

MEMORANDUM OF UNDERSTANDING

Safety. Access. Reliability. Over the last year, this was the resounded refrain from the people of Boston when asked what values they would like their transportation system to embody. It is with that lens through which the City of Boston begins this partnership in testing the most transformative innovation of a generation - autonomous vehicles.

Safer Streets: The overwhelming majority of crashes on our streets are caused by human error. The promise of autonomous vehicles is to eliminate over 90% of those crashes, saving dozens of lives and thousands of serious injuries incurred by people in Boston each year. This work directly supports the City of Boston's Vision Zero Initiative goals to eliminate serious crashes from the streets of Boston.

Better Access: Autonomous vehicles make mobility possible for many who are limited by the current transportation options our system provides. The aging population, those with visual impairments, those looking to reduce the burden of personal vehicle ownership, and those without access to rapid transit, all stand to greatly benefit from this technology if applied with wthose types of users in mind.

More Reliable: A reduction in the number of vehicles on our roadways can be achieved through the adoption of shared fleets of autonomous vehicles, freeing up space for other uses and other modes of travel. Fewer vehicles results in less congestion and a more predictable travel experience - whether by traveling by foot, train, bus, bicycle, or car.

This Memorandum of Understanding (the "MOU") is entered into this ____ day of _____ 201_ by and between the City of Boston, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts acting by and through its Transportation Department (the "City"), the Massachusetts Department of Transportation (MassDOT), an agency of the Commonwealth of Massachusetts, and _____, ("Vehicle Testing Company") (collectively, the signatory parties). This MOU is intended to document the understandings between the City, MassDOT and Vehicle Testing Company with respect to the Vehicle Testing Company's operation of its autonomous vehicles (AVs) on roads and public ways and other public property in the City of Boston and the Commonwealth of Massachusetts for testing purposes.

Upon approval of the Application to Test Autonomous Vehicles, the City of Boston and MassDOT hereby agree to permit the Vehicle Testing Company to test, by the authority granted by this MOU, its AVs on public ways and other public property in the City of Boston and

Commonwealth of Massachusetts, and the Vehicle Testing Company agrees to the following in consideration of such testing opportunity:

- 1) The Vehicle Testing Company will operate its AVs without human piloting solely for the purposes of testing and demonstrating the vehicles' self-driving capabilities;
- 2) Application to Test Autonomous Vehicles on Public Ways in Massachusetts:
The Vehicle Testing Company will submit an application to MassDOT providing information to MassDOT's satisfaction on each vehicle that it intends to test. Said application will include but is not limited to:
 - a. Experience with AVs – information generally describing the Applicant's business as a "Manufacturer" or "Other Entity" of AVs including a history, off-road testing, on-road testing, and crash-related information
 - b. Safety Assessment – a copy of Vehicle Testing Company's Safety Assessment in accord with NHTSA's Vehicle Performance Guidance or similar documentation
 - c. Initial Driving Plan – the public and/or private ways and the specific geographical areas designated for the tests
 - d. Vehicles in Testing Program – information regarding the year, make, model, Vehicle Identification Number (VIN) of each vehicle that will be used on the public ways for testing purposes
 - e. Drivers in Testing Program – information regarding the operators of such vehicles
 - f. Summary of Training – a summary of the training provided to the operators
 - g. Insurance Requirement – a copy of the policy of insurance or a surety bond in the amount of a minimum of \$5,000,000 issued by a company licensed to do business by the Commissioner of Insurance of the Commonwealth of Massachusetts. The policy or bond shall be for the purpose of satisfying any judgment or judgments for damages for personal injury, death or property damage caused by a vehicle being tested in the Commonwealth.
- 3) AV Drivers in Vehicle, Minimum Age, Qualifications and Driving Record: Vehicle Testing Company will operate the AVs with a validly licensed driver seated and secured in the driver's seat when traveling to or from a testing or demonstration location. Vehicle Testing Company will ensure that while the AVs are operated without human piloting, drivers trained and experienced in the operation and control of AVs will be seated and secured in the driver's seat of such AVs and available and able to take command of the AVs as needed. Each operator of a vehicle on a public way or a way to which the public has a right of access as invitees or other public property upon which testing is permitted shall be at least 21 years of age, possess a valid Massachusetts driver's license and have

driving records free of any pending cases or convictions for operation of a motor vehicle while under the influence of alcohol or drugs, which shall include any cases that were disposed of under Chapter 90, Section 24D. If Vehicle Testing Company uses a driver licensed in another state it shall provide a copy of the license and a certified copy of the driving record (no more than 30 days old) of the driver;

