



Required Minimum Framework for Agreements between Municipalities and Autonomous Vehicle Testers

Per Public Act 17-69, this document outlines a framework of the minimum requirements to be included in agreements between municipalities and autonomous vehicle testers approved for participating in the Fully Autonomous Vehicle Testing Pilot Program (FAVTPP) by the State of Connecticut Office of Policy and Management (OPM). As part of the FAVTPP, municipalities and autonomous vehicle testers must incorporate the components and framework of this document into their agreements. However, nothing in this document shall be construed as limiting the ability of municipalities and autonomous vehicle testers to add additional requirements to their agreements, as determined necessary or desirable by such parties.

This document was developed by OPM, in consultation with the State of Connecticut Departments of Motor Vehicles (DMV), Transportation (DOT), Emergency Services and Public Protection (DESPP) and the Connecticut Insurance Department (CID). Note, the components and framework of this document are subject to change, over time, for future participation in the FAVTPP.

Section 1: General Information

This section of the agreement shall include the following general information:

- a. Date of the executed agreement
- b. Name of municipality and autonomous vehicle tester(s) who are party to the agreement
- c. Statement specifying that testing may begin on applicable highways only upon approval from the Secretary and execution of this agreement
- d. Definitions:
 1. "Fully autonomous vehicle" means a motor vehicle that is equipped with an automated driving system, designed to function without an operator and classified as level four or level five by SAE J3016;

2. "*Automated driving system*" means the hardware and software that are collectively capable of performing the entire dynamic driving task on a sustained basis, regardless of whether the automated driving system is limited to a specific operational design domain;
 3. "*Dynamic driving task*" means the real-time operational and tactical functions required to operate a motor vehicle on highways, excluding the strategic functions such as trip scheduling and selection of destinations and waypoints;
 4. "*Operational design domain*" means a description of the operating domains in which an automated driving system is designed to function, including, but not limited to, geographic, roadway, environmental and speed limitations;
 5. "*SAE J3016*" means the "Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles" published by SAE International in September 2016;
 6. "*Operator*" means the person seated in the driver's seat of a fully autonomous vehicle;
 7. "*Autonomous vehicle tester*" means an autonomous vehicle manufacturer, institution of higher education, fleet service provider or automotive equipment or technology provider;
 8. "*Fleet service provider*" means a person or entity that owns or leases a fully autonomous vehicle and operates such fully autonomous vehicle for commercial or public use;
 9. "*Autonomous vehicle manufacturer*" means: (A) A person or entity that builds or sells fully autonomous vehicles; (B) a person or entity that installs automated driving systems in motor vehicles that are not originally built as fully autonomous vehicles; or (C) a person or entity that develops automated driving systems in fully autonomous vehicles or motor vehicles that are not originally built as fully autonomous vehicles;
 10. "*Secretary*" means the Secretary of the Office of Policy and Management; and
 11. "*Highway*", "*limited access highway*" and "*operator's license*" have the same meanings as defined in section 14-1 of the general statutes.
- e. An outline of all the mutual understandings of the agreement, including any additional items required by the municipality and/or the autonomous vehicle tester, which are not already included in this document.

- f. Acknowledgement that the municipality and the autonomous vehicle tester(s) must satisfy and agree to all requirements or additional requirements as determined by the Secretary, in consultation with the Commissioners of DMV, DOT, DESPP and CID, as necessary to ensure the safe operation of the vehicles utilized in the FAVTPP.
- g. Acknowledgement that the Secretary may immediately prohibit an operator or an autonomous vehicle tester from testing a fully autonomous vehicle if the Secretary, in consultation with the Commissioners of DMV, DOT, DESPP and CID, determines that such testing poses a risk to public safety or that such municipality, operator or autonomous vehicle tester fails to comply with the provisions of Public Act 17-69 or with the requirements of the FAVTPP.
- h. Acknowledgement that this agreement has been made in the State of Connecticut and all parties agree that it is fair and reasonable for the validity and construction of the agreement to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the municipality or the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut.
- i. Acknowledgement that all notice requirements specified in this agreement, or directly affecting the terms of such agreement, shall be addressed to the signatory parties and to the appropriate state agencies, where applicable, as follows:

