

SENATE No. 1945

The Commonwealth of Massachusetts

PRESENTED BY:

Jason M. Lewis

To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled:

The undersigned legislators and/or citizens respectfully petition for the adoption of the accompanying bill:

An Act to promote the safe integration of autonomous vehicles into the transportation system of the Commonwealth.

PETITION OF:

NAME:	DISTRICT/ADDRESS:	
<i>Jason M. Lewis</i>	<i>Fifth Middlesex</i>	
<i>Carmine L. Gentile</i>	<i>13th Middlesex</i>	<i>1/24/2017</i>
<i>Chris Walsh</i>	<i>6th Middlesex</i>	<i>1/24/2017</i>
<i>Steven Ultrino</i>	<i>33rd Middlesex</i>	<i>2/2/2017</i>
<i>Paul R. Heroux</i>	<i>2nd Bristol</i>	<i>2/2/2017</i>
<i>Denise Provost</i>	<i>27th Middlesex</i>	<i>2/2/2017</i>
<i>Michelle M. DuBois</i>	<i>10th Plymouth</i>	<i>2/2/2017</i>
<i>Michael O. Moore</i>	<i>Second Worcester</i>	<i>2/2/2017</i>
<i>Daniel J. Ryan</i>	<i>2nd Suffolk</i>	<i>2/3/2017</i>
<i>Eileen M. Donoghue</i>	<i>First Middlesex</i>	<i>2/3/2017</i>
<i>Joan B. Lovely</i>	<i>Second Essex</i>	<i>2/3/2017</i>
<i>James B. Eldridge</i>	<i>Middlesex and Worcester</i>	<i>2/3/2017</i>

SENATE No. 1945

By Mr. Lewis, a petition (accompanied by bill, Senate, No. 1945) of Jason M. Lewis, Carmine L. Gentile, Chris Walsh, Steven Ultrino and other members of the General Court for legislation to promote the safe integration of autonomous vehicles into the transportation system of the Commonwealth. Transportation.

The Commonwealth of Massachusetts

**In the One Hundred and Ninetieth General Court
(2017-2018)**

An Act to promote the safe integration of autonomous vehicles into the transportation system of the Commonwealth.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

1 SECTION 1. The General Laws are hereby amended by inserting after Chapter 90,
2 Section 62 the following sections:

3 Section 63. Definitions applicable to Secs. 63 to 63F

4 (a) The following words, as used in Sections 63 to 63F, inclusive, shall have the
5 following meanings:

6 (1) “Automated driving system” means a combination of hardware and software that has
7 the capability to perform driving tasks by controlling and combining braking, throttle, and
8 steering functionality without the active physical control or monitoring by a human driver.

9 (2) “Autonomous vehicle” means any motor vehicle as defined in section one of this
10 chapter equipped with an automated driving system that has been integrated into that vehicle,

11 where the automated driving system performs all driving tasks and monitors the driving
12 environment without the expectation that a human driver will be available to respond
13 appropriately to a request to intervene. An autonomous vehicle does not include a vehicle that
14 merely is equipped with one or more collision avoidance systems, including, but not limited to,
15 electronic blind spot assistance, automated emergency braking systems, park assist, adaptive
16 cruise control, lane keep assist, lane departure warning, traffic jam and queuing assist, or other
17 similar systems that enhance safety or provide driver assistance, but are not capable, collectively
18 or singularly, of driving the vehicle without the active control or monitoring of a human driver.

19 (3) “Level three vehicle” means any motor vehicle as defined in section one of this
20 chapter equipped with an automated driving system that has been integrated into that vehicle,
21 where the automated driving system performs all driving tasks and monitors the driving
22 environment with the expectation that a human driver will be available to respond appropriately
23 to a request to intervene. A level three vehicle does not include a vehicle that merely is equipped
24 with one or more collision avoidance systems, including, but not limited to, electronic blind spot
25 assistance, automated emergency braking systems, park assist, adaptive cruise control, lane keep
26 assist, lane departure warning, traffic jam and queuing assist, or other similar systems that
27 enhance safety or provide driver assistance, but are not capable, collectively or singularly, of
28 driving the vehicle without the active control or monitoring of a human driver.

