

117TH CONGRESS  
1ST SESSION

# H. R. 3594

To authorize appropriations to the Department of Transportation for surface transportation research, development, and deployment, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

MAY 28, 2021

Ms. JOHNSON of Texas (for herself, Mr. LUCAS, Ms. STEVENS, Mr. WALTZ, Mr. BAIRD, Mr. LAMB, Mrs. KIM of California, Ms. WILD, Mr. OBERNOLTE, Ms. ROSS, Mrs. BICE of Oklahoma, Ms. MOORE of Wisconsin, Mr. GIMENEZ, Ms. BONAMICI, Mr. BABIN, and Ms. SHERRILL) introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committee on Transportation and Infrastructure, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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## A BILL

To authorize appropriations to the Department of Transportation for surface transportation research, development, and deployment, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the  
5 “Surface Transportation Research and Development Act  
6 of 2021”.

1 (b) TABLE OF CONTENTS.—The table of contents for  
 2 this Act is as follows:

Sec. 1. Short title; table of contents.

TITLE I—HIGHWAY TRANSPORTATION RESEARCH

Sec. 101. Authorization of appropriations.  
 Sec. 102. Amendment to Highway Safety Improvement project definition.  
 Sec. 103. Behavioral traffic safety cooperative research program.  
 Sec. 104. Amendment to the exploratory advanced research program.  
 Sec. 105. Amendment to the State Planning and Research Program.  
 Sec. 106. Road weather centers of excellence.

TITLE II—MULTIMODAL TRANSPORTATION RESEARCH

Sec. 201. Authorization of appropriations.  
 Sec. 202. Advisory council on transportation statistics.  
 Sec. 203. Amendments to the University Transportation Centers Program.  
 Sec. 204. Resilient Transportation Infrastructure Centers of Excellence.  
 Sec. 205. Transportation Data for Healthy Living Study Pilot.  
 Sec. 206. Vehicular Data Analytics Pilot Program.  
 Sec. 207. National cooperative freight transportation research program.  
 Sec. 208. Heavy Freight Automated Trucking Research Corridor.  
 Sec. 209. Strategic Transportation Research Program.  
 Sec. 210. Advanced transportation research and innovation program.  
 Sec. 211. Rail Cooperative Research Program.  
 Sec. 212. Multimodal Transportation Demonstration Program.  
 Sec. 213. Advisory Council on Transportation Research and Development.  
 Sec. 214. Transportation research and development quinquennial review and  
 strategic plan.

3 **TITLE I—HIGHWAY**  
 4 **TRANSPORTATION RESEARCH**

5 **SEC. 101. AUTHORIZATION OF APPROPRIATIONS.**

6 (a) IN GENERAL.—The following amounts are au-  
 7 thorized to be appropriated out of the Highway Trust  
 8 Fund (other than the Mass Transit Account):

9 (1) HIGHWAY SAFETY RESEARCH AND DEVEL-  
 10 OPMENT.—To carry out section 403 of title 23,  
 11 United States Code—

12 (A) \$152,000,000 for fiscal year 2022;

13 (B) \$161,880,000 for fiscal year 2023;

1 (C) \$172,402,000 for fiscal year 2024;

2 (D) \$183,608,000 for fiscal year 2025;

3 and

4 (E) \$195,543,000 for fiscal year 2026.

5 (2) HIGHWAY RESEARCH AND DEVELOPMENT  
6 PROGRAM.—To carry out sections 503(b) and 520 of  
7 title 23, United States Code—

8 (A) \$142,000,000 for fiscal year 2022;

9 (B) \$151,230,000 for fiscal year 2023;

10 (C) \$161,060,000 for fiscal year 2024;

11 (D) \$171,530,000 for fiscal year 2025;

12 and

13 (E) \$182,680,000 for fiscal year 2026.

14 (3) TECHNOLOGY AND INNOVATION DEPLOY-  
15 MENT PROGRAM.—To carry out section 503(c) of  
16 title 23, United States Code—

17 (A) \$70,000,000 for fiscal year 2022;

18 (B) \$74,550,000 for fiscal year 2023;

19 (C) \$79,396,000 for fiscal year 2024;

20 (D) \$84,556,000 for fiscal year 2025; and

21 (E) \$90,053,000 for fiscal year 2026.

22 (4) ADVANCED TRANSPORTATION AND CONGES-  
23 TION MANAGEMENT TECHNOLOGIES DEPLOYMENT  
24 PROGRAM.—To carry out section 503(c)(4) of title  
25 23, United States Code—

- 1 (A) \$60,000,000 for fiscal year 2022;  
2 (B) \$60,000,000 for fiscal year 2023;  
3 (C) \$60,000,000 for fiscal year 2024;  
4 (D) \$60,000,000 for fiscal year 2025; and  
5 (E) \$60,000,000 for fiscal year 2026.

6 (5) TRAINING AND EDUCATION.—To carry out  
7 section 504 of title 23, United States Code—

- 8 (A) \$27,000,000 for fiscal year 2022;  
9 (B) \$28,755,000 for fiscal year 2023;  
10 (C) \$30,624,000 for fiscal year 2024;  
11 (D) \$32,615,000 for fiscal year 2025; and  
12 (E) \$34,735,000 for fiscal year 2026.

13 (6) INTELLIGENT TRANSPORTATION SYSTEMS  
14 PROGRAM.—To carry out sections 512 through 518  
15 of title 23, United States Code—

- 16 (A) \$158,000,000 for fiscal year 2022;  
17 (B) \$168,270,000 for fiscal year 2023;  
18 (C) \$179,208,000 for fiscal year 2024;  
19 (D) \$190,856,000 for fiscal year 2025;

20 and

- 21 (E) \$203,262,000 for fiscal year 2026.

22 (b) APPLICABILITY OF TITLE 23, UNITED STATES  
23 CODE.—Funds authorized to be appropriated by sub-  
24 section (a) shall—

1           (1) be available for obligation in the same man-  
2           ner as if those funds were appropriated under chap-  
3           ter 1 of title 23, United States Code, except that the  
4           Federal share of the cost of a project or activity car-  
5           ried out using those funds shall be 80 percent, un-  
6           less otherwise expressly provided by this Act (includ-  
7           ing the amendments by this Act) or otherwise deter-  
8           mined by the Secretary; and

9           (2) remain available until expended and not be  
10          transferable.