Name of Municipality
Contact Person / Municipal Traffic Authority
Title
Address

Name of Autonomous Vehicle Tester
Contact Person
Title
Address

Office of Policy and Management
Secretary
450 Capitol Avenue MS# 54-SEC

Hartford, CT 06106-1379

Department of Motor Vehicles
Commissioner
60 State Street
Wethersfield, CT 06161

Department of Transportation
Commissioner
2800 Berlin Turnpike
Newington, CT 06111

Department of Emergency Services and Public Protection
Commissioner
1111 Country Club Road
Middletown, CT 06457

Connecticut Insurance Department
Commissioner
153 Market Street
Hartford, CT 06103

- j. Acknowledgement that this agreement shall be terminated and all testing activities discontinued: (1) when the testing goals, as outlined by the parties to such agreement, have been accomplished; (2) on a date certain set when one of the two signatory parties have agreed to conclude the testing and cease continued authorization for testing under this agreement; or (3) for good cause.
- k. Acknowledgement that the autonomous vehicle tester agrees to defend, hold harmless and indemnify the municipality and the State, and each of their respective employees and authorized agents, from any and all third-party claims, actions, administrative proceedings, judicial proceedings, demands, damages, liabilities, losses, attorney fees, costs or expense of every nature and kind, including those arising out of injury to or death of the autonomous vehicle tester's employees, subcontractors, or any member of the general public, in connection with the autonomous vehicle tester's participation in the FAVTPP. The obligations under this section shall continue in perpetuity.
- l. Acknowledgement that it is agreed and understood that the State shall not be construed to have waived any rights or defenses of sovereign immunity which it may have with respect to all matters arising out of any agreement.
- m. Acknowledgement that this agreement constitutes the entire agreement, and supersedes all prior negotiations, understandings and agreements (oral or written), between the

parties concerning the subject matter hereof. This agreement 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 agreement will be effective unless in writing and signed by the party against which enforcement is sought. In the event that any provision of this agreement shall be determined to be illegal or unenforceable, that provision will be limited or eliminated to the minimum extent necessary so that the agreement shall otherwise remain in full force and effect and enforceable.

- n. Acknowledgement that in Witness Whereof, the parties acknowledge their agreement to the foregoing upon the date the last party signs below.

Section 2: Requirements before Testing Occurs

This section of the agreement shall include an acknowledgement that the municipality and the autonomous vehicle tester(s) shall adhere to, and abide by, all of the following minimum requirements before testing occurs:

- a. Prior to testing, the autonomous vehicle tester(s) must provide the following documentation to the applicable municipality, in a manner and form directed by such municipality, and to the Secretary, in a manner and form directed by the Secretary, and/or to any other state agency, as specified below, in the manner or form so specified:
 - 1. Experience with Automated Vehicles – Information generally describing the autonomous vehicle tester’s business as an autonomous vehicle tester, including, but not limited to, history and experience in off-road testing, on-road testing, and crash-related information, etc.
 - 2. Safety Assessment – A copy of the autonomous vehicle tester’s safety assessment in accord with NHTSA’s Autonomous Vehicle Guidance or similar documentation.
 - 3. Summary of Training Provided to Operators – A summary of the training provided to the operators, as defined in Public Act 17-69, who will operate the fully autonomous vehicle(s) being tested, as part of the FAVTPP. This summary shall also include a listing of the requirements or components of the training provided to operators.