29 (3) The term “zero emission vehicle” (or “ZEV”) means any passenger car or light duty
30 truck that produces zero emissions of any criteria pollutants under any and all possible
31 operational modes and conditions. Incorporation of a fuel fired heater shall not preclude a
32 vehicle from being certified as a ZEV provided the fuel fired heater cannot be operated at
33 ambient temperatures above 40°F and the heater is demonstrated to have zero evaporative

34 emissions under any and all possible operational modes and conditions. In addition, zero
35 emission vehicle or "ZEV," means any ZEV placed in service in compliance with the California
36 Project pursuant to the requirements of the Master Memorandum of Agreement adopted by the
37 California Air Resources Board March 29, 1996.

38 (4) The term "public transit" shall include any train, passenger bus, passenger ferry boat,
39 water shuttle or other equipment used in public transportation owned by, or operated under the
40 authority of a regional transit authority as set forth in section 3 of chapter 161B, the
41 Massachusetts Bay Transportation Authority, the Massachusetts Port Authority, or the
42 Massachusetts Department of Transportation.

43 (5) "Department" means the Massachusetts Department of Transportation.

44 (6) "Registrar" means the Registrar of Motor Vehicles.

45 (7) An "operator" is the person or entity providing use of a level three or autonomous
46 vehicle commercially, publicly, or privately. Operators include, but are not limited to, the
47 following: commercial passenger transportation service companies, commercial freight service
48 companies, transit authorities, academic or research institutions developing automated driving
49 systems, and individual owners or lessors of privately owned autonomous vehicles.

50 (8) A "passenger" of a level three or autonomous vehicle is any person physically present
51 in an autonomous vehicle while the autonomous vehicle's automated driving system is engaged.

52 (9) A "manufacturer" of an autonomous vehicle is:

53 (a) The person or entity that originally manufactures a vehicle and equips an automated
54 driving system on the originally completed vehicle; or

55 (b) In the case of a vehicle not originally equipped with an automated driving system by
56 the vehicle manufacturer, the person or entity that modifies the vehicle by installing an
57 automated driving system to convert it to an autonomous vehicle after the vehicle was originally
58 manufactured.

59 (10) “Testing” means analysis and evaluation of level three or autonomous vehicles by a
60 manufacturer, an operator, or an expert third party engaged by a manufacturer or operator.

61 (11) “Deployment” means use of autonomous vehicles by members of the public who
62 may but need not be employees or agents of manufacturers or operators of autonomous vehicles.

63 Section 63A. Autonomous vehicle policy and regulatory authority

64 (a) It shall be the policy of the commonwealth of Massachusetts to promote the
65 integration of autonomous vehicles into the commonwealth for the purpose of improving the
66 transportation system and encouraging economic development, and to allow autonomous
67 vehicles on the public ways of the commonwealth subject to such restrictions as are necessary to
68 ensure protection of the commonwealth’s people and environment, adequate funding of the
69 commonwealth’s transportation infrastructure, and compliance with state and federal laws.

70 (b) The Department is hereby authorized in accordance with the provisions of chapter
71 thirty A to promulgate such rules as are necessary to carry out its duties under Sections 63
72 through 63F of this chapter and in accordance with the purpose set forth in subsection (a) of this
73 section. In promulgating any such regulations, the Department shall seek to protect the
74 commonwealth’s most impacted and disadvantaged communities and ensure equal protection
75 and the equitable distribution of the benefits and costs associated with the introduction of
76 autonomous vehicles.