11 **SEC. 102. AMENDMENT TO HIGHWAY SAFETY IMPROVE-**  
12 **MENT PROJECT DEFINITION.**

13          Section 148(a)(4)(B) of title 23, United States Code,  
14 is amended by adding at the end the following:

15                       “(xxix) Education.

16                       “(xxx) Enforcement.

17                       “(xxxi) Research activities.

18                       “(xxxii) Cybersecurity.”.

19 **SEC. 103. BEHAVIORAL TRAFFIC SAFETY COOPERATIVE RE-**  
20 **SEARCH PROGRAM.**

21          Section 403(f) of title 23, United States Code, is  
22 amended—

23           (1) by striking “\$2,500,000” and inserting  
24          “\$3,500,000”; and

1           (2) by striking “fiscal year ending before” and  
2           all that follows through “December 4, 2015” and in-  
3           serting “of fiscal years 2022 through 2026”.

4 **SEC. 104. AMENDMENT TO THE EXPLORATORY ADVANCED**  
5 **RESEARCH PROGRAM.**

6           Section 503(b)(6) of title 23, United States Code, is  
7 amended to read as follows:

8           “(6) EXPLORATORY ADVANCED RESEARCH.—

9           “(A) IN GENERAL.—The Secretary shall  
10           carry out long-term, exploratory advanced re-  
11           search activities to develop potentially trans-  
12           formational solutions to improve the durability,  
13           efficiency, environmental impact, productivity,  
14           and safety aspects of highway and intermodal  
15           transportation systems, including by—

16                   “(i) awarding competitive grants and  
17                   cooperative agreements to institutions of  
18                   higher education and nonprofit research  
19                   organizations (or consortia thereof);

20                   “(ii) leveraging the targeted capabili-  
21                   ties of the Turner-Fairbank Highway Re-  
22                   search Center to develop technologies and  
23                   innovations of national importance; and

24                   “(iii) collaborating with other Federal  
25                   agencies with relevant expertise, including

1 the National Science Foundation, the Na-  
2 tional Institute of Standards and Tech-  
3 nology, and the Department of Energy.

4 “(B) FUNDING.—From funds made avail-  
5 able to carry out this subsection, the Secretary  
6 shall obligate \$25,000,000 to carry out this  
7 paragraph for each of fiscal years 2022 through  
8 2026.”.

9 **SEC. 105. AMENDMENT TO THE STATE PLANNING AND RE-**  
10 **SEARCH PROGRAM.**

11 Section 505(b) of title 23, United States Code, is  
12 amended by adding at the end the following:

13 “(4) FLEXIBILITY.—In addition to the min-  
14 imum expenditures required under paragraph (1), of  
15 the sums apportioned to a State under paragraphs  
16 (1) through (5) of section 104(b), a State may use  
17 additional funds under such paragraphs for multi-  
18 state pooled fund research activities.”.

19 **SEC. 106. ROAD WEATHER CENTERS OF EXCELLENCE.**

20 Chapter 5 of title 23, United States Code, is amended  
21 by adding at the end the following:

22 **“SEC. 520. ROAD WEATHER CENTERS OF EXCELLENCE.**

23 “(a) IN GENERAL.—The Secretary, in collaboration  
24 with the National Oceanic and Atmospheric Administra-  
25 tion, the National Institute of Standards and Technology,

1 and the National Science Foundation, as appropriate,  
2 shall carry out a program to make awards to institutions  
3 of higher education or nonprofit research organizations (or  
4 a consortium thereof) to establish regional road weather  
5 research and development centers.

6 “(b) PURPOSE.—The purpose of the centers estab-  
7 lished using funds under subsection (a) shall be to—

8 “(1) maximize use of available road weather in-  
9 formation and technologies;

10 “(2) expand road weather research and develop-  
11 ment efforts to enhance roadway safety, mobility,  
12 and transportation system efficiency while mini-  
13 mizing environmental impacts;

14 “(3) support research and development focused  
15 on improving road weather information for auto-  
16 mated vehicles and automated transportation sys-  
17 tems;

18 “(4) promoting the adoption of road weather in-  
19 formation and technologies by Federal, State, and  
20 local governments, and private entities; and

21 “(5) foster collaboration among academic re-  
22 searchers, the private sector, State and local govern-  
23 ments, and nongovernmental organizations, includ-  
24 ing transportation, meteorological, and other organi-  
25 zations.



1       “(c) ACTIVITIES.—The activities of the program es-  
2     tablished in subsection (a) shall include—

3               “(1) supporting research and development to—

4                       “(A) integrate existing observational net-  
5                       works, including mobile and fixed sensor net-  
6                       works, and data management systems for road  
7                       weather applications;

8                       “(B) improve weather modeling capabilities  
9                       and forecast tools, such as the road surface and  
10                      atmospheric interface;

11                     “(C) enhance mechanisms for commu-  
12                     nicating road weather information to users,  
13                     such as transportation officials and the public;

14                     “(D) understand the human and cultural  
15                     factors in driver decision-making in response to  
16                     road weather hazards and in response to the de-  
17                     livery of road weather information; and

18                     “(E) integrate road weather technologies  
19                     into an information infrastructure;

20               “(2) improving coordination of research, devel-  
21     opment, testing, and implementation of road weather  
22     information technologies and automated vehicle and  
23     automated transportation systems technologies;

1           “(3) partnering with private sector entities to  
2           promote secure voluntary data sharing for the pur-  
3           poses of this section;

4           “(4) supporting implementation of road weather  
5           information technology and improved communication  
6           of road weather information to the public and other  
7           users, including transportation officials, emergency  
8           managers and vehicle manufacturers;

9           “(5) improving education and training of road  
10          weather information users, such as State and local  
11          transportation officials and private sector transpor-  
12          tation contractors; and

13          “(6) coordinating with transportation weather  
14          research activities in other modes, such as transit,  
15          railroad, and aviation.