4. Insurance Requirement – Proof of liability insurance, self-insurance or a surety bond of at least five million dollars for damages by reason of bodily injury, death or property damage caused by a fully autonomous vehicle. Such proof of liability insurance or surety bond must be issued by a company licensed to do business in the State of Connecticut, by the Commissioner of Insurance of the State of Connecticut. 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 State of Connecticut. The proof of liability insurance shall be provided by the autonomous vehicle tester to the municipality and the Commissioner of DMV, in a manner and form directed by the Commissioner.

5. Vehicle Identification - Identifying information about each FAV to be tested in the FAVTPP, including the vehicle identification number (VIN), make, year and model. For each vehicle that was not originally manufactured as a FAV, the autonomous vehicle tester shall describe how the vehicle was retrofitted to become a FAV and identify the party responsible for retrofitting the vehicle.

6. Vehicle Registration – Proof of vehicle registration. Any title for any FAV shall identify it as such, or if not so identified, a title with a FAV designation shall be issued by the State. *Note - Each vehicle used for testing in the FAVTPP must be registered with the Commissioner of DMV pursuant to section 14-12 of the Connecticut general statutes.*

7. Vehicle Inspection – Documentation that each FAV, to undergo testing as part of the FAVTPP, meets the following criteria:
 - A. Current, applicable Federal Motor Vehicle Safety Standards (FMVSS) as applicable, which ensure the FAV may legally and safely operate on public highways.
 - i. The autonomous vehicle tester(s) shall self-certify that each vehicle used for testing meets the current, applicable FMVSS and shall submit such certification to the Secretary. The self-certification shall be vehicle-specific and a copy of such certification shall be carried in each test vehicle(s) at all times during testing.

- ii. The autonomous vehicle tester(s) must ensure that the FAVs are motor vehicles that comply with the above mentioned FMVSS except for those parts, components or vehicle systems that have been made inactive or modified, in order to enable such vehicles to be self-driving by modifying such vehicles to include certain sensors, computers and other equipment.
 - B. Passes current Connecticut emissions standards. Autonomous vehicle tester(s) shall provide copy of emissions certificate to the Secretary.
 - C. Possess current registration plates issued by the DMV. *Note – These plates may be specialty plates.*
- 8. Driving Plan – A detailed overview of the driving plan utilized by the autonomous vehicle tester(s) while participating in the FAVTPP. This driving plan includes identifying the testing period and providing specific information regarding the geographical locations, routes, hours, conditions, goals and phases for testing FAV(s) during the testing period, as described in further detail below.
 - A. Testing Period: The testing period during which the municipality and autonomous vehicle tester may legally test autonomous vehicles on the approved public highways within the municipality. The testing period shall have a specific start date and a specific end date, if applicable.
 - B. Locations and Routes – The specific locations and routes where the fully autonomous vehicles will operate must be provided.
 - i. Maps must be included with the location(s) and route(s) highlighted.
 - ii. A municipality may dedicate all locations and routes in its town open for testing or it may decide to limit the locations and routes. However, FAVs are prohibited from testing outside of the specified locations and routes, except in the case of an emergency.
 - iii. Testing on limited access highways is also prohibited.
 - C. Hours of Operation – The specific hours of operation of FAVs shall be provided.

- D. Conditions of Operation – The specific conditions of operation shall be provided. This includes information as to the various types of real-life challenges and opportunities the FAVs are anticipated to encounter during testing such as varying climate and weather conditions, urban and rural geographies, highways with new and aging infrastructure, highways with varying levels of traffic volumes and congestion, highways with single or multiple modes/users of transportation, highways/work zones undergoing construction, etc.
- i. To the extent possible, the location(s) and route(s) to be used for testing shall be documented (e.g. photologged, photographed, video recorded, etc.) before testing to depict the current roadway usage and infrastructure conditions (e.g. pavement conditions, pavement markings, signage, signals, etc.) prior to such testing. In addition, evidence of existing traffic volumes, speeds and regulations shall also be provided. The municipality shall be responsible for providing such information that it has available. The municipality may request the DOT to provide, collect and/or compile any such information that the municipality does not have. The DOT may perform such services, within available appropriations and resources, upon request. If DOT declines this request, the municipality or autonomous vehicle tester shall collect, compile and provide such information as practicable.
- E. Test Goals – The specific test goals and anticipated results to be achieved by participating in the FAVTPP shall be clearly described and provided. The municipality and autonomous vehicle tester(s) shall agree that a full and fair test of the capabilities of a FAV 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/night, in traffic conditions from light to heavy, and during various weather conditions, etc. as detailed in the “Conditions of Operation” above.
- F. Phasing Plans - If applicable, phasing plans for testing under the FAVTPP shall be provided. The autonomous vehicle tester(s) must notify and provide a copy to the municipality and to the Secretary of their phasing plan(s). A copy of the phasing plan(s) must be provided:

