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.

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

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) Short Title.—This Act may be cited as the “Surface Transportation Research and Development Act of 2021”.

(b) Table of Contents.—The table of contents for this Act is as follows:
TITLE I—HIGHWAY TRANSPORTATION RESEARCH

Sec. 101. Authorization of appropriations.

(a) In general.—The following amounts are authorized to be appropriated out of the Highway Trust Fund (other than the Mass Transit Account):

(1) Highway safety research and development.—To carry out section 403 of title 23, United States Code—

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

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

(C) $172,402,000 for fiscal year 2024;
(D) $183,608,000 for fiscal year 2025;
and
(E) $195,543,000 for fiscal year 2026.

(2) Highway Research and Development Program.—To carry out sections 503(b) and 520 of title 23, United States Code—
(A) $142,000,000 for fiscal year 2022;
(B) $151,230,000 for fiscal year 2023;
(C) $161,060,000 for fiscal year 2024;
(D) $171,530,000 for fiscal year 2025;
and
(E) $182,680,000 for fiscal year 2026.

(3) Technology and Innovation Deployment Program.—To carry out section 503(c) of title 23, United States Code—
(A) $70,000,000 for fiscal year 2022;
(B) $74,550,000 for fiscal year 2023;
(C) $79,396,000 for fiscal year 2024;
(D) $84,556,000 for fiscal year 2025; and
(E) $90,053,000 for fiscal year 2026.

(4) Advanced Transportation and Congestion Management Technologies Deployment Program.—To carry out section 503(e)(4) of title 23, United States Code—
(A) $60,000,000 for fiscal year 2022;
(B) $60,000,000 for fiscal year 2023;
(C) $60,000,000 for fiscal year 2024;
(D) $60,000,000 for fiscal year 2025; and
(E) $60,000,000 for fiscal year 2026.

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

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

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

(A) $158,000,000 for fiscal year 2022;
(B) $168,270,000 for fiscal year 2023;
(C) $179,208,000 for fiscal year 2024;
(D) $190,856,000 for fiscal year 2025; and
(E) $203,262,000 for fiscal year 2026.

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

(1) be available for obligation in the same man-
ner as if those funds were appropriated under chap-
ter 1 of title 23, United States Code, except that the Federal share of the cost of a project or activity carried out using those funds shall be 80 percent, unless otherwise expressly provided by this Act (including the amendments by this Act) or otherwise determined by the Secretary; and

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

SEC. 102. AMENDMENT TO HIGHWAY SAFETY IMPROVEMENT PROJECT DEFINITION.

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

“(xxix) Education.

“(xxx) Enforcement.

“(xxxi) Research activities.

“(xxxii) Cybersecurity.”.

SEC. 103. BEHAVIORAL TRAFFIC SAFETY COOPERATIVE RESEARCH PROGRAM.

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

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

(2) by striking “fiscal year ending before” and all that follows through “December 4, 2015” and inserting “of fiscal years 2022 through 2026”.
SEC. 104. AMENDMENT TO THE EXPLORATORY ADVANCED RESEARCH PROGRAM.

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

“(6) EXPLORATORY ADVANCED RESEARCH.—

“(A) IN GENERAL.—The Secretary shall carry out long-term, exploratory advanced research activities to develop potentially transformational solutions to improve the durability, efficiency, environmental impact, productivity, and safety aspects of highway and intermodal transportation systems, including by—

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

“(ii) leveraging the targeted capabilities of the Turner-Fairbank Highway Research Center to develop technologies and innovations of national importance; and

“(iii) collaborating with other Federal agencies with relevant expertise, including the National Science Foundation, the National Institute of Standards and Technology, and the Department of Energy.
“(B) FUNDING.—From funds made available to carry out this subsection, the Secretary shall obligate $25,000,000 to carry out this paragraph for each of fiscal years 2022 through 2026.”.

SEC. 105. AMENDMENT TO THE STATE PLANNING AND RESEARCH PROGRAM.

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

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

SEC. 106. ROAD WEATHER CENTERS OF EXCELLENCE.

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

“SEC. 520. ROAD WEATHER CENTERS OF EXCELLENCE.

“(a) IN GENERAL.—The Secretary, in collaboration with the National Oceanic and Atmospheric Administration, the National Institute of Standards and Technology, and the National Science Foundation, as appropriate, shall carry out a program to make awards to institutions of higher education or nonprofit research organizations (or
a consortium thereof) to establish regional road weather
research and development centers.