16          “(d) REQUIREMENTS.—

17                 “(1) IN GENERAL.—An institution of higher  
18                 education or a nonprofit research organization (or a  
19                 consortium thereof) seeking funding under this sub-  
20                 section shall submit an application to the Secretary  
21                 at such time, in such manner, and containing such  
22                 information as the Secretary may require.

23                 “(2) APPLICATIONS.—Each application under  
24                 paragraph (1) shall include a description of—

1           “(A) how the institution of higher edu-  
2 cation or nonprofit research organization (or  
3 consortium thereof) will work together with  
4 other research institutions, industry partners,  
5 and State and local transportation officials to  
6 carry out activities described in subsection (c);  
7 and

8           “(B) how the institution of higher edu-  
9 cation or nonprofit research organization (or  
10 consortium thereof) will promote multidisci-  
11 plinary research to improve road weather infor-  
12 mation implementation.

13           “(3) SELECTION AND DURATION.—The Sec-  
14 retary, in consultation with National Oceanic and  
15 Atmospheric Administration and the National  
16 Science Foundation, shall select not less than six re-  
17 gional centers that represent diverse geographic re-  
18 gions and weather patterns, and to the extent pos-  
19 sible be located along major United States transpor-  
20 tation corridors. Each center established under this  
21 section is authorized to carry out activities for a pe-  
22 riod of 5 years, renewable for an additional 5 years  
23 at the discretion of the Director.

24           “(e) AUTHORIZATION OF APPROPRIATIONS.—Of the  
25 amounts made available by section 101(a)(2) of the Sur-

1 face Transportation Research and Development Act of  
2 2020, \$12,000,000 for each of the fiscal years 2022  
3 through 2026 shall be made available to carry out this  
4 section.”.

5 **TITLE II—MULTIMODAL**  
6 **TRANSPORTATION RESEARCH**

7 **SEC. 201. AUTHORIZATION OF APPROPRIATIONS.**

8 (a) UNIVERSITY TRANSPORTATION CENTERS PRO-  
9 GRAM.—The following amounts are authorized to be ap-  
10 propriated out of the Highway Trust Fund (other than  
11 the Mass Transit Account) to carry out section 5505 of  
12 title 49, United States Code:

- 13 (1) \$150,000,000 for fiscal year 2022.  
14 (2) \$159,750,000 for fiscal year 2023.  
15 (3) \$170,134,000 for fiscal year 2024.  
16 (4) \$181,192,000 for fiscal year 2025.  
17 (5) \$192,970,000 for fiscal year 2026.

18 (b) BUREAU OF TRANSPORTATION STATISTICS.—The  
19 following amounts are authorized to be appropriated out  
20 of the Highway Trust Fund (other than the Mass Transit  
21 Account) to carry out chapter 63 of title 49, United States  
22 Code:

- 23 (1) \$35,000,000 for fiscal year 2022.  
24 (2) \$35,875,000 for fiscal year 2023.  
25 (3) \$36,772,000 for fiscal year 2024.

1 (4) \$37,691,000 for fiscal year 2025.

2 (5) \$38,633,000 for fiscal year 2026.

3 (c) TRANSIT RESEARCH AND DEVELOPMENT.—Sec-  
4 tion 5338(a)(2)(G) of title 49, United States Code, is  
5 amended to read as follows:

6 “(G) \$35,000,000 for fiscal year 2022,  
7 \$35,875,000 for fiscal year 2023, \$36,772,000  
8 for fiscal year 2024, \$37,691,000 for fiscal year  
9 2025, and \$38,633,000 for fiscal year 2026,  
10 shall be available to carry out section 5312;”.

11 (d) NATIONAL COOPERATIVE RAIL RESEARCH PRO-  
12 GRAM.—There are authorized to be appropriated to carry  
13 out section 24910 of title 49, United States Code,  
14 \$5,000,000 for each of fiscal years 2022 through 2026.

15 (e) HAZARDOUS MATERIALS RESEARCH AND DEVEL-  
16 OPMENT.—There are authorized to be appropriated to  
17 carry out section 5118(c) of title 49, United States Code,  
18 \$2,000,000 from the Highway Trust Fund and  
19 \$2,000,000 from the General Fund for each of fiscal years  
20 2022 through 2026.

21 (f) NATIONAL COOPERATIVE FREIGHT TRANSPOR-  
22 TATION RESEARCH PROGRAM.—There are authorized to  
23 be appropriated to carry out section 5509 of title 49,  
24 United States Code, \$5,000,000 for each of fiscal years  
25 2022 through 2026.

1 **SEC. 202. ADVISORY COUNCIL ON TRANSPORTATION STA-**  
2 **TISTICS.**

3 Section 6305 of title 49, United States Code, is  
4 amended—

5 (1) in subsection (a), by striking “The Direc-  
6 tor” and all that follows to the period and inserting  
7 “Notwithstanding section 418 of the FAA Reauthor-  
8 ization Act of 2018 (Public Law 115–254), not later  
9 than 6 months after the date of enactment of this  
10 Act, the Director shall establish and consult with an  
11 advisory council on transportation statistics.”; and

12 (2) by striking subsection (d)(3).

13 **SEC. 203. AMENDMENTS TO THE UNIVERSITY TRANSPOR-**  
14 **TATION CENTERS PROGRAM.**

15 Section 5505 of title 49, United States Code, is  
16 amended—

17 (1) in subsection (a)(2)—

18 (A) by redesignating subparagraphs (B)  
19 and (C) as subparagraphs (C) and (D), respec-  
20 tively; and

21 (B) by inserting the following before sub-  
22 paragraph (C) as so redesignated:

23 “(B) to address emerging transportation  
24 challenges, as appropriate, including reducing  
25 cybersecurity risks or other issues that have

1 broad impact to the issue areas specified in sec-  
2 tion 6503(e);”;

3 (2) in subsection (b)(4)(A), by striking “re-  
4 search priorities identified in chapter 65.” and in-  
5 serting the following: “following research priorities:

6 “(i) Improving the mobility of people  
7 and goods.

8 “(ii) Reducing Congestion.

9 “(iii) Promoting Safety.

