

SENATE No. 2115

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>Michael O. Moore</i>	<i>Second Worcester</i>	<i>1/31/2019</i>

SENATE No. 2115

By Mr. Lewis, a petition (accompanied by bill, Senate, No. 2115) of Jason M. Lewis and Michael O. Moore for legislation to promote the safe integration of autonomous vehicles into the transportation system of the Commonwealth. Transportation.

[SIMILAR MATTER FILED IN PREVIOUS SESSION
SEE SENATE, NO. 1945 OF 2017-2018.]

The Commonwealth of Massachusetts

In the One Hundred and Ninety-First General Court
(2019-2020)

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

2 (A) The following words, as used in Sections 63 to 63F, inclusive, shall have the
3 following meanings:

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

7 (2) “Autonomous vehicle” means any motor vehicle equipped with an automated driving
8 system that has been integrated into that vehicle, where the automated driving system performs

9 all driving tasks and monitors the driving environment without the expectation that a human
10 driver will be available to respond appropriately to a request to intervene. An autonomous
11 vehicle does not include a vehicle that merely is equipped with one or more collision avoidance
12 systems, including, but not limited to, electronic blind spot assistance, automated emergency
13 braking systems, park assist, adaptive cruise control, lane keep assist, lane departure warning,
14 traffic jam and queuing assist, or other similar systems that enhance safety or provide driver
15 assistance, but are not capable, collectively or singularly, of driving the vehicle without the
16 active control or monitoring of a human driver. The term “autonomous vehicle” consists of all
17 vehicles with driving automation at Level 4 and Level 5 as defined by SAE International as of
18 the effective date of this legislation.

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

31 (4) “Zero emissions vehicle” means a motor vehicle that produces zero exhaust emissions
32 of any criteria pollutant or precursor pollutant, or greenhouse gas, excluding emissions from air
33 conditioning systems, under any and all possible operating modes or conditions.

34 (5) The term “public transit” shall include any train, passenger bus, passenger ferry boat,
35 water shuttle or other equipment used in public transportation owned by or operated under the
36 authority of a regional transit authority as set forth in section 3 of chapter 161B, the
37 Massachusetts Bay Transportation Authority, the Massachusetts Port Authority, or the
38 Massachusetts Department of Transportation.

39 (6) “Department” means the Massachusetts Department of Transportation.

40 (7) “Registrar” means the Registrar of Motor Vehicles.

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

46 (9) A “passenger” of a level three or autonomous vehicle is any person physically present
47 in an autonomous vehicle while the autonomous vehicle’s automated driving system is engaged.

48 (10) A “manufacturer” of an autonomous vehicle is:

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

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

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

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

59 Section 63A. Autonomous vehicle policy and regulatory authority

60 (A) It shall be the policy of the commonwealth of Massachusetts to promote the
61 integration of autonomous vehicles into the commonwealth for the purpose of improving the
62 transportation system and encouraging economic development, complying with greenhouse gas
63 emissions targets set out in chapter 21N, and to allow autonomous vehicles on the public ways of
64 the commonwealth subject to such restrictions as are necessary to ensure protection of the
65 commonwealth’s people and environment, adequate funding of the commonwealth’s
66 transportation infrastructure, and compliance with state and federal laws.

67 (B) The Department is hereby authorized in accordance with the provisions of chapter
68 30A to promulgate such rules as are necessary to carry out its duties under Sections 63 through
69 63F of this chapter and in accordance with the purpose set forth in subsection (a) of this section.
70 In promulgating any such regulations, the Department shall seek to protect the commonwealth’s
71 most impacted and disadvantaged communities and ensure equal protection and the equitable
72 distribution of the benefits and costs associated with the introduction of autonomous vehicles.