77 Section 63B. Level three and autonomous vehicles allowed

78 (a) A level three vehicle may be tested on public ways within the commonwealth only if
79 the level three vehicle:

80 (1) Has a failure alert system to notify the passenger when a system failure is detected;

81 (2) Meets the federal motor vehicle safety standards for its model year and all other
82 applicable safety standards and performance requirements established by state and federal law;

83 (3) Relies on the most recent version of all software used as part of its automated driving
84 system and such software has been updated to the latest available version within thirty days of
85 the release of any such updated version;

86 (4) is a zero-emissions vehicle, unless the vehicle has a maximum design loaded weight
87 of more than or equal to eight thousand five hundred pounds;

88 (5) is clearly marked as an autonomous vehicle in a manner approved by the Registrar;
89 and

90 (6) Has a system that captures and stores such data as the Department deems necessary
91 through rules promulgated in accordance with the provisions of chapter thirty A, after
92 consultation with the Registrar. Any such system must be open-source and based on common
93 standards, with an operating system that has been made public so that components performing
94 the same function can be readily substituted or provided by multiple providers. The data
95 captured and stored by such system shall include, but not be limited to, real-time distance
96 traveled and real-time number of passengers. Data relating to real-time distance traveled and
97 real-time number of passengers shall be stored, with the capability of being cross-referenced, for

98 a reasonable time period as established by the Department, provided that such period shall not
99 exceed eighteen months. Data relating to safety shall be stored for a reasonable time period after
100 the vehicle has been removed from services, established by the Department, provided that such
101 period shall not exceed eighteen months.

102 In issuing any regulations setting requirements for data collection from autonomous
103 vehicles, the Department shall take all necessary steps:

104 (A) To protect the privacy of individuals including, but not limited to, the operators and
105 passengers of autonomous vehicles; and

106 (B) To ensure the security of the data-collection system, the resistance of the system to
107 tampering, and the accuracy of the data captured and stored by the system.

108 Such steps shall include limiting the availability of any sensitive data to the public.

109 (b) An autonomous vehicle may be tested or deployed on public ways within the
110 commonwealth only if the autonomous vehicle:

111 (1) Has a mechanism that is readily accessible to passengers, that does not rely on
112 wireless connectivity, and that, if engaged, forces the vehicle to expediently come to the closest
113 safe stop and allow passengers to exit.

114 (2) Has a failure alert system to notify the passenger when a system failure is detected;

115 (3) Meets the federal motor vehicle safety standards for its model year and all other
116 applicable safety standards and performance requirements established by state and federal law;

117 (4) Relies on the most recent version of all software used as part of its automated driving
118 system and such software has been updated to the latest available version within thirty days of
119 the release of any such updated version;

120 (5) is a zero-emissions vehicle, unless the vehicle has a maximum design loaded weight
121 of more than or equal to eight thousand five hundred pounds; and

122 (6) is clearly marked as an autonomous vehicle in a manner approved by the Registrar;
123 and

124 (7) Has a system that captures and stores such data as the Department deems necessary
125 through rules promulgated in accordance with the provisions of chapter thirty A, after
126 consultation with the Registrar. Any such system must be open-source and based on common
127 standards, with an operating system that has been made public so that components performing
128 the same function can be readily substituted or provided by multiple providers. The data
129 captured and stored by such system shall include, but not be limited to, real-time distance
130 traveled and real-time number of passengers. Data relating to real-time distance traveled and
131 real-time number of passengers shall be stored, with the capability of being cross-referenced, for
132 a reasonable time period as established by the Department, provided that such period shall not
133 exceed eighteen months. Data relating to safety shall be stored permanently.

134 In issuing any regulations setting requirements for data collection from autonomous
135 vehicles, the Department shall take all necessary steps:

136 (A) To protect the privacy of individuals including, but not limited to, the operators and
137 passengers of autonomous vehicles; and

138 (B) To ensure the security of the data-collection system, the resistance of the system to
139 tampering, and the accuracy of the data captured and stored by the system.