10 “(iv) Improving the durability and ex-  
11 tending the life of transportation infra-  
12 structure and the existing transportation  
13 system.

14 “(v) Preserving the environment.”;  
15 and

16 (3) in subsection (c)—

17 (A) in paragraph (2)—

18 (i) in subparagraph (A), by striking  
19 “5” and inserting “10”;

20 (ii) in subparagraph (B)—

21 (I) by striking “\$4,000,000” and  
22 inserting “\$6,000,000”; and

23 (II) by striking “\$2,000,000”  
24 and inserting “\$3,000,000”;

25 (iii) in subparagraph (C)—

1 (I) in clause (i), by striking “As  
2 a condition” and inserting “Subject to  
3 clause (ii), as a condition”;

4 (II) in clause (ii), by striking  
5 “section 6503(c)” and inserting “sub-  
6 section (b)(4)(A)”;

7 (III) by redesignating clause (ii)  
8 as clause (iii); and

9 (IV) by inserting after clause (i)  
10 the following:

11 “(ii) EXCEPTION.—

12 “(I) IN GENERAL.—For fiscal  
13 years 2022 and 2023, as a condition  
14 of receiving a grant under this para-  
15 graph, a grant recipient shall match  
16 50 percent of the amounts made avail-  
17 able under the grant.

18 “(II) NATIONAL EMERGENCY.—  
19 The Secretary may reduce the per-  
20 centage described in subclause (I) to  
21 not less than 50 percent during a na-  
22 tional emergency.”;

23 (iv) by adding at the end the fol-  
24 lowing:



1           “(D) REQUIREMENT.—In awarding grants  
2 under this section, the Secretary shall ensure  
3 that each of the focus areas described in sub-  
4 section (b)(4)(A) is the priority focus for at  
5 least 1 national center.”;

6           (B) in paragraph (3)—

7           (i) in subparagraph (C)—

8           (I) by striking “\$3,000,000” and  
9 inserting “\$4,500,000”; and

10          (II) by striking “\$1,500,000”  
11 and inserting “\$2,500,000”;

12          (ii) in subparagraph (D)—

13          (I) by striking “As a condition”  
14 and inserting “Subject to clause (ii),  
15 as a condition”;

16          (II) by redesignating clause (ii)  
17 as clause (iii); and

18          (III) by inserting after clause (i)  
19 the following:

20          “(ii) EXCEPTION.—

21               “(I) IN GENERAL.—For fiscal  
22 years 2022 and 2023, as a condition  
23 of receiving a grant under this para-  
24 graph, a grant recipient shall match

1 50 percent of the amounts made avail-  
2 able under the grant.

3 “(II) NATIONAL EMERGENCY.—

4 The Secretary may reduce the per-  
5 centage described in subclause (I) to  
6 not less than 50 percent during a na-  
7 tional emergency.”; and

8 (iii) by striking subparagraph (E);

9 (C) in paragraph (4)(A)—

10 (i) by striking “The” and inserting  
11 “For each fiscal year, the”;

12 (ii) by striking “\$2,000,000” and in-  
13 sserting “\$3,000,000”;

14 (iii) by striking “\$1,000,000” and in-  
15 sserting “\$1,500,000”; and

16 (iv) by striking “20” and inserting  
17 “30”; and

18 (D) by adding at the end the following:

19 “(g) DEFINITIONS.—For the purposes of this section,  
20 a grant is defined as a traditional grant award and not  
21 a cooperative agreement, such as a Cooperative Research  
22 and Development Agreement, or other contractual vehi-  
23 cle.”.

1 **SEC. 204. RESILIENT TRANSPORTATION INFRASTRUCTURE**  
2 **CENTERS OF EXCELLENCE.**

3 (a) IN GENERAL.—Subchapter 1 of title 49, United  
4 States Code, is amended by adding at the end the fol-  
5 lowing:

6 **“SEC. 5506. RESILIENT TRANSPORTATION INFRASTRUC-**  
7 **TURE CENTERS OF EXCELLENCE.**

8 “(a) CENTERS OF EXCELLENCE.—The Secretary  
9 shall award grants to establish five Centers of Excellence  
10 to advance research and development that improves the  
11 resilience of regions of the United States to natural disas-  
12 ters, extreme weather, and the effects of climate change  
13 on modal and multimodal transportation and infrastruc-  
14 ture.

15 “(b) ACTIVITIES.—In carrying out this section, the  
16 Secretary shall ensure the Centers promote resilient infra-  
17 structure through—

18 “(1) development of new design, operations,  
19 and maintenance standards that incorporate existing  
20 and anticipated impacts of natural disasters, ex-  
21 treme weather, and climate change;

22 “(2) development and integration of new mate-  
23 rials and technologies into existing and future modal  
24 and multimodal transportation infrastructure;

25 “(3) workforce development and training; and

1           “(4) development and dissemination of tools,  
2           techniques, and information that informs Federal,  
3           State, and local government decision making, poli-  
4           cies, planning, and investments.

5           “(c) CENTER COORDINATION.—In making awards  
6           under subsection (f), the Secretary shall designate one of  
7           the Centers to coordinate activities of all five Centers to  
8           prevent duplication and promote dissemination of research  
9           among awardees.

10          “(d) ELIGIBILITY.—An institution of higher edu-  
11          cation as defined by section 102 of the Higher Education  
12          Act of 1965 (20 U.S.C. 1002) or a consortium led by an  
13          institution of higher education shall be eligible to receive  
14          grants under this program.

15          “(e) LOCATION.—Centers shall be located in diverse  
16          geographic regions that experience different natural disas-  
17          ters, extreme weather patterns, and climate change im-  
18          pacts.

19          “(f) SELECTION CRITERIA.—In awarding a grant,  
20          the Secretary shall—

21                 “(1) give preference to the recipient’s past per-  
22                 formance in the activities related to subsection (b);

23                 “(2) consider the extent to which an applicant’s  
24                 proposal would involve participation by local, re-  
25                 gional, and national stakeholders; and



1 and transportation planning for accessible health, food,  
2 education, and other essential services and activities.