- i. Before testing begins;
- ii. If/when the testing entity progresses to the next phase; and
- iii. If there are any proposed changes to the original testing phase(s) that were provided to the municipality and to the Secretary prior to such testing.

Note - For clarification, as long as such phase(s) are clearly identified in the original phasing plan submitted before testing began, the municipality should not have to re-submit an application to the Secretary for approval in order for the autonomous vehicle tester to advance to the next phase or make changes to the phasing plan for testing.

9. Vehicle Operator Information – Information regarding operator(s) of the FAV(s) used for testing during the FAVTPP shall be provided, including:

- A. Photocopy of Operator’s Driver’s License – Each operator must possess a valid, unexpired driver's license from the state in which such person is domiciled. Each operator shall also be at least 21 years of age.
- B. Contact Information - Operator’s contact information shall be provided including home address, best reachable phone number, e-mail address, etc.
- C. Copy of Driving Record – Each operator shall have a driving record free of any pending cases, convictions or administrative suspensions, including for operation of a motor vehicle while under the influence of alcohol or drugs. This shall include any cases that were disposed of under Connecticut state law or any other state law where the disposition occurred. Each operator involved in testing on behalf of an autonomous vehicle tester shall submit a driving history record, which shall be no more than thirty (30) days old, from the state in which such operator is licensed. The State and/or the municipality reserves the right to reject any operator that has multiple moving violations or serious traffic violations (as defined in section 14-1 of the Connecticut General Statutes) on his or her driving history record. Each operator involved in testing on behalf of an autonomous vehicle

tester shall have an ongoing duty to report all traffic citations, infractions or convictions to the municipality and the Secretary no later than 48 hours after such citation, infraction or conviction has occurred.

- D. Each operator shall give express consent to the municipality, the Secretary, and the DMV to obtain his or her driving history record from the state of licensure, solely for the purpose of determining ongoing eligibility as an operator involved in testing on behalf of an autonomous vehicle tester.

10. Public Outreach Campaign – Description and details of a public outreach campaign to be conducted by the municipality for participation in the FAVTPP. As part of the FAVTPP, municipalities are required to conduct a public outreach campaign to notify local officials, first responders, the general public and local media outlets about their participation in the FAVTPP prior to testing.

At a minimum, as part of this public outreach campaign, the municipality must:

- A. Outline an education program for police and residents regarding FAVs and the municipality’s participation in the FAVTPP; and
- B. Share the finalized specifications on where and when such FAV(s) will be tested within the municipality as part of the FAVTPP.

Section 3: Requirements during Testing Period of Fully Autonomous Vehicles

This section of the agreement shall include an acknowledgement that the municipality and the autonomous vehicle tester(s) will adhere to and abide by all of the following minimum requirements during the testing period:

- a. An autonomous vehicle tester or operator shall not operate a FAV as part of the FAVTPP unless:
 - 1. The autonomous vehicle tester(s) has complied with all of the requirements outlined in this document, any additional requirements (if applicable) included in the agreement between the municipality and the autonomous vehicle tester(s) and any other requirement as determined by the Secretary, in consultation with the Commissioners of DMV, DOT, DESPP and CID, as necessary to ensure the safe operation of such FAV.