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

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

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

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

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

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

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

“(1) supporting research and development to—
“(A) integrate existing observational networks, including mobile and fixed sensor networks, and data management systems for road weather applications;

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

“(C) enhance mechanisms for communicating road weather information to users, such as transportation officials and the public;

“(D) understand the human and cultural factors in driver decision-making in response to road weather hazards and in response to the delivery of road weather information; and

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

“(2) improving coordination of research, development, testing, and implementation of road weather information technologies and automated vehicle and automated transportation systems technologies;

“(3) partnering with private sector entities to promote secure voluntary data sharing for the purposes of this section;

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

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

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

“(d) REQUIREMENTS.—

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

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

“(A) how the institution of higher education or nonprofit research organization (or consortium thereof) will work together with other research institutions, industry partners, and State and local transportation officials to
carry out activities described in subsection (c);
and

“(B) how the institution of higher education or nonprofit research organization (or consortium thereof) will promote multidisciplinary research to improve road weather information implementation.

“(3) SELECTION AND DURATION.—The Secretary, in consultation with National Oceanic and Atmospheric Administration and the National Science Foundation, shall select not less than six regional centers that represent diverse geographic regions and weather patterns, and to the extent possible be located along major United States transportation corridors. Each center established under this section is authorized to carry out activities for a period of 5 years, renewable for an additional 5 years at the discretion of the Director.

“(e) AUTHORIZATION OF APPROPRIATIONS.—Of the amounts made available by section 101(a)(2) of the Surface Transportation Research and Development Act of 2020, $12,000,000 for each of the fiscal years 2022 through 2026 shall be made available to carry out this section.”.
TITLE II—MULTIMODAL
TRANSPORTATION RESEARCH

SEC. 201. AUTHORIZATION OF APPROPRIATIONS.

(a) UNIVERSITY TRANSPORTATION CENTERS PROGRAM.—The following amounts are authorized to be appropriated out of the Highway Trust Fund (other than the Mass Transit Account) to carry out section 5505 of title 49, United States Code:

(1) $150,000,000 for fiscal year 2022.
(2) $159,750,000 for fiscal year 2023.
(3) $170,134,000 for fiscal year 2024.
(4) $181,192,000 for fiscal year 2025.
(5) $192,970,000 for fiscal year 2026.

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

(1) $35,000,000 for fiscal year 2022.
(2) $35,875,000 for fiscal year 2023.
(3) $36,772,000 for fiscal year 2024.
(4) $37,691,000 for fiscal year 2025.
(5) $38,633,000 for fiscal year 2026.
(c) Transit Research and Development.—Section 5338(a)(2)(G) of title 49, United States Code, is amended to read as follows:

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

(d) National Cooperative Rail Research Program.—There are authorized to be appropriated to carry out section 24910 of title 49, United States Code, $5,000,000 for each of fiscal years 2022 through 2026.

(e) Hazardous Materials Research and Development.—There are authorized to be appropriated to carry out section 5118(c) of title 49, United States Code, $2,000,000 from the Highway Trust Fund and $2,000,000 from the General Fund for each of fiscal years 2022 through 2026.

(f) National Cooperative Freight Transportation Research Program.—There are authorized to be appropriated to carry out section 5509 of title 49, United States Code, $5,000,000 for each of fiscal years 2022 through 2026.
SEC. 202. ADVISORY COUNCIL ON TRANSPORTATION STATISTICS.

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

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

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

SEC. 203. AMENDMENTS TO THE UNIVERSITY TRANSPORTATION CENTERS PROGRAM.

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

(1) in subsection (a)(2)—

(A) by redesignating subparagraphs (B) and (C) as subparagraphs (C) and (D), respectively; and

(B) by inserting the following before subparagraph (C) as so redesignated:

“(B) to address emerging transportation challenges, as appropriate, including reducing cybersecurity risks or other issues that have
broad impact to the issue areas specified in section 6503(e);”;

(2) in subsection (b)(4)(A), by striking “research priorities identified in chapter 65.” and inserting the following: “following research priorities:

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

“(ii) Reducing Congestion.

“(iii) Promoting Safety.

“(iv) Improving the durability and extending the life of transportation infrastructure and the existing transportation system.