3 (b) CONTENTS.—In carrying out the study, the Sec-  
4 retary shall collect and analyze data to determine—

5 (1) if individuals travel to essential services and  
6 activities;

7 (2) how individuals travel to essential services  
8 and activities;

9 (3) how far individuals travel to essential serv-  
10 ices and activities; and

11 (4) to the extent practicable, the geographic lo-  
12 cation and socioeconomic status of the study partici-  
13 pants.

14 (c) GEOGRAPHIC AND SOCIOECONOMIC DIVERSITY;  
15 CONSULTATION.—In carrying out the study, the Secretary  
16 shall—

17 (1) select geographically diverse areas, including  
18 rural, tribal, and urban areas, and socioeconomically  
19 diverse populations; and

20 (2) consult with other Federal and State statis-  
21 tical agencies with relevant data related to essential  
22 services.

23 (d) AUTHORIZATION.—There are authorized to be ap-  
24 propriated to carry out the activities of this section  
25 \$2,000,000 for each of fiscal years 2022 and 2023.

1 **SEC. 206. VEHICULAR DATA ANALYTICS PILOT PROGRAM.**

2 (a) IN GENERAL.—The Secretary shall establish a  
3 pilot program for the purpose of integrating vehicle on-  
4 board sensor data with public and private data sets in ex-  
5 istence as of the date of the enactment of this Act to im-  
6 prove safety, operations, cost reduction, and congestion re-  
7 lief strategies for local and State transportation authori-  
8 ties and private sector partners.

9 (b) AWARD.—In carrying out the pilot program  
10 under subsection (a), the Secretary shall make one or  
11 more awards to an institution of higher education or non-  
12 profit research organization (or a consortium thereof).

13 (c) PARTNERSHIP.—The Secretary shall require a re-  
14 cipient of an award under subsection (b) to, on a voluntary  
15 basis, partner with private sector organizations and local  
16 and State transportation authorities to facilitate—

17 (1) access to vehicle on-board sensor data; and

18 (2) the sharing of information regarding oper-  
19 ational needs and research and development prior-  
20 ities from such organizations or authorities to such  
21 recipient.

22 (d) ACTIVITIES.—The activities of the pilot program  
23 shall include—

24 (1) development of strategies for the acquisi-  
25 tion, management, and analysis of large-scale vehic-

1 ular on-board sensor data to ensure the privacy and  
2 security of such data; and

3 (2) research and development to analyze and in-  
4 tegrate vehicle on-board sensor data with public and  
5 private data sets in existence as of the date of the  
6 enactment of this Act, including development of ap-  
7 plications to address safety, operations, cost reduc-  
8 tion, congestion mitigations, and other transpor-  
9 tation challenges.

10 (e) REPORT TO CONGRESS.—Not later than 3 years  
11 after the date of the enactment of this Act, the Secretary  
12 shall submit to the Committee on Science, Space, and  
13 Technology and the Committee on Transportation and In-  
14 frastructure of the House of Representatives, and the  
15 Committee on Commerce and Transportation of the Sen-  
16 ate, a report detailing—

17 (1) a summary of the activities of the pilot pro-  
18 gram under subsection (a); and

19 (2) recommendations for continuing such pilot  
20 program or integrating such pilot program into the  
21 activities of the Department.

22 (f) PROTECTIONS.—In carrying out this section, the  
23 Secretary shall apply all applicable privacy protections of  
24 the Department of Transportation.



1 (g) AUTHORIZATION OF APPROPRIATIONS.—There is  
2 authorized to be appropriated to carry out the activities  
3 of this section \$4,000,000 for each of fiscal years 2022  
4 and 2023.

5 **SEC. 207. NATIONAL COOPERATIVE FREIGHT TRANSPOR-**  
6 **TATION RESEARCH PROGRAM.**

7 (a) IN GENERAL.—Chapter 702 of title 49, United  
8 States Code, is amended by adding at the end the fol-  
9 lowing:

10 **“§ 70205. National cooperative freight transportation**  
11 **research program**

12 “(a) ESTABLISHMENT.—Not later than one year  
13 after the date of enactment of this Act, the Secretary of  
14 Transportation shall establish and support a multimodal  
15 national cooperative freight transportation research pro-  
16 gram.

17 “(b) AGREEMENT.—Upon establishment of the pro-  
18 gram under (a), the Secretary shall enter into an agree-  
19 ment with the National Academy of Sciences to support  
20 and carry out administrative and management activities  
21 relating to the governance of the national cooperative  
22 freight transportation research program.

23 “(c) ADVISORY COMMITTEE.—The National Acad-  
24 emy of Sciences shall select an advisory committee con-  
25 sisting of a representative cross-section of freight stake-

1 holders, including the Department of Transportation,  
2 other Federal agencies, State transportation departments,  
3 local governments, nonprofit research organizations, aca-  
4 demia, and the private sector.

5 “(d) GOVERNANCE.—The national cooperative  
6 freight transportation research program established under  
7 this section may include the following administrative and  
8 management elements:

9 “(1) NATIONAL RESEARCH AGENDA.—The advi-  
10 sory committee, in consultation with interested par-  
11 ties, shall recommend a multi-year national research  
12 agenda for the program. At a minimum, the advi-  
13 sory committee shall consider—

14 “(A) techniques for estimating and quanti-  
15 fying public benefits derived from transpor-  
16 tation projects;

17 “(B) methods for incorporating estimates  
18 of international trade, originating at both water  
19 and land ports, into landside transportation  
20 planning;

21 “(C) ways to synchronize infrastructure  
22 improvements with freight transportation de-  
23 mand, including impacts of e-commerce on  
24 freight demand, and strategies for better man-  
25 agement;

1           “(D) the effect of changing patterns of  
2 freight movement on transportation planning  
3 decisions relating to rest areas and implementa-  
4 tion of truck parking solutions;

5           “(E) new innovative technologies and tools  
6 for data collection, analysis, modeling, routing,  
7 and overall management of freight movement;

8           “(F) ways to advance deployment of  
9 freight intelligent transportation systems, in-  
10 cluding advanced information systems;

11           “(G) methods for developing the outreach  
12 tools and incentives to increase the workforce;

13           “(H) new methods and technologies for  
14 monitoring and enforcement, including data  
15 sharing and harmonization;

16           “(I) new methods and policies for incor-  
17 porating freight in urban transportation and  
18 land use planning; and

19           “(J) other research areas, including human  
20 factors research, to identify and address emerg-  
21 ing and future research needs related to freight  
22 transportation by all modes.