- 4) Carrying Approval to Test AVs: Upon successful completion of the application, MassDOT may approve the application to each test vehicle. The approval is vehicle-specific and the approval must be carried in the test vehicle at all times;
- 5) AV's Safety & Inspection Standards, Registration, Signage: The Vehicle Testing Company will ensure that the AVs are built from passenger vehicles that comply with federal regulations except for those parts, components or vehicle systems that have been made inactive or modified in order to enable such passenger vehicles to be self-driving by modifying such vehicles to include certain sensors, computers and other equipment. All vehicles used for such tests shall display a current Massachusetts Inspection sticker, a current Massachusetts "Test" registration plate and signage sufficiently visible to other motorists and pedestrians to identify the vehicle as a "Test Car for Self-Driving Operation" or similar signage;
- 6) No AV shall be used for driverless testing without undergoing a thorough safety check by qualified personnel before each test is conducted;
- 7) Protocol for Crash Report/Investigation: In the event that an AV experiences a crash during testing in which a death, physical injuries or property damage occurs, regardless of fault, The Vehicle Testing Company agrees to comply with the laws of the Commonwealth in regard to notifying police, if necessary, assisting at the crash scene if it can be done safely, exchanging vehicle ownership and insurance information with other vehicle and property owners that may be involved, and filing a "Crash Report" with the RMV pursuant to Chapter 90, Section 26 within 5 days of the crash, if any person is killed or injured or if there is damage in excess of \$1,000 to any one vehicle or property. It is agreed by The Vehicle Testing Company that even if a Crash Report under Section 26 is not required, it shall file a report of the crash (MOU Crash Report) with the signatories within five (5) days providing specific details of the crash and containing information as to the possible cause or causes if the AV suffered technical failures. If an MOU Crash Report is prepared, further testing will be temporarily suspended until the initial cause of the crash can be determined and any necessary corrections made.

The Vehicle Testing Company agrees to contact the signatory parties to this MOU within twenty-four (24) hours of a crash and indicate the details of the crash. The signatories agree to contact each other once informed of a crash by Vehicle Testing Company and convene a meeting to discuss the crash with The Vehicle Testing Company officials, investigating officers and other appropriate individuals (Investigating Committee), if necessary. If it is initially determined by the Committee that the crash involved property damage only, was minor in nature and was not due to any technical failures of the AV or any of its systems, the signatories may agree to re-start the testing. If the signatories determine that the crash involved death, physical injuries or major property damage and or that the crash may have been due to technical failures of the AV it may postpone additional testing until further notice and a fuller investigation;

- 8) Data and Videos to be Shared: The Vehicle Testing Company will ensure that during the period in which the AVs are operated without human piloting, certain data will be captured and recorded by the AVs' sensors to enable post-drive analysis of the AVs' operational state during such period. The Vehicle Testing Company acknowledges that the City or State may request information regarding the tests including information about safety issues, unexpected or unintended occurrences, data about roads, speeds, and miles traveled and like information. The Vehicle Testing Company will provide such information to the City and/or the State upon request and subject to appropriate and agreed confidentiality restrictions. Videos of the AV being operated without human piloting during the tests shall be taken from another The Vehicle Testing Company vehicle at least on two occasions and such test data and videos, including videos taken from within the test vehicle, shall be made available to the City of Boston and MassDOT on request and without cost;
- 9) Signage at Entry Points to Test Areas: The Vehicle Testing Company agrees that the City of Boston and/or MassDOT may require The Vehicle Testing Company to post electronic or printed signs at various entry points to the test area to inform the public when testing of self-driving AV's is taking place;
- 10) Posting of Police Cruiser and Officer: The Vehicle Testing Company agrees that the City of Boston may require the posting of a police cruiser and an officer to be present in the test area in the event of any interference with the test vehicle by other motorists or for other safety reasons; The presence of a Police Officer is not a requirement for commencing testing, unless interference from other road users necessitate this action;
- 11) Test Goals: The signatory parties agree that a full and fair test of the capabilities of an AV will require at least 1,000 miles of vehicle travel and/or 100 hours of operation