“(v) Preserving the environment.”;

and

(3) in subsection (c)—

(A) in paragraph (2)—

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

(ii) in subparagraph (B)—

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

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

(iii) in subparagraph (C)—
(I) in clause (i), by striking “As a condition” and inserting “Subject to clause (ii), as a condition”;

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

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

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

“(ii) EXCEPTION.—

“(I) IN GENERAL.—For fiscal years 2022 and 2023, as a condition of receiving a grant under this paragraph, a grant recipient shall match 50 percent of the amounts made available under the grant.

“(II) NATIONAL EMERGENCY.—
The Secretary may reduce the percentage described in subclause (I) to not less than 50 percent during a national emergency.”;

(iv) by adding at the end the following:
“(D) REQUIREMENT.—In awarding grants under this section, the Secretary shall ensure that each of the focus areas described in subsection (b)(4)(A) is the priority focus for at least 1 national center.”;

(B) in paragraph (3)—

(i) in subparagraph (C)—

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

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

(ii) in subparagraph (D)—

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

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

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

“(ii) EXCEPTION.—

“(I) IN GENERAL.—For fiscal years 2022 and 2023, as a condition of receiving a grant under this paragraph, a grant recipient shall match
50 percent of the amounts made available under the grant.

“(II) NATIONAL EMERGENCY.—

The Secretary may reduce the percentage described in subclause (I) to not less than 50 percent during a national emergency.”; and

(iii) by striking subparagraph (E);

(C) in paragraph (4)(A)—

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

(ii) by striking “$2,000,000” and inserting “$3,000,000”;

(iii) by striking “$1,000,000” and inserting “$1,500,000”; and

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

(D) by adding at the end the following:

“(g) DEFINITIONS.—For the purposes of this section, a grant is defined as a traditional grant award and not a cooperative agreement, such as a Cooperative Research and Development Agreement, or other contractual vehicle.”.
SEC. 204. RESILIENT TRANSPORTATION INFRASTRUCTURE CENTERS OF EXCELLENCE.

(a) In General.—Subchapter 1 of title 49, United States Code, is amended by adding at the end the following:

“SEC. 5506. RESILIENT TRANSPORTATION INFRASTRUCTURE CENTERS OF EXCELLENCE.

“(a) Centers of Excellence.—The Secretary shall award grants to establish five Centers of Excellence to advance research and development that improves the resilience of regions of the United States to natural disasters, extreme weather, and the effects of climate change on modal and multimodal transportation and infrastructure.

“(b) Activities.—In carrying out this section, the Secretary shall ensure the Centers promote resilient infrastructure through—

“(1) development of new design, operations, and maintenance standards that incorporate existing and anticipated impacts of natural disasters, extreme weather, and climate change;

“(2) development and integration of new materials and technologies into existing and future modal and multimodal transportation infrastructure;

“(3) workforce development and training; and
“(4) development and dissemination of tools, techniques, and information that informs Federal, State, and local government decision making, policies, planning, and investments.

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

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

“(e) LOCATION.—Centers shall be located in diverse geographic regions that experience different natural disasters, extreme weather patterns, and climate change impacts.

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

“(1) give preference to the recipient’s past performance in the activities related to subsection (b);

“(2) consider the extent to which an applicant’s proposal would involve participation by local, regional, and national stakeholders; and
“(3) consider the local, regional, and national impacts of the applicant’s proposal.

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

“(1) research and development;

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

“(3) technology transfer and commercialization.

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

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

(b) CONFORMING AMENDMENT.—The table of sections for such subchapter is amended by adding at the end the following:

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

SEC. 205. TRANSPORTATION DATA FOR HEALTHY LIVING STUDY PILOT.

(a) IN GENERAL.—Not later than 2 years after the date of enactment of this Act, the Secretary shall publish the results a study for the purpose of informing land use
and transportation planning for accessible health, food, education, and other essential services and activities.

(b) CONTENTS.—In carrying out the study, the Secretary shall collect and analyze data to determine—

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

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

(3) how far individuals travel to essential services and activities; and

(4) to the extent practicable, the geographic location and socioeconomic status of the study participants.

(e) GEOGRAPHIC AND SOCIOECONOMIC DIVERSITY; CONSULTATION.—In carrying out the study, the Secretary shall—

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

(2) consult with other Federal and State statistical agencies with relevant data related to essential services.

(d) AUTHORIZATION.—There are authorized to be appropriated to carry out the activities of this section $2,000,000 for each of fiscal years 2022 and 2023.
SEC. 206. VEHICULAR DATA ANALYTICS PILOT PROGRAM.