2. The FAV has undergone a routine safety check or self-safety check by qualified personnel, certified by the autonomous vehicle tester, prior to operation of the FAV. This safety check should be conducted on a routine basis before commencing the operation of the FAV. The purpose of the safety check is to verify the FAV and accompanying autonomous technology are in good working condition and safe for operation. Documentation of such routine safety check and the components of the vehicle subject to inspection shall be provided to the municipality or the Secretary upon request.
 3. The autonomous vehicle operator is an employee, independent contractor or other person designated and trained by the autonomous vehicle tester concerning the capabilities and limitations of the FAV and is a holder of a valid operator's license, in conformance with the requirements specified in section 2 of this document.
 4. The FAV displays proper signage clearly identifying the vehicle as a test vehicle for the FAVTPP. Such signage shall be sufficiently large so as to be readable during daylight hours at a distance of at least fifty feet and reflective, illuminated or otherwise visible in darkness. If applicable, testing vehicles may also display analogous signage on the roof or hood of each such vehicle.
- b. While operating a FAV, the autonomous vehicle operator shall at all times:
1. Obey all traffic laws, provisions of the general statutes and ordinances of the applicable municipality concerning the operation of motor vehicles.
 2. Be seated in the driver's seat of the FAV.
 3. Be monitoring the operation of the FAV.
 4. Be capable of taking immediate manual control of the FAV.
- c. As part of the FAVTPP, no autonomous vehicle tester shall test a FAV on any limited access highway.
- d. The posting of electronic or printed signage at various testing area entry and exit points may be required by the municipality to inform the public and emergency responders when and where testing of FAVs is taking place. If said signage is required by the

municipality, the signage shall be in compliance with the Manual on Uniform Traffic Control Devices (MUTCD), Latest Edition. The signage must also be approved by the municipality's Traffic Authority, and that with respect to State highways and bridges and State railroad rights-of-way, said signage must be approved by DOT.

- e. The posting of a police cruiser and the presence of an officer in the test area may be required by the municipality in the event of an interference with the test vehicle by other motorists or for other safety reasons. The presence of a police cruiser is not a requirement for commencing testing, unless interference from other road users necessitate this action. This requirement will be decided by the municipality and the autonomous vehicle tester together.
- f. If any escort vehicles are to be used during testing, they shall be properly marked to inform the public that the escort vehicle is a part of the FAVTPP, unless such vehicle is a marked police vehicle.
- g. The autonomous vehicle tester shall ensure that during the testing period, certain data will be captured and recorded by the FAV's sensors to enable post-drive analysis of the FAV's operational state. The autonomous vehicle tester shall agree to provide information to the municipality, Secretary and the task force, established pursuant to Section 2 of Public Act 17-69, that the Secretary or task force deem appropriate for measuring the performance of the pilot program. To the extent possible, the autonomous vehicle tester shall agree to routinely report such data and progress to the municipality, Secretary and task force. However, the autonomous vehicle tester may withhold commercially valuable, confidential or proprietary information.

Examples of information or summaries of information the municipality, Secretary or task force may request include, but are not limited to, information about safety issues, unexpected or unintended occurrences during testing, data about roads, speeds, vehicle miles traveled, vehicle miles traveled under and/or encountering various conditions, whether and how often disengagement occurred during testing and for what reasons, lessons learned, etc.

All disengagement reports or summaries of disengagement reports shall be provided by the autonomous vehicle tester to the municipality, Secretary and task force on a quarterly basis. These reports shall describe any unintended disengagement or failure from the autonomous vehicle mode and how the FAV and operator responded, including whether such incident required the operator to take manual control over the vehicle. If the operator did not take manual control of the vehicle, the autonomous

vehicle tester shall provide a description of the protocol followed by such FAV. The autonomous vehicle tester shall also provide a clear description of what occurred and why, including any relevant interactions with various roadway infrastructure, such as pavement markings, roadway conditions, signs, traffic signals, construction zones, alternate traffic patterns, and interactions with other roadway users, etc. These reports shall also include a summary of all crashes that occur within the required reporting timeframe and a description of all situations where an autonomous vehicle exceeds its operational design domain and reverts to a lower “safe” autonomous mode.

