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(Original Signature of Member)

117TH CONGRESS
1ST SESSION

H. R. _____

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

IN THE HOUSE OF REPRESENTATIVES

M. _____ introduced the following bill; which was referred to the
Committee on _____

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”.

7 (b) TABLE OF CONTENTS.—The table of contents for
8 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.

1 **TITLE I—HIGHWAY**
2 **TRANSPORTATION RESEARCH**

3 **SEC. 101. AUTHORIZATION OF APPROPRIATIONS.**

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

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

- 10 (A) \$152,000,000 for fiscal year 2022;
- 11 (B) \$161,880,000 for fiscal year 2023;
- 12 (C) \$172,402,000 for fiscal year 2024;

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

2 and

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

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

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

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

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

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

11 and

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

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

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

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

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

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

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

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

25 (A) \$60,000,000 for fiscal year 2022;

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

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

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

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

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

19 and

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

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

- 24 (1) be available for obligation in the same man-
25 ner as if those funds were appropriated under chap-

1 ter 1 of title 23, United States Code, except that the
2 Federal share of the cost of a project or activity car-
3 ried out using those funds shall be 80 percent, un-
4 less otherwise expressly provided by this Act (includ-
5 ing the amendments by this Act) or otherwise deter-
6 mined by the Secretary; and

7 (2) remain available until expended and not be
8 transferable.

9 **SEC. 102. AMENDMENT TO HIGHWAY SAFETY IMPROVE-**
10 **MENT PROJECT DEFINITION.**

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

13 “(xxix) Education.

14 “(xxx) Enforcement.

15 “(xxxi) Research activities.

16 “(xxxii) Cybersecurity.”.

17 **SEC. 103. BEHAVIORAL TRAFFIC SAFETY COOPERATIVE RE-**
18 **SEARCH PROGRAM.**

19 Section 403(f) of title 23, United States Code, is
20 amended—

21 (1) by striking “\$2,500,000” and inserting
22 “\$3,500,000”; and

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

1 **SEC. 104. AMENDMENT TO THE EXPLORATORY ADVANCED**
2 **RESEARCH PROGRAM.**

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

5 “(6) EXPLORATORY ADVANCED RESEARCH.—

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

13 “(i) awarding competitive grants and
14 cooperative agreements to institutions of
15 higher education and nonprofit research
16 organizations (or consortia thereof);

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

21 “(iii) collaborating with other Federal
22 agencies with relevant expertise, including
23 the National Science Foundation, the Na-
24 tional Institute of Standards and Tech-
25 nology, and the Department of Energy.

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

6 **SEC. 105. AMENDMENT TO THE STATE PLANNING AND RE-**
7 **SEARCH PROGRAM.**

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

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

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

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

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

20 “(a) IN GENERAL.—The Secretary, in collaboration
21 with the National Oceanic and Atmospheric Administra-
22 tion, the National Institute of Standards and Technology,
23 and the National Science Foundation, as appropriate,
24 shall carry out a program to make awards to institutions
25 of higher education or nonprofit research organizations (or

1 a consortium thereof) to establish regional road weather
2 research and development centers.

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

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

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

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

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

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

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

25 “(1) supporting research and development to—

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

5 “(B) improve weather modeling capabilities
6 and forecast tools, such as the road surface and
7 atmospheric interface;

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

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

15 “(E) integrate road weather technologies
16 into an information infrastructure;

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

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

24 “(4) supporting implementation of road weather
25 information technology and improved communication

1 of road weather information to the public and other
2 users, including transportation officials, emergency
3 managers and vehicle manufacturers;

4 “(5) improving education and training of road
5 weather information users, such as State and local
6 transportation officials and private sector transpor-
7 tation contractors; and

8 “(6) coordinating with transportation weather
9 research activities in other modes, such as transit,
10 railroad, and aviation.

11 “(d) REQUIREMENTS.—

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

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

20 “(A) how the institution of higher edu-
21 cation or nonprofit research organization (or
22 consortium thereof) will work together with
23 other research institutions, industry partners,
24 and State and local transportation officials to

1 carry out activities described in subsection (c);
2 and

3 “(B) how the institution of higher edu-
4 cation or nonprofit research organization (or
5 consortium thereof) will promote multidisci-
6 plinary research to improve road weather infor-
7 mation implementation.