(a) IN GENERAL.—The Secretary shall establish a pilot program for the purpose of integrating vehicle on-board sensor data with public and private data sets in existence as of the date of the enactment of this Act to improve safety, operations, cost reduction, and congestion relief strategies for local and State transportation authorities and private sector partners.

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

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

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

(2) the sharing of information regarding operational needs and research and development priorities from such organizations or authorities to such recipient.

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

(1) development of strategies for the acquisition, management, and analysis of large-scale vehic-
ular on-board sensor data to ensure the privacy and
security of such data; and

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

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

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

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

(f) PROTECTIONS.—In carrying out this section, the
Secretary shall apply all applicable privacy protections of
the Department of Transportation.
(g) Authorization of Appropriations.—There is authorized to be appropriated to carry out the activities of this section $4,000,000 for each of fiscal years 2022 and 2023.

SEC. 207. NATIONAL COOPERATIVE FREIGHT TRANSPORTATION RESEARCH PROGRAM.

(a) In General.—Chapter 702 of title 49, United States Code, is amended by adding at the end the following:

“§ 70205. National cooperative freight transportation research program

“(a) Establishment.—Not later than one year after the date of enactment of this Act, the Secretary of Transportation shall establish and support a multimodal national cooperative freight transportation research program.

“(b) Agreement.—Upon establishment of the program under (a), the Secretary shall enter into an agreement with the National Academy of Sciences to support and carry out administrative and management activities relating to the governance of the national cooperative freight transportation research program.

“(c) Advisory Committee.—The National Academy of Sciences shall select an advisory committee consisting of a representative cross-section of freight stake-
holders, including the Department of Transportation, other Federal agencies, State transportation departments, local governments, nonprofit research organizations, academia, and the private sector.

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

“(1) NATIONAL RESEARCH AGENDA.—The advisory committee, in consultation with interested parties, shall recommend a multi-year national research agenda for the program. At a minimum, the advisory committee shall consider—

“(A) techniques for estimating and quantifying public benefits derived from transportation projects;

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

“(C) ways to synchronize infrastructure improvements with freight transportation demand, including impacts of e-commerce on freight demand, and strategies for better management;
“(D) the effect of changing patterns of freight movement on transportation planning decisions relating to rest areas and implementation of truck parking solutions;

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

“(F) ways to advance deployment of freight intelligent transportation systems, including advanced information systems;

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

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

“(I) new methods and policies for incorporating freight in urban transportation and land use planning; and

“(J) other research areas, including human factors research, to identify and address emerging and future research needs related to freight transportation by all modes.

“(2) PROGRAM ADMINISTRATION.—In carrying out the program under this section, the National Academy of Sciences shall ensure, to the maximum
extent practicable, that grants and contracts awarded under this section are selected through open competitions and merit review conducted on a regular basis.

“(3) Dissemination of Research Findings.—The National Academy of Sciences shall disseminate research findings to researchers, practitioners, and decisionmakers, including through conferences and seminars, field demonstrations, workshops, presentations, testimony to government officials, the Internet, publications for the general public, and other appropriate means.

“(e) Funding.—

“(1) Use of Non-Federal Funds.—In addition to using funds authorized for this section, the National Academy of Sciences may seek and accept additional funding from non-Federal sources, including public and private entities.

“(2) Period of Availability.—Amounts made available to carry out this section shall remain available until expended.”.

(b) Conforming Amendment.—The table of sections for such chapter is amended by adding at the end the following:

“70205. National cooperative freight transportation research program.”.
SEC. 208. HEAVY FREIGHT AUTOMATED TRUCKING RESEARCH CORRIDOR.

(a) In General.—Subchapter 1 of chapter 55 of title 49, United States Code, is amended by adding at the end the following:

“§ 5507. Heavy Freight Automated Trucking Research Corridor

“(a) In General.—Not later than 1 year after the date of enactment of the Surface Transportation Research and Development Act of 2021, the Secretary of Transportation shall establish a Heavy Freight Automated Trucking Research Initiative to explore the potential benefits and risks of the broad scale adoption of heavy freight automated commercial motor vehicles.