73 Section 63B. Level three and autonomous vehicles allowed

74 (A) A level three vehicle may be tested on public ways within the commonwealth only if
75 the level three vehicle:

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

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

79 (3) Relies on the most recent version of all software used as part of its automated driving
80 system and such software has been updated to the latest available version within 30 days of the
81 release of any such updated version;

82 (4) is clearly marked as an autonomous vehicle in a manner approved by the Registrar;
83 and

84 (5) Has a system that captures and stores such data as the Department deems necessary
85 through rules promulgated in accordance with the provisions of chapter 30A, after consultation
86 with the Registrar. Any such system must be open-source and based on common standards, with
87 an operating system that has been made public so that components performing the same function
88 can be readily substituted or provided by multiple providers. The data captured and stored by
89 such system shall include, but not be limited to, real-time distance traveled and real-time number
90 of passengers. Data relating to real-time distance traveled and real-time number of passengers
91 shall be stored, with the capability of being cross-referenced, for a reasonable time period as
92 established by the Department, provided that such period shall not exceed eighteen months. Data
93 relating to safety shall be stored for a reasonable time period after the vehicle has been removed

94 from services, established by the Department, provided that such period shall not exceed
95 eighteen months.

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

98 (a) To protect the privacy of individuals including, but not limited to, the operators and
99 passengers of autonomous vehicles; and

100 (b) To ensure the security of the data-collection system, the resistance of the system to
101 tampering, and the accuracy of the data captured and stored by the system.

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

103 (B) An autonomous vehicle may be tested or deployed on public ways within the
104 commonwealth only if the autonomous vehicle:

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

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

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

111 (4) Relies on the most recent version of all software used as part of its automated driving
112 system and such software has been updated to the latest available version within 30 days of the
113 release of any such updated version;

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

116 (6) Has a system that captures and stores such data as the Department deems necessary
117 through rules promulgated in accordance with the provisions of chapter 30A, after consultation
118 with the Registrar. Any such system must be open-source and based on common standards, with
119 an operating system that has been made public so that components performing the same function
120 can be readily substituted or provided by multiple providers. The data captured and stored by
121 such system shall include, but not be limited to, real-time distance traveled and real-time number
122 of passengers. Data relating to real-time distance traveled and real-time number of passengers
123 shall be stored, with the capability of being cross-referenced, for a reasonable time period as
124 established by the Department, provided that such period shall not exceed eighteen months. Data
125 relating to safety shall be stored permanently.

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

128 (a) To protect the privacy of individuals including, but not limited to, the operators and
129 passengers of autonomous vehicles; and

130 (b) To ensure the security of the data-collection system, the resistance of the system to
131 tampering, and the accuracy of the data captured and stored by the system.

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

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

134 (A) A manufacturer or operator may test level three or autonomous vehicles on the public
135 ways of the commonwealth or may test, deploy, or sell or lease for deployment autonomous
136 vehicles for use on the public ways of the commonwealth only if the manufacturer or operator
137 has been certified by the Registrar.

138 (B) A manufacturer or operator may apply to the Registrar for certification under this
139 section. The application shall be in the form prescribed by the Registrar in consultation with the
140 Department. The application shall establish that:

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

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

145 (C) The Registrar, in consultation with the Department, shall promulgate rules in
146 accordance with the provisions of chapter 30A, for the testing of level three vehicles and the
147 testing, deployment, and sale or leasing for deployment of autonomous vehicles. The rules shall
148 establish standards for equipment used in and for the performance of level three and autonomous
149 vehicles that the Department determines are necessary to ensure the safe operation of such
150 vehicles on the public ways of the commonwealth and set inspection requirements specific to
151 such vehicles. The rules shall include a waiver for autonomous vehicles of such inspection
152 requirements as the Registrar deems appropriate in accordance with section 7A of chapter 90.
153 The rules shall also provide for sharing of the data captured and stored in accordance with
154 Section 63B(a)(6), including providing the public with open access to such data, subject to such

155 safeguards as the Registrar deems necessary for the protection of privacy. The rules may include,
156 but need not be limited to, the following:

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

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

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

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

166 (D) A manufacturer or operator shall submit proof of liability insurance with an
167 application made under this section. Such insurance shall provide coverage in an amount to be
168 established by the Registrar.

169 (E) The Registrar may certify a manufacturer or operator under this section only if the
170 Registrar determines that the level three or autonomous vehicles covered by the certification are
171 safe to operate on the public ways of the commonwealth. Such determination shall include at a
172 minimum a finding that the level three or autonomous vehicles covered by the certification are in
173 compliance with all federal standards and regulations including, but not limited to, the
174 Performance Guidance set forth by the National Highway Traffic Safety Administration and
175 applicable Federal Motor Vehicle Safety Standards.

