To direct the Secretary of Transportation to make grants for the establishment of pilot programs to advance high-definition road mapping in order to further the safe deployment of highly automated vehicles.

IN THE HOUSE OF REPRESENTATIVES

JUNE 8, 2018

Mr. LOEBSACK introduced the following bill; which was referred to the Committee on Transportation and Infrastructure

A BILL

To direct the Secretary of Transportation to make grants for the establishment of pilot programs to advance high-definition road mapping in order to further the safe deployment of highly automated vehicles.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the “21st Century Automated Vehicle Safety Act of 2018”.

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SEC. 2. GRANTS FOR ESTABLISHMENT OF HIGH-DEFINITION ROAD MAPPING PILOT PROGRAMS.

(a) In General.—The Secretary of Transportation shall make grants on a competitive basis to eligible entities for such entities to establish pilot programs to advance high-definition road mapping in order to further the safe deployment of highly automated vehicles.

(b) Eligibility.—The Secretary may only award a grant under this section to an eligible entity that—

(1) submits an application at such time, in such form, and with such information and assurances as the Secretary may require;

(2) has the ability to—

(A) integrate high-definition road mapping data into a human-in-the-loop, motion-based driving simulator that—

(i) has a 360-degree field of view;

(ii) has the ability to simultaneously perform sustained acceleration and braking combined with multiple lane changes to realistically recreate the experience of driving a vehicle; and

(iii) has interchangeable physical vehicle cabs to support testing with light and heavy vehicles;
(B) integrate high-definition road mapping data into highly automated vehicles operated on public roads or highways; and

(C) use a facility that has been designated as an Automated Vehicle Proving Ground by the Secretary; and

(3) has a demonstrated history of working with the Department of Transportation or a State department of transportation on high-definition road mapping.

(c) USE OF FUNDS.—

(1) PILOT PROGRAM.—An eligible entity that is awarded a grant under this section shall use the grant funds to conduct a pilot program to carry out high-definition road mapping and to use such mapping in the operation of highly automated vehicles in order to determine the challenges, barriers, and considerations that must be taken into account when planning for and deploying a nationwide high-definition road mapping digital infrastructure that enables the safe operation of highly automated vehicles.

(2) REQUIREMENTS.—In conducting a pilot program under paragraph (1), an eligible entity shall—
(A) identify and evaluate minimum data quality standards and specifications for high-definition road mapping that are required to support the safe operation of highly automated vehicles, based on best practices from across the United States;

(B) conduct a feasibility analysis of the high-definition road mapping, and the use of such mapping in the operation of highly automated vehicles, proposed to be carried out in the pilot program;

(C) conduct a simulation to ensure the safe operation of highly automated vehicles before operating any such vehicles on public roads or highways;

(D) ensure consideration of—

(i) the ability to perform accurate mapping in varied weather conditions; and

(ii) mapping of both rural and urban roadways and environments (including gravel roads); and

(E) prepare and submit to the Secretary the reports required by subsection (g)(1).
(3) OTHER PERMITTED USES OF FUNDS.—An eligible entity that is awarded a grant under this section may use grant funds—

(A) to contract, through a competitive selection process, for the carrying out of any activity for which grant funds are required or permitted to be used, including procuring services from or carrying out activities at a research center at an institution of higher education (as defined in sections 101 and 102 of the Higher Education Act of 1965 (20 U.S.C. 1001; 1002)) that has experience with high-definition road mapping and highly automated vehicles capable of ingesting high-definition road mapping data; and

(B) for international travel for purposes of exchanging information with other institutions involved in high-definition road mapping and highly automated vehicle research or operation.

(d) DURATION.—An eligible entity that is awarded a grant under this section shall complete all activities required under the grant (except for preparation and submission of the final report required by subsection (g)(1)(B)) not later than 3 years after the date on which such grant is awarded.
(e) **Number of Grants.**—The Secretary may not make—

(1) more than 3 grants under this section; or

(2) more than 1 grant under this section to the same eligible entity.

(f) **Grant Amount.**—The amount of each grant awarded under this section may not exceed $10,000,000.

(g) **Reports.**—

(1) **By eligible entities to Secretary.**—

(A) **Interim reports.**—An eligible entity that is awarded a grant under this section shall submit to the Secretary, not later than 6 months, 18 months, and 2 years after the date on which such grant is awarded, an interim report that contains a description of the activities carried out using grant funds.