140 Such steps shall include limiting the availability of any sensitive data to the public.

141 Section 63C. Level three and autonomous vehicle testing and deployment

142 (a) A manufacturer or operator may test level three or autonomous vehicles on the public
143 ways of the commonwealth or may test, deploy, or sell or lease for deployment autonomous
144 vehicles for use on the public ways of the commonwealth only if the manufacturer or operator
145 has been certified by the Registrar.

146 (b) A manufacturer or operator may apply to the Registrar for certification under this
147 section. The application shall be in the form prescribed by the Registrar in consultation with the
148 Department. The application shall establish that:

149 (1) The level three vehicle or autonomous vehicle and the automated driving system meet
150 all applicable requirements of section 63b of this chapter; and

151 (2) The level three vehicle or autonomous vehicle shall be operated only in accordance
152 with Section 63D of this chapter.

153 (c) The Registrar, in consultation with the Department, shall promulgate rules in
154 accordance with the provisions of chapter thirty A, for the testing of level three vehicles and the
155 testing, deployment, and sale or leasing for deployment of autonomous vehicles. The rules shall
156 establish standards for equipment used in and for the performance of level three and autonomous
157 vehicles that the Department determines are necessary to ensure the safe operation of such
158 vehicles on the public ways of the commonwealth and set inspection requirements specific to

159 such vehicles. The rules shall include a waiver for autonomous vehicles of such inspection
160 requirements as the Registrar deems appropriate in accordance with section seven A of chapter
161 ninety. The rules shall also provide for sharing of the data captured and stored in accordance
162 with Section 63B(a)(5), including providing the public with open access to such data, subject to
163 such safeguards as the Registrar deems necessary for the protection of privacy. The rules may
164 include, but need not be limited to, the following:

165 (1) The establishment of a pilot program for testing level three or autonomous vehicles,
166 or the phased integration and deployment of autonomous vehicles;

167 (2) Limits on the number of level three or autonomous vehicles that may be tested or, in
168 the case of autonomous vehicles, deployed at any given time on the public ways of the
169 commonwealth;

170 (3) Special license requirements relating to the testing or deployment of autonomous
171 vehicles appropriate to the class of vehicle based on weight rating or number of passengers; and

172 (4) Criteria for revocation, suspension, or denial of an application or certification under
173 this section.

174 (d) A manufacturer or operator shall submit proof of liability insurance with an
175 application made under this section. Such insurance shall provide coverage in an amount to be
176 established by the Registrar.

177 (e) The Registrar may certify a manufacturer or operator under this section only if the
178 Registrar determines that the level three or autonomous vehicles covered by the certification are
179 safe to operate on the public ways of the commonwealth. Such determination shall include at a

180 minimum a finding that the level three or autonomous vehicles covered by the certification are in
181 compliance with all federal standards and regulations including, but not limited to, the
182 Performance Guidance set forth by the National Highway Traffic Safety Administration and
183 applicable Federal Motor Vehicle Safety Standards.

184 (f) The Registrar by rule shall establish fees for applications made under this section. The
185 fees shall be in amounts adequate to pay all administrative costs incurred by the department in
186 administering this part.

187 Section 63D. Operation of level three and autonomous vehicles

188 (a) A level three vehicle from a certified manufacturer may be tested on the public ways
189 of the commonwealth, but only if a passenger with the proper license for the type of motor
190 vehicle being tested is present and is adequately trained to pilot and monitor the vehicle as a
191 fallback-ready human driver.

192 (b) If the Registrar should provide by rule that autonomous vehicles may be tested or
193 deployed on the public ways of the commonwealth without a passenger present, no autonomous
194 vehicle, other than freight or emergency vehicles, may travel more than one mile continuously
195 without a passenger present in the vehicle.

196 (c) Notwithstanding sections seventeen and eighteen of chapter ninety of the General
197 Laws, or any general or special law, or regulation to the contrary, the speed limit for autonomous
198 vehicles shall be twenty-five miles per hour on public ways in a thickly settled or business
199 district, as defined in section one of said chapter ninety, fifteen miles per hour within a duly
200 established school zone when children are present, and the same as the prevailing speed limit on
201 all other public ways.

