 30113 be used to facilitate a pilot program? For vehicles with high and full driving automation that lack means of manual control, how should NHTSA consider their participation, including their continued participation, in the pilot program in determining whether a vehicle would meet the statutory criteria for an exemption under section 30113? More specifically:**

a. Would participation assist a manufacturer in showing that an exemption from a FMVSS would facilitate the development or field evaluation of a new motor vehicle safety feature providing a safety level at least equal to the safety level of the FMVSS, as required to obtain an exemption under section 30113(b)(ii)? If so, please explain how.
We believe the pilot program should be used to evaluate autonomous vehicles that lack traditional means of manual control, as this will provide useful data to the Agency in determining how to grant exemptions, as well as potentially updating the FMVSS. Manufacturers should be required to provide documentation as part of their application to the pilot program, detailing their mechanisms for automated and manual control, their safety features, and redundancies in operational systems, to demonstrate they ways in which their vehicle addresses safety. Once the pilot is underway, specific data on all these mechanisms and controls should be shared with the Agency to demonstrate the vehicle's compliance and performance.

b. Would participation assist a manufacturer in showing that compliance with the FMVSS would prevent the manufacturer from selling a motor vehicle with an overall safety level at least equal to the overall safety level of nonexempt vehicles, as required to obtain an exemption under section 30113(b)(iv)? If so, please explain how.

Yes, we believe the pilot program should be used to evaluate this issue as well. Any features and controls on the vehicle that address safety above and beyond the safety level of the FMVSS standard should be clearly described in the pilot application by the manufacturer. Once the pilot is underway, specific data on all these features and controls should be shared with the Agency to demonstrate the vehicle's compliance and performance.

c. The Agency requests comment on what role a pilot program could play in determining when to grant an exemption from the "make inoperative" prohibition under section 30122 for certain "dual mode" vehicles. Relatedly, what tools does NHTSA have to incentivize vehicles with high and full driving automation that have means of manual control and thus do not need an exemption to participate in the pilot program?
Some AV manufacturers have taken the route of retrofitting traditional vehicles, with standard manual controls, and adding hardware and software to enable these vehicles to operate autonomously. These vehicles do not currently require NHTSA exemptions to operate, but they should still be included in the pilot program, as their participation will yield valuable data to compare to other, non-traditional autonomous vehicles. NHTSA should encourage their participation through the mutual benefits to be gained from data sharing and public education through the pilot program.

21. **What role could exemptions under section 30114 play in the pilot program? Could participation in the pilot program assist a manufacturer in qualifying for an exemption under section 30114? Could participation be considered part of the terms the Secretary determines are necessary to be granted an exemption under section 30114 for vehicles that are engaged in "research, investigations, demonstrations, training, competitive racing events, show, or display"?**
Exemptions for noncompliant vehicles under section 30114 should be granted to allow a greater diversity of vehicle types and designs to participate in the pilot program. Data gathered from their involvement will assist both manufacturers and the Agency in determining how to apply for and grant exemptions in the future.

22. **What role could a pilot program play in determining when to grant an exemption from the "make inoperative" prohibition under section 30122 for certain "dual mode" vehicles? Relatedly, what tools does NHTSA have to incentivize vehicles with high and full driving automation that have means of manual control and thus do not need an exemption to participate in the pilot program?**
Exemptions for noncompliant vehicles under section 30114 should be granted to allow a greater diversity of vehicle types and designs to participate in the pilot program. Data gathered from their involvement will assist both manufacturers and the Agency in determining how to apply for and grant exemptions in the future. NHTSA should encourage their participation through the mutual benefits to be gained from data sharing and public education through the pilot program.

23. **If there are any obstacles other than the FMVSS to the testing and development of vehicles with high and full driving automation, please explain what those are and what could be done to relieve or lessen their burdens. To the extent any tension exists between a Federal pilot program and State or local law, how can NHTSA better partner with State and local authorities to advance our common interests in the safe and effective testing and deployment of ADS technology?**
There are certainly other obstacles than the FMVSS to the deployment of autonomous vehicles, including state and local regulations, availability of sites and infrastructure, availability of resources, public perception, and political will. If the pilot program includes transparency, data sharing, and robust public outreach and engagement, many of these obstacles can begin to be overcome. Additionally, the Agency should consider assistance in the form of technical, educational, and financial resources to local jurisdictions where deployments take place, to help lessen burdens on

these jurisdictions. Finally, there is a wide range of state and local regulations pertaining to testing of AVs. NHTSA should work closely with state and local authorities to ensure a safe and productive testing environment.

ARLINGTON
THE AMERICAN DREAM CITY

November 26, 2018

Office of the Secretary
U.S. Department of Transportation
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

Re: Comment on Docket No. DOT-OST-2018-0149, Preparing for the Future of Transportation: Automated Vehicles 3.0 (AV 3.0)

Dear Secretary Chao,

The City of Arlington, Texas is a leader in innovative transportation technologies. From August 2017 to August 2018, we operated a wheelchair accessible autonomous shuttle in an off-street environment, serving over 110 events at AT&T Stadium and Globe Life Park, as well as public and special group rides. In October 2018, we launched an on-street, on-demand autonomous shuttle service in partnership with drive.ai. Both AV deployments have been open to the general public and free to ride, allowing us to test autonomous technology in a real-world environment and educate our citizens and visitors about these technologies. Based on our experience, and in support of our future AV goals, we submit the following comments in response to the U.S. DOT document, "Preparing for the Future of Transportation: Automated Vehicles 3.0 (AV 3.0)".

As an innovative municipality and leader on implementing autonomous vehicle technology, we appreciate the guidance provided by the U.S. DOT in AV 3.0. Of utmost concern to us is public safety and security as we strive to innovate. While the DOT self-certification process for AV manufacturers is an important first step, we would encourage the Department to consider a more robust verification process to ensure that self-certification information is correct and remains current. Period inspections and/or audits could be used to ensure compliance with all safety standards. At the same time, there needs to be a streamlined, efficient, and transparent process in place to allow AV manufacturers to obtain clearance to test vehicles, while still maintaining rigorous safety and oversight controls, so cities like ours can continue testing and implementing AV technologies. This clearance process also needs to be flexible, to allow for rapid technology advances, and there should be frequent evaluation of the process to ensure it is keeping up with technology and the specific testing requirements.

While the focus on automated technology in vehicles is important towards solving our transportation challenges, more emphasis needs to be placed on connected vehicle technologies. In our opinion, the future transportation model needs to include both smart cars and smart infrastructure. In Arlington, our transportation solution strategy is inclusive of both these elements. To facilitate the connected technologies, some level of uniformity in autonomous vehicle technology needs to be established in order

ARLINGTON
THE AMERICAN DREAM CITY

to accelerate growth. It is cost prohibitive to manufacturers and to much of the general public to deploy autonomous technology solely on vehicles. If some elements of the vehicle technology were consistent among all manufacturers, cities could deploy smart infrastructure much more quickly and effectively resulting in greater connectivity of autonomous technology.

Autonomous vehicles generate enormous volumes of data, much of which can be very useful to cities in understanding the best use cases for AVs and in planning for future deployments. While manufacturers should be able to protect some proprietary data related to vehicles and operational software, the open flow of data between vehicle manufacturers, regulating agencies, and the jurisdictions in which they operate is essential to safety and public acceptance. It would also be helpful for the U.S. DOT to provide additional guidance on data security and cybersecurity standards and regulations. Data security, management, and reporting plans should be encouraged for all AV manufacturers.

These safety and security measures will directly support efforts to raise awareness and educate the public regarding autonomous vehicles and technologies. Our AV deployments have been instrumental in educating the public, and, in turn, increasing public acceptance of AVs. We believe educational outreach should be robust and included throughout all stages of AV implementation, from planning to testing to deployment to assessment, to ensure the public is aware, informed, and involved. Additional guidance from the U.S. DOT on public education and outreach to make this a standard component of AV testing and deployment would be ideal.

The City of Arlington greatly appreciates the opportunity to provide comments on AV 3.0, and we look forward to continued AV testing and deployment. We believe a flexible and transparent regulatory environment, open data sharing, and public involvement will help remove barriers to innovation and increase acceptance of autonomous vehicle technologies in the United States. Please do not hesitate to contact me should you require additional information or input.

Sincerely,

Jim Parajon
Deputy City Manager