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

19 “(e) AUTHORIZATION OF APPROPRIATIONS.—Of the
20 amounts made available by section 101(a)(2) of the Sur-
21 face Transportation Research and Development Act of
22 2020, \$12,000,000 for each of the fiscal years 2022
23 through 2026 shall be made available to carry out this
24 section.”.

1 **TITLE II—MULTIMODAL**
2 **TRANSPORTATION RESEARCH**

3 **SEC. 201. AUTHORIZATION OF APPROPRIATIONS.**

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

9 (1) \$150,000,000 for fiscal year 2022.

10 (2) \$159,750,000 for fiscal year 2023.

11 (3) \$170,134,000 for fiscal year 2024.

12 (4) \$181,192,000 for fiscal year 2025.

13 (5) \$192,970,000 for fiscal year 2026.

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

19 (1) \$35,000,000 for fiscal year 2022.

20 (2) \$35,875,000 for fiscal year 2023.

21 (3) \$36,772,000 for fiscal year 2024.

22 (4) \$37,691,000 for fiscal year 2025.

23 (5) \$38,633,000 for fiscal year 2026.

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

4 “(G) \$35,000,000 for fiscal year 2022,
5 \$35,875,000 for fiscal year 2023, \$36,772,000
6 for fiscal year 2024, \$37,691,000 for fiscal year
7 2025, and \$38,633,000 for fiscal year 2026,
8 shall be available to carry out section 5312;”.

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

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

19 (f) NATIONAL COOPERATIVE FREIGHT TRANSPOR-
20 TATION RESEARCH PROGRAM.—There are authorized to
21 be appropriated to carry out section 5509 of title 49,
22 United States Code, \$5,000,000 for each of fiscal years
23 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 “(3) consider the local, regional, and national
2 impacts of the applicant’s proposal.

3 “(g) USE OF FUNDS.—Funds awarded under this
4 subsection shall be used for—

5 “(1) research and development;

6 “(2) education, workforce development, and
7 outreach; and

8 “(3) technology transfer and commercialization.

9 “(h) FEDERAL SHARE.—The Federal share of a
10 grant under this subsection shall be 50 percent of the
11 costs of establishing and operating the center of excellence
12 and related activities carried out by the grant recipient.

13 “(i) AUTHORIZATION OF APPROPRIATIONS.—There
14 are authorized to be appropriated to the Secretary
15 \$50,000,000 for each of the fiscal years 2022 through
16 2026 for grants under this subsection.”.

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

 “5506. Resilient Transportation Infrastructure Centers of Excellence.”.

20 **SEC. 205. TRANSPORTATION DATA FOR HEALTHY LIVING**
21 **STUDY PILOT.**

22 (a) IN GENERAL.—Not later than 2 years after the
23 date of enactment of this Act, the Secretary shall publish
24 the results a study for the purpose of informing land use

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 spect to automated motor vehicles, while operating
2 on public roads.”.

3 (b) CONFORMING AMENDMENT.—The table of sec-
4 tions for such subchapter is amended by adding at the
5 end the following:

“5507. Heavy Freight Autonomous Trucking Research Corridor.”.

6 **SEC. 209. STRATEGIC TRANSPORTATION RESEARCH PRO-**
7 **GRAM.**

8 (a) IN GENERAL.—Subchapter 1 of chapter 55 of
9 title 49, United States Code, is further amended by adding
10 at the end the following:

11 **“SEC. 5508. SCOPING A NEW STRATEGIC TRANSPORTATION**
12 **RESEARCH PROGRAM.**

13 “(a) IN GENERAL.—Not later than 1 year after the
14 date of enactment of this Act, the Secretary shall enter
15 into an agreement with the National Academies of
16 Sciences, Engineering, and Medicine to undertake a study
17 of the research needs of the surface transportation system
18 to fully adapt and integrate advanced technologies and in-
19 novation. The study shall include the following focus
20 areas—

21 “(1) advancing connected and autonomous tech-
22 nologies;

23 “(2) incorporating safety-related technologies;

24 “(3) addressing infrastructure resiliency;

25 “(4) multimodal connectivity;

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

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