176 (F) The Registrar by rule shall establish fees for applications made under this section.
177 The fees shall be in amounts adequate to pay all administrative costs incurred by the department
178 in administering this part. Zero-emission vehicles shall be exempt from application fees
179 established under this section.

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

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

185 (B) Notwithstanding sections 17 and 18 of chapter 90 of the General Laws, or any
186 general or special law, or regulation to the contrary, the speed limit for autonomous vehicles
187 shall be 25 miles per hour on public ways in a thickly settled or business district, as defined in
188 section 1 of said chapter 90, 15 miles per hour within a duly established school zone when
189 children are present, and the same as the prevailing speed limit on all other public ways.

190 (C) Notwithstanding the other provisions of this chapter, any municipality with a
191 population density greater than or equal to 4,500 people per square mile shall have the power to
192 limit autonomous vehicles to only motor vehicles providing public transportation as set forth in
193 section one of chapter 159A, transportation network vehicles as set forth in section one of
194 chapter 159A1/2 provided that for purposes of this subsection, “driver” shall include the operator
195 of an autonomous vehicle, or vehicles carrying an average of 1.8 or more passengers per vehicle
196 mile traveled as calculated on a monthly basis per vehicle or fleet of commonly-owned vehicles.

197 Any such limitation need not apply to an entire municipality but may be applied to any
198 geographic area or areas within a municipality, as the municipality deems suitable.

199 (D) Notwithstanding the other provisions of this chapter, any municipality may by
200 ordinance or bylaw adopted by two-thirds vote of the city council in a city or by a two-thirds
201 vote of a town meeting in a town, establish a mileage limit on the distance that an autonomous
202 vehicle may travel within that municipality without a passenger present in the vehicle. This shall
203 not apply to freight or emergency vehicles.

204 (E) Notwithstanding the other provisions of this chapter, any municipality may by
205 ordinance or bylaw adopted by two-thirds vote of the city council in a city or by a two-thirds
206 vote of a town meeting in a town, establish autonomous vehicle parking charges subject to the
207 following provisions:

208 (1) Autonomous vehicles may travel on any public way without a passenger present in
209 the vehicle for up to two minutes.

210 (2) After two minutes, municipalities may charge any autonomous vehicle a fee in lieu of
211 parking charges.

212 (3) After 30 minutes, the municipality may require any autonomous vehicle to park.

213 (4) This section shall not apply to emergency vehicles.

214 (E) Whoever violates subsection sections 63A through 63D of this chapter shall be
215 subject to a fine of not more than \$500 for a first violation, \$1,000 for a second violation, and
216 \$2,500 for every violation thereafter. Any person who receives a citation for violating any
217 provision of these sections may contest such citation pursuant to section three of chapter 90C.

218 Section 63E. Road usage charge on autonomous vehicles

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

221 (B) The Department shall, in accordance with the provisions of chapter 30A, promulgate
222 rules regarding the computation, assessment, and collection of the road usage charge on
223 autonomous vehicles.

224 (C) In promulgating rules regarding the computation of the road usage charge on
225 autonomous vehicles, the Department shall, not later than 270 days following the effective date
226 of this section:

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

233 (2) Allow for a reduction in the base per-mile rate on autonomous vehicles that are zero-
234 emission vehicles;

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

237 (4) Allow for reductions in the base per-mile rate on autonomous vehicles for each
238 passenger in an autonomous vehicle per mile;

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

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

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

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

248 (8) Impose an increased per-mile rate or a tiered system of increased per-mile rates on
249 autonomous vehicles with a weight greater than or equal to 4,000 pounds (taking into account
250 any motor vehicle fuels excise tax paid for vehicles over 8,500 pounds);

251 (9) Impose an increased per-mile rate on autonomous vehicles for each mile traveled
252 between 8 am and 8 pm within a severe congestion zone as designated by the Department
253 through rules promulgated under this chapter; and

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

257 Section 63F. Allocation of road usage charge revenue

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

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