23           “(2) PROGRAM ADMINISTRATION.—In carrying  
24 out the program under this section, the National  
25 Academy of Sciences shall ensure, to the maximum

1 extent practicable, that grants and contracts award-  
2 ed under this section are selected through open com-  
3 petitions and merit review conducted on a regular  
4 basis.

5 “(3) DISSEMINATION OF RESEARCH FIND-  
6 INGS.—The National Academy of Sciences shall dis-  
7 seminate research findings to researchers, practi-  
8 tioners, and decisionmakers, including through con-  
9 ferences and seminars, field demonstrations, work-  
10 shops, presentations, testimony to government offi-  
11 cials, the Internet, publications for the general pub-  
12 lic, and other appropriate means.

13 “(e) FUNDING.—

14 “(1) USE OF NON-FEDERAL FUNDS.—In addi-  
15 tion to using funds authorized for this section, the  
16 National Academy of Sciences may seek and accept  
17 additional funding from non-Federal sources, includ-  
18 ing public and private entities.

19 “(2) PERIOD OF AVAILABILITY.—Amounts  
20 made available to carry out this section shall remain  
21 available until expended.”.

22 (b) CONFORMING AMENDMENT.—The table of sec-  
23 tions for such chapter is amended by adding at the end  
24 the following:

“70205. National cooperative freight transportation research program.”.

1 **SEC. 208. HEAVY FREIGHT AUTOMATED TRUCKING RE-**  
2 **SEARCH CORRIDOR.**

3 (a) IN GENERAL.—Subchapter 1 of chapter 55 of  
4 title 49, United States Code, is amended by adding at the  
5 end the following:

6 **“§ 5507. Heavy Freight Automated Trucking Research**  
7 **Corridor**

8 “(a) IN GENERAL.—Not later than 1 year after the  
9 date of enactment of the Surface Transportation Research  
10 and Development Act of 2021, the Secretary of Transpor-  
11 tation shall establish a Heavy Freight Automated Truck-  
12 ing Research Initiative to explore the potential benefits  
13 and risks of the broad scale adoption of heavy freight  
14 automated commercial motor vehicles.

15 “(b) RESPONSIBILITIES.—In carrying out the initia-  
16 tive established under subsection (a), the Secretary shall—

17 “(1) support and conduct research and develop-  
18 ment on automated and connected freight trucking  
19 with private industry, driver associations, other Fed-  
20 eral agencies, State and local Transportation agen-  
21 cies, and a National Transportation center selected  
22 under section 5505(c)(2) of title 49, United States  
23 Code; and

24 “(2) support or establish a heavy freight auto-  
25 mated trucking testing and demonstration corridor  
26 and related pilot programs.

1           “(c) RESEARCH AND DEVELOPMENT AGENDA.—The  
2 Secretary shall establish an agenda for research and devel-  
3 opment conducted under subsection (b)(1) and the pro-  
4 grams described in subsection (b)(2) that at a minimum,  
5 may include—

6           “(1) analyzing, modeling, and piloting the feasi-  
7 bility, benefits, and risks of dedicated automated  
8 trucking corridors, including their impact on—

9           “(A) long Distance Freight movement;

10           “(B) supply chains;

11           “(C) fuel economy and emissions;

12           “(D) transportation infrastructure;

13           “(E) vehicle miles traveled;

14           “(F) small business concerns (as defined in  
15 section 3 of the Small Business Act (15 U.S.C.  
16 632);

17           “(G) the freight trucking workforce, in-  
18 cluding any impact on pay, benefits, and work-  
19 ing conditions in both long-haul trucking and  
20 for any driving, warehousing, or operations jobs  
21 being created;

22           “(H) safety, including interactions with  
23 non-automated motor vehicles and other road  
24 users; and

25           “(I) surrounding communities.

1           “(2) providing deployment guidance, including  
2       for—

3           “(A) cyber-physical security; and

4           “(B) human factors, including human-ma-  
5       chine interfaces, psychological impacts, training  
6       the next generation of the transportation work-  
7       force, and how to address impacts on the work-  
8       force, including impacts on driver retention and  
9       on wages, benefits, and working conditions  
10      across the industry.

11      “(d) OUTREACH AND CONSULTATION.—In devel-  
12      oping the research agenda under subsection (b), the Sec-  
13      retary shall conduct outreach to, and solicit input from,  
14      public, private, and academic stakeholders, including indi-  
15      vidual workers and labor organizations (as defined in sec-  
16      tion 2 of the National Labor Relations Act (29 U.S.C.  
17      152)).

18      “(e) ELIGIBILITY.—An institution of higher edu-  
19      cation (as defined by section 102 of the Higher Education  
20      Act of 1965 (20 U.S.C. 1002)) or a consortium composed  
21      of nonprofit research organizations and institutions of  
22      higher education shall be eligible to receive grants under  
23      this program.

24      “(f) SELECTION CRITERIA.—In awarding a grant,  
25      the Secretary shall—

1           “(1) give preference to the recipient’s past and  
2           current collaboration with local and State transpor-  
3           tation agencies, other Federal agencies, private in-  
4           dustry, and driver associations in activities related to  
5           this section;

6           “(2) give preference to a recipient whose geo-  
7           graphic location offers access to long haul trucking  
8           corridors;

9           “(3) consider the extent to which an applicant’s  
10          proposal would involve participation by local, re-  
11          gional, and national stakeholders; and

12          “(4) consider the local, regional, and national  
13          impacts of the applicant’s proposal.

14          “(g) MATCHING REQUIREMENT.—

15                 “(1) IN GENERAL.—As a condition of receiving  
16                 a grant under subsection (b)(2), a grant recipient  
17                 shall match 50 percent of the costs of establishing  
18                 and operating the testing and demonstration cor-  
19                 ridor and related activities carried out by the grant  
20                 recipient.