(B) **Final report.**—An eligible entity that is awarded a grant under this section shall submit to the Secretary, not later than 39 months after the date on which such grant is awarded, a final report that contains a description of—

(i) the activities carried out using grant funds;
(ii) the results of the pilot program conducted under subsection (c)(1), including the challenges, barriers, and considerations determined under such subsection; and

(iii) the minimum data quality standards and specifications identified under subsection (c)(2)(A).

(2) BY SECRETARY TO CONGRESS.—Not later than 41 months after all grants under this section have been awarded, the Secretary shall submit to Congress a report on the activities carried out using grant funds under this section that summarizes the information in the reports submitted by eligible entities under paragraph (1).

(h) DEFINITIONS.—

(1) IN GENERAL.—In this section:

(A) AUTOMATED DRIVING SYSTEM.—The term “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 such system is limited to a specific operational design domain.
(B) DYNAMIC DRIVING TASK.—The term “dynamic driving task” means all of the real time operational and tactical functions required to operate a vehicle in on-road traffic, excluding the strategic functions such as trip scheduling and selection of destinations and waypoints, and including—

(i) lateral vehicle motion control via steering;

(ii) longitudinal vehicle motion control via acceleration and deceleration;

(iii) monitoring the driving environment via object and event detection, recognition, classification, and response preparation;

(iv) object and event response execution;

(v) maneuver planning; and

(vi) enhancing conspicuity via lighting, signaling, and gesturing.

(C) ELIGIBLE ENTITY.—The term “eligible entity” means—

(i) a nonprofit organization;

(ii) a State or political subdivision of a State; and
(iii) an institution of higher education
(as defined in sections 101 and 102 of the
Higher Education Act of 1965 (20 U.S.C.
1001; 1002)).

(D) HIGHLY AUTOMATED VEHICLE.—The
term “highly automated vehicle”—
(i) means a motor vehicle equipped
with an automated driving system; and
(ii) does not include a commercial
motor vehicle (as defined in section 31101
of title 49, United States Code).

(E) HIGH-DEFINITION.—The term “high-
definition” means, with respect to road map-
ing, that the mapping involves highly accurate
data that enables a highly automated vehicle to
accurately position and control itself in a lane.

(F) MOTOR VEHICLE.—The term “motor
vehicle” has the meaning given such term in
section 30102(a) of title 49, United States
Code.

(G) NONPROFIT ORGANIZATION.—The
term “nonprofit organization” means any cor-
poration or association, however organized, no
part of the net earnings of which inures to the
benefit of any private shareholder or individual.
(H) **Operational Design Domain.**—The term “operational design domain” means the specific conditions under which a given driving automation system or feature thereof is designed to function.

(I) **Secretary.**—The term “Secretary” means the Secretary of Transportation.

(J) **State.**—The term “State” means each of the several States, the District of Columbia, each commonwealth, territory, or possession of the United States, and each federally recognized Indian Tribe.

(2) **Revisions to Certain Definitions.**—

(A) **Revisions by SAE International.**—If SAE International (or its successor organization) revises the definition of any of the terms defined in subparagraph (A), (B), or (H) of paragraph (1) in Recommended Practice Report J3016, it shall notify the Secretary of the revision. The Secretary shall publish a notice in the Federal Register to inform the public of the new definition unless, within 90 days after receiving notice of the new definition and after opening a period for public comment on the new definition, the Secretary notifies SAE
International (or its successor organization) that the Secretary has determined that the new definition does not meet the need for motor vehicle safety, or is otherwise inconsistent with the purposes of chapter 301 of title 49, United States Code. If the Secretary so notifies SAE International (or its successor organization), the existing definition in paragraph (1) shall remain in effect.

(B) CONFORMING AMENDMENTS.—If the Secretary does not reject a definition revised by SAE International (or its successor organization) as described in subparagraph (A), the Secretary shall promptly make any conforming amendments to the regulations and standards of the Secretary that are necessary. The revised definition shall apply for purposes of this section. The requirements of section 553 of title 5, United States Code, shall not apply to the making of any such conforming amendments.

(C) UPDATES BY SECRETARY.—Pursuant to section 553 of title 5, United States Code, the Secretary may update any of the definitions in subparagraph (A), (B), or (II) of paragraph (1) if the Secretary determines that materially
changed circumstances regarding highly automated vehicles have impacted motor vehicle safety such that the definitions need to be updated to reflect such circumstances.

(i) Authorization of Appropriations.—There are authorized to be appropriated to carry out this section $31,500,000, of which not more than 5 percent shall be available for administrative costs, for fiscal year 2019.