

**SENATE . . . . . No. 2115**

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**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**

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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.

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

**The Commonwealth of Massachusetts**

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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.