21                 “(2) SOURCES.—The matching amounts re-  
22                 ferred to in paragraph (1) may include amounts  
23                 made available to the recipient under—

24                         “(A) section 504(b) of title 23; or

25                         “(B) section 505 of title 23.



1       “(h) TRANSPARENCY.—The results of testing and re-  
2 search funded under this section shall be made available  
3 on a publicly accessible website of the Department of  
4 Transportation.

5       “(i) AUTHORIZATION OF APPROPRIATIONS.—There  
6 are authorized to be appropriated to the Secretary  
7 \$6,000,000 for each of the fiscal years 2022 through 2026  
8 for grants under subsection (b)(2).

9       “(j) DEFINITIONS.—In this section, the term ‘heavy  
10 freight automated commercial motor vehicle’ means a  
11 commercial motor vehicle as the term is defined in section  
12 31101 of title 49, United States Code, that—

13               “(1) is designed to transport freight in inter-  
14 state commerce and has a gross vehicle weight rat-  
15 ing or gross vehicle weight of at least 26,001  
16 pounds, whichever is greater; and

17               “(2) is designed to be operated exclusively by a  
18 Level 4 automated driving system for trips within its  
19 operational design domain or a Level 5 automated  
20 driving system for all trips according to the rec-  
21 ommended practice standards published on June 15,  
22 2018, by the Society of Automotive Engineers Inter-  
23 national (J3016\_\_201806) or, when adopted, equiv-  
24 alent standards established by the Secretary with re-



1           “(5) data gathering of travel behavior, includ-  
2           ing the public’s short and long-term responses to  
3           transformational technologies;

4           “(6) impacts of private-sector transportation  
5           product development on society and the traditional  
6           research enterprise;

7           “(7) support for a public-sector culture of  
8           transportation innovation and acceleration of feder-  
9           ally-funded research into practice, codes, and stand-  
10          ards; and

11          “(8) fostering development of transportation  
12          educators and transportation professionals.

13          “(b) REPORT.—The National Academies of Sciences,  
14          Engineering, and Medicine shall submit a report to Con-  
15          gress not later than 2 years after the date of enactment  
16          of this Act.”.

17          (b) CONFORMING AMENDMENT.—The table of sec-  
18          tions for such subchapter is further amended by adding  
19          at the end the following:

“5508. Strategic Transportation Research Program.”.

20          (c) AUTHORIZATION OF APPROPRIATIONS.—There is  
21          authorized to be appropriated to carry out this section  
22          \$1,500,000 for fiscal year 2022.

1 **SEC. 210. ADVANCED TRANSPORTATION RESEARCH AND IN-**  
2 **NOVATION PROGRAM.**

3 (a) IN GENERAL.—Subchapter I of chapter 55 of title  
4 49, United States Code, as amended, is further amended  
5 by adding at the end the following:

6 **“§ 5509. Advanced Transportation Research and In-**  
7 **novation Program**

8 “(a) ESTABLISHMENT; PURPOSES.—The Secretary  
9 of Transportation shall establish the Advanced Transpor-  
10 tation Research and Innovation Program, to be adminis-  
11 tered by the Assistant Secretary of Research and Tech-  
12 nology. The purposes of the program shall be to—

13 “(1) support research that addresses the long-  
14 term barriers to development of multimodal ad-  
15 vanced transportation technologies with the potential  
16 to meet the Nation’s long-term safety, competitive-  
17 ness, and transportation goals;

18 “(2) support high-risk research and develop-  
19 ment to accelerate transformational transportation  
20 innovations and make federal investments in emerg-  
21 ing technology development;

22 “(3) leverage Federal interagency research  
23 mechanisms and the academic research enterprise;

24 “(4) educate and train students in science,  
25 technology, engineering, and mathematics fields to  
26 conduct research and standards development rel-

1       evant to transportation technologies, materials, sys-  
2       tems, operations, processes, and policies; and

3               “(5) fostering collaboration among Federal re-  
4       searchers and academic researchers.

5       “(b) INTERAGENCY COLLABORATION.—The Sec-  
6       retary shall collaborate on, identify, and disseminate with-  
7       in the Department, as appropriate, advanced transpor-  
8       tation research, development, and other activities of other  
9       Federal agencies, including the Office of Science and  
10      Technology Policy, the National Science Foundation, the  
11      Department of Energy, the National Institute of Stand-  
12      ards and Technology, the Department of Homeland Secu-  
13      rity, the National Aeronautics and Space Administration,  
14      the National Oceanic and Atmospheric Administration,  
15      and the Department of Defense to ensure the Depart-  
16      ment’s research investments are making the best possible  
17      contribution to the Nation’s goals of public health and  
18      safety, economic prosperity, national security, and envi-  
19      ronmental quality.

20      “(c) RESEARCH GRANTS.—The Secretary may sup-  
21      port the purposes of the program and carry out activities  
22      described under subsection (a) through—

23               “(1) competitive, merit-based basic research  
24      grants to individual investigators and teams of in-  
25      vestigators; and

1           “(2) centers of excellence selected through a  
2 competitive, merit-based process.

3           “(d) APPLICATION.—

4           “(1) IN GENERAL.—An investigator, team of in-  
5 vestigators, or an institution of higher education (or  
6 consortium thereof) seeking funding under this sec-  
7 tion shall submit an application to the Secretary at  
8 such time, in such manner, and containing such in-  
9 formation as the Secretary may require.

10           “(2) RESEARCH CENTERS.—Each application  
11 under paragraph (1) from an institution of higher  
12 education (or consortium thereof) shall include a de-  
13 scription of how the Center will promote multidisci-  
14 plinary transportation research and development col-  
15 laboration.

16           “(e) AUTHORIZATION OF APPROPRIATIONS.—There  
17 is authorized to be appropriated to carry out this section  
18 \$25,000,000 for each of fiscal years 2022 through 2026.

19           “(f) RESEARCH.—At a minimum, the Secretary shall  
20 award 75 percent of awards under this program to  
21 projects for basic research.