Videos of the FAV being operated in fully autonomous mode during testing, including videos taken from within the test vehicle, shall be taken by the tester and. These videos shall be made available to the municipality, the Secretary and the task force upon request and without cost.

- h. Crash Reporting and Protocol During FAVTPP - In the event that a FAV experiences a crash during the FAVTPP in which a death, physical injury or property damage occurs, the autonomous vehicle tester and applicable municipality shall agree to the following reporting requirements:
1. The law enforcement agency with primary jurisdiction for the location where the crash occurred will be notified and will direct a crash investigator to the scene.
 2. The autonomous vehicle tester will cooperate fully with the investigating police agency, providing copies and/or allowing access to applicable crash-related, recorded data retained within or by the FAV, its controlling and tracking systems, the autonomous vehicle tester and any other relevant data collected prior to the crash as part of the FAVTPP, etc. This also includes the autonomous vehicle tester providing any cabling, adapters, technology, etc. needed for the investigating police agency to connect to the vehicle’s data at no cost. This will be considered “consent” under CGS 14-164aa to allow law enforcement personnel to access any data preserved in the manufacturer-installed vehicle data recorder.
 3. Regardless of severity, a crash investigation will be conducted and reported on the PR-1/MMUCC form utilized by DOT.
 - A. In cases not involving serious or fatal injuries, this report will be completed and submitted within five (5) calendar days and a copy of

the report, once submitted, will be provided to the Project Point of Contact for the municipality and the Secretary.

- B. If serious or fatal injuries occur, the local investigating agency will follow its standard policies and procedures as to investigation and reporting for such an incident, and a copy of the report, once submitted, will be provided to the Project Point of Contact for the municipality and the Secretary.
- C. At a minimum, the following data points shall be clearly stated in the narratives of the standard PR-1/MMUCC form for any crash, regardless of severity:
 - i. Specific details of the crash, including information as to the possible cause or causes of the crash;
 - ii. Whether the autonomous driving system was activated immediately prior to and during the crash;
 - iii. Whether or not the autonomous vehicle driving system was functioning properly within its operational design domain immediately prior to and during the crash;
 - iv. If the autonomous driving system was inactive or operating outside its operational design domain, information about how, when and why the system deactivated or disengaged from autonomous vehicle mode and/or from its correct operational design domain should be provided;
 - v. Whether the autonomous driving system suffered any additional technical failures; and
 - vi. Any other details pertinent to the crash not already captured.
- 4. The autonomous vehicle tester shall contact the municipality and the Secretary within twenty-four (24) hours of a crash and indicate the details of the crash.
- 5. The autonomous vehicle tester and municipality shall agree to contact each other once informed of a crash by the autonomous vehicle tester and discuss the crash with the Secretary and all appropriate parties, as necessary or desirable.

6. The autonomous vehicle tester shall file an additional report of the crash (“MOU Crash Report”) with the applicable municipality and the Secretary within five (5) days. This report shall include all the information outlined in Section 3(h)(3)(C) and any additional information to be provided by the autonomous vehicle tester.
7. Following a crash, further testing may be temporarily suspended by the municipality, the autonomous vehicle tester or the Secretary until the initial cause of the crash can be determined and any necessary corrections made.
8. If the FAV involved in the crash suffered any technical failure(s), the autonomous vehicle tester shall temporarily suspend testing of the FAV involved in the crash until such time as the cause of such failure(s) is determined and the problem(s) is remedied.
9. Comply with the Electronic Code of Federal Regulations Title 49, Part 563 with regard to Vehicle Data Recorders and provide law enforcement with access to all crash information recorded by such vehicle data recorders.

Section 4. Signatures

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