202 (d) Notwithstanding the other provisions of this chapter, any municipality with a
203 population density greater than or equal to four thousand five hundred people per square mile
204 shall have the power to limit autonomous vehicles to only motor vehicles providing public
205 transportation as set forth in section one of chapter one hundred fifty nine A, transportation
206 network vehicles as set forth in section one of chapter one hundred fifty nine A½ provided that
207 for purposes of this subsection, “driver” shall include the operator of an autonomous vehicle, or
208 vehicles carrying an average of 1.8 or more passengers per vehicle mile traveled as calculated on
209 a monthly basis per vehicle or fleet of commonly-owned vehicles. Any such limitation need not
210 apply to an entire municipality but may be applied to any geographic area or areas within a
211 municipality, as the municipality deems suitable.

212 (e) Whoever violates subsection sections 63A through 63D of this chapter shall be
213 subject to a fine of not more than five hundred dollars for a first violation, one thousand dollars
214 for a second violation, and \$2,500 for every violation thereafter. Any person who receives a
215 citation for violating any provision of these sections may contest such citation pursuant to section
216 three of chapter ninety C.

217 Section 63E. Road usage charge on autonomous vehicles

218 (a) A road usage charge is imposed on autonomous vehicles that operate on the public
219 ways within this state pursuant to this Chapter.

220 (b) The Department shall, in accordance with the provisions of chapter thirty A,
221 promulgate rules regarding the computation, assessment, and collection of the road usage charge
222 on autonomous vehicles.

223 (c) In promulgating rules regarding the computation of the road usage charge on
224 autonomous vehicles, the Department shall:

225 (1) Establish a base per-mile rate on autonomous vehicles of no less than 2.5 cents per
226 mile, provided that the minimum rate imposed under this paragraph shall be adjusted at the
227 beginning of each calendar year, by the percentage, if any, by which the consumer price index, as
228 defined in section 1 of the Internal Revenue Code, pursuant to 26 U.S.C. section 1, for the
229 preceding year exceeds the consumer price index for the calendar year that ends before such
230 preceding year;

231 (2) Allow for a reduction in the base per-mile rate on autonomous vehicles owned and
232 operated by the commonwealth or by any city or town within the commonwealth;

233 (3) Allow for reductions in the base per-mile rate on autonomous vehicles for each
234 passenger in an autonomous vehicle per mile;

235 (4) Allow for reductions in the base per-mile rate on autonomous vehicles for each mile
236 traveled during off-peak travel hours as defined by the Department;

237 (5) Allow for reductions in the base per-mile rate on autonomous vehicles for each mile
238 traveled in specified geographic areas where no or few public transit options are available;

239 (6) Allow for reductions in the base per-mile rate on autonomous vehicles for operators
240 whose personal income, as documented by tax returns or other credible evidence, falls below a
241 threshold established by regulation;

242 (7) Impose an increased per-mile rate on autonomous vehicles for each mile traveled
243 without a passenger;

244 (8) Impose an increased per-mile rate or a tiered system of increased per-mile rates on
245 autonomous vehicles with a weight greater than or equal to four thousand pounds (taking into
246 account any motor vehicle fuels excise tax paid for vehicles over eight thousand five hundred
247 pounds);

248 (9) Impose an increased per-mile rate on autonomous vehicles for each mile traveled
249 between eight am and eight pm within a severe congestion zone as designated by the Department
250 through rules promulgated under this chapter; and

251 (10) Create such exemptions as are necessary to ensure that the road usage charge is
252 reasonably related to the services provided by the Department, including, but not limited to,
253 exempting travel on private property and out-of-state travel.

254 Section 63F. Allocation of road usage charge revenue

255 (a) All road usage charge revenue collected from autonomous vehicles pursuant to
256 Section 63E shall be credited to the commonwealth Transportation Fund.

257 SECTION 2. This act shall take effect upon its passage.