22           “(g) REVIEW.—Not later than September 30, 2026,  
23 the Secretary shall enter into an agreement with the Na-  
24 tional Academies to conduct a review of the research and  
25 activities carried out under this program and assess

1 whether they are consistent with meeting the purposes de-  
2 scribed in subsection (a). Members of the review panel  
3 shall represent, at a minimum, multimodal surface trans-  
4 portation researchers and practitioners.

5 “(h) REPORT.—Not later than one year after the  
6 date of enactment of this Act, and biennially thereafter,  
7 the Secretary shall provide to the Committees on Com-  
8 merce, Science, and Transportation and Environment and  
9 Public Works of the Senate and the Committees on Trans-  
10 portation and Infrastructure and Science, Space, and  
11 Technology of the House of Representatives a report on  
12 implementation of this program and research areas that  
13 the program will support.”.

14 (b) CONFORMING AMENDMENT.—The table of sec-  
15 tions for such subchapter, as amended, is further amended  
16 by adding at the end the following:

“5509. Advanced Transportation Research and Innovation Program”.

17 **SEC. 211. RAIL COOPERATIVE RESEARCH PROGRAM.**

18 Section 24910 of title 49, United States Code is  
19 amended—

20 (1) in subsection (c)(3) by striking “2019” and  
21 inserting “2026”; and

22 (2) in subsection (e) by striking “2010 through  
23 2013” and inserting “2022 through 2026”.

1 **SEC. 212. MULTIMODAL TRANSPORTATION DEMONSTRATION PROGRAM.**  
2

3 (a) ESTABLISHMENT.—The Secretary may establish  
4 a program for the demonstration of advanced transpor-  
5 tation technologies, including autonomous systems, for  
6 surface transportation modes, including highways, public  
7 transportation, freight, ports, and maritime.

8 (b) PURPOSE.—The purpose of this program is to  
9 provide Federal investment in the demonstration of  
10 emerging technologies in small and mid-sized communities  
11 to achieve the purposes of the national transportation re-  
12 search and development program described in section  
13 6503 of title 49, United States Code. Activities supported  
14 under this section may include data interoperability, mo-  
15 bility-on-demand and micro-mobility projects to dem-  
16 onstrate first-mile/last-mile transportation, and any other  
17 topics as determined by the Secretary. Where appropriate,  
18 joint interagency funding for projects is authorized to sup-  
19 port multimodal projects.

20 (c) ELIGIBILITY.—Eligible recipients of grants under  
21 this program include local transportation organizations  
22 and transit agencies serving a population of not more than  
23 250,000 individuals, including communities of economic  
24 hardship and communities that experience transportation  
25 equity and accessibility issues.

26 (d) APPLICATION.—



1           (1) IN GENERAL.—An organization seeking  
2 funding under this section shall submit an applica-  
3 tion to the Secretary at such time, in such manner,  
4 and containing such information as the Secretary  
5 may require.

6           (2) COLLABORATION.—Each application sub-  
7 mitted under this section shall describe how that or-  
8 ganization will collaborate, as appropriate, with in-  
9 stitutions of higher education, State and local gov-  
10 ernments, regional transportation organizations,  
11 nonprofit research organizations, and private sector  
12 entities.

13          (e) AUTHORIZATION.—There is authorized to be ap-  
14 propriated to carry out activities under this section  
15 \$30,000,000 for each of fiscal years 2022 through 2026.

16 **SEC. 213. ADVISORY COUNCIL ON TRANSPORTATION RE-**  
17 **SEARCH AND DEVELOPMENT.**

18          (a) ESTABLISHMENT.—In consultation with the As-  
19 sistant Secretary for Research and Technology, the Sec-  
20 retary shall establish a surface transportation research  
21 and development advisory board.

22          (b) DUTIES.—It shall be the duty of the advisory  
23 board to review and make recommendations to the Sec-  
24 retary and the Assistant Secretary for Research and Tech-  
25 nology for general policy for the Department's surface

1 transportation research and development activities, its or-  
2 ganization, its budget and its programs as they relate to  
3 national surface transportation policies.

4 (c) MEMBERSHIP.—The Secretary shall appoint not  
5 less than 9 members from State transportation depart-  
6 ments, local governments, nonprofit organizations, aca-  
7 demia, and the private sector, a majority of whom shall  
8 be from institutions of higher education.

9 (d) QUALIFICATIONS.—The persons appointed as  
10 members of the advisory board—

11 (1) shall be experts in areas such as Federal  
12 transportation research and development, engineer-  
13 ing, education, climate change, resilient transpor-  
14 tation technologies; public-private partnerships; data  
15 science; information and communications tech-  
16 nologies; and social, behavioral and economic  
17 sciences;

18 (2) shall be selected solely on the basis of estab-  
19 lished records of distinguished service;

20 (3) shall not be employees of the Federal Gov-  
21 ernment; and

22 (4) shall represent multiple surface transpor-  
23 tation modes and disciplines of legacy and emerging  
24 technologies, materials, and processes.

1           (e) REPORT.—The advisory board established in this  
2 section shall make publicly available a biennial report of  
3 recommendations made by the advisory board to the Sec-  
4 retary and the Assistant Secretary for Research and Tech-  
5 nology and any such additional reports the advisory board  
6 deems necessary.

7 **SEC. 214. TRANSPORTATION RESEARCH AND DEVELOP-**  
8                                   **MENT QUINQUENNIAL REVIEW AND STRA-**  
9                                   **TEGIC PLAN.**

10           Section 6503 of title 49, United States Code, is  
11 amended—

12                   (1) in subsection (a), by striking “The Sec-  
13 retary” and inserting “For each 5-year period begin-  
14 ning with fiscal year 2022, the Secretary”;

15                   (2) in subsection (c)(1)—

16                                   (A) in subparagraph (C), by striking the  
17 semicolon and inserting “and security in the  
18 transportation system;”; and

19                                   (B) by amending subparagraph (F) to read  
20 as follows:

21   “(F) developing and maintaining a diverse  
22 workforce in transportation sectors;”; and

1           (3) in subsection (d)(4), by striking “not later  
2           than December 31, 2016,” and inserting “not later  
3           than December 31, 2022,”.

○