“(b) Responsibilities.—In carrying out the initiative established under subsection (a), the Secretary shall—

“(1) support and conduct research and development on automated and connected freight trucking with private industry, driver associations, other Federal agencies, State and local Transportation agencies, and a National Transportation center selected under section 5505(c)(2) of title 49, United States Code; and

“(2) support or establish a heavy freight automated trucking testing and demonstration corridor and related pilot programs.
“(c) **Research and Development Agenda.**—The Secretary shall establish an agenda for research and development conducted under subsection (b)(1) and the programs described in subsection (b)(2) that at a minimum, may include—

“(1) analyzing, modeling, and piloting the feasibility, benefits, and risks of dedicated automated trucking corridors, including their impact on—

“(A) long Distance Freight movement; 

“(B) supply chains; 

“(C) fuel economy and emissions; 

“(D) transportation infrastructure; 

“(E) vehicle miles traveled; 

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

“(G) the freight trucking workforce, including any impact on pay, benefits, and working conditions in both long-haul trucking and for any driving, warehousing, or operations jobs being created; 

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

“(I) surrounding communities.
“(2) providing deployment guidance, including for—

“(A) cyber-physical security; and

“(B) human factors, including human-machine interfaces, psychological impacts, training the next generation of the transportation workforce, and how to address impacts on the workforce, including impacts on driver retention and on wages, benefits, and working conditions across the industry.

“(d) OUTREACH AND CONSULTATION.—In developing the research agenda under subsection (b), the Secretary shall conduct outreach to, and solicit input from, public, private, and academic stakeholders, including individual workers and labor organizations (as defined in section 2 of the National Labor Relations Act (29 U.S.C. 152)).

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

“(f) SELECTION CRITERIA.—In awarding a grant, the Secretary shall—
'(1) give preference to the recipient’s past and current collaboration with local and State transportation agencies, other Federal agencies, private industry, and driver associations in activities related to this section;

'(2) give preference to a recipient whose geographic location offers access to long haul trucking corridors;

'(3) consider the extent to which an applicant’s proposal would involve participation by local, regional, and national stakeholders; and

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

'(g) MATCHING REQUIREMENT.—

'(1) IN GENERAL.—As a condition of receiving a grant under subsection (b)(2), a grant recipient shall match 50 percent of the costs of establishing and operating the testing and demonstration corridor and related activities carried out by the grant recipient.

'(2) SOURCES.—The matching amounts referred to in paragraph (1) may include amounts made available to the recipient under—

'(A) section 504(b) of title 23; or

'(B) section 505 of title 23.
“(h) TRANSPARENCY.—The results of testing and research funded under this section shall be made available on a publicly accessible website of the Department of Transportation.

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

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

“(1) is designed to transport freight in interstate commerce and has a gross vehicle weight rating or gross vehicle weight of at least 26,001 pounds, whichever is greater; and

“(2) is designed to be operated exclusively by a Level 4 automated driving system for trips within its operational design domain or a Level 5 automated driving system for all trips according to the recommended practice standards published on June 15, 2018, by the Society of Automotive Engineers International (J3016_201806) or, when adopted, equivalent standards established by the Secretary with re-
spect to automated motor vehicles, while operating on public roads.”.

(b) CONFORMING AMENDMENT.—The table of sections for such subchapter is amended by adding at the end the following:

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

SEC. 209. STRATEGIC TRANSPORTATION RESEARCH PROGRAM.

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

“SEC. 5508. SCOPING A NEW STRATEGIC TRANSPORTATION RESEARCH PROGRAM.

“(a) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Secretary shall enter into an agreement with the National Academies of Science, Engineering, and Medicine to undertake a study of the research needs of the surface transportation system to fully adapt and integrate advanced technologies and innovation. The study shall include the following focus areas—

“(1) advancing connected and autonomous technologies;

“(2) incorporating safety-related technologies;

“(3) addressing infrastructure resiliency;

“(4) multimodal connectivity;
“(5) data gathering of travel behavior, including the public’s short and long-term responses to transformational technologies;

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

“(7) support for a public-sector culture of transportation innovation and acceleration of federally-funded research into practice, codes, and standards; and

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

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

(b) CONFORMING AMENDMENT.—The table of sections for such subchapter is further amended by adding at the end the following:

“5508. Strategic Transportation Research Program.”.

(c) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $1,500,000 for fiscal year 2022.
SEC. 210. ADVANCED TRANSPORTATION RESEARCH AND INNOVATION PROGRAM.

(a) In General.—Subchapter I of chapter 55 of title 49, United States Code, as amended, is further amended by adding at the end the following:

“§ 5509. Advanced Transportation Research and Innovation Program

“(a) Establishment; Purposes.—The Secretary of Transportation shall establish the Advanced Transportation Research and Innovation Program, to be