and that such testing should be conducted at various speeds (within legal limits), at various times of day, in traffic conditions from light to heavy, and during various weather conditions as detailed in the Application;

- 12) Escort Vehicles: The signatory parties also agree that if any escort vehicles are to be used for the AV test, they need to be marked to inform the public that the escort vehicle is a part of the AV test procedure;
- 13) Testing on Certain Ways; Test Period: The City of Boston and MassDOT agree that The Vehicle Testing Company may legally test its autonomous vehicles on public ways and other public property in the City of Boston and in the Commonwealth of Massachusetts, as provided above, between the date set forth above and _____, 2017 (the "Test Period"). If any private way or facility is to be used for a test The Vehicle Testing Company agrees to obtain the written permission of the owner of such property in advance of such test;
- 14) Laws Governing: This Memorandum of Understanding shall be construed under and governed by the laws of the Commonwealth of Massachusetts;
- 15) Notices: Any Notice required by this MOU or directly affecting the terms of this MOU shall be addressed to the signatory parties as follows:

Commissioner of The Boston Transportation Department
City of Boston
1 City Hall Square Suite 721
Boston, MA 02201

General Counsel
MassDOT Legal Office
Ten Park Plaza
Boston, MA 02116

NAME
CEO / Officer
The Vehicle Testing Company, Inc.
STREET ADDRESS
CITY, STATE ZIPCODE

- 16) Termination: This MOU shall be terminated when the testing goals (#11) have been reached or on a date certain set when two of the three signatory parties have agreed to conclude the testing and to cease continued authorization for testing under this MOU or for good cause; and
- 17) Indemnification: The Vehicle Testing Company agrees to defend, hold harmless and indemnify the Mass RMV, the Massachusetts Department of Transportation, the Commonwealth of Massachusetts and the City of Boston and each of their respective employees and authorized agents from any and all third-party claims, actions, damages, losses or expense of every nature and kind in law or equity, arising out of or in connection with The Vehicle Testing Company's testing of autonomous vehicles on public or private ways or other public property in the Commonwealth of Massachusetts, including in the City of Boston. The obligations under this section shall survive the Termination of this MOU.

This MOU constitutes the entire agreement, and supersedes all prior negotiations, understandings and agreements (oral or written), between the parties concerning the subject matter hereof. This MOU may be executed in one or more counterparts, each of which is an original, but taken together constituting one and the same instrument. Execution of a facsimile copy (including PDF) shall have the same force and effect as execution of an original, and a facsimile signature shall be deemed an original and valid signature. No change, consent or waiver to this MOU will be effective unless in writing and signed by the party against which enforcement is sought. In the event that any provision of this MOU shall be determined to be illegal or unenforceable, that provision will be limited or eliminated to the minimum extent necessary so that the MOU shall otherwise remain in full force and effect and enforceable.

TEMPLATE MOU FOR AUTONOMOUS VEHICLE TESTING IN BOSTON
(last updated 1.20.17)

In Witness Whereof, the parties acknowledge their agreement to the foregoing upon the date the last party signs below.

NAME
CEO / Officer
Vehicle Testing Company Inc.

Date

Gina Fiandaca
Commissioner
City of Boston Transportation Department

Date

Eugene O'Flaherty
Corporation Counsel
City of Boston

Date

John C. Englander
General Counsel
Massachusetts Department of Transportation

Date

*More parties may be required based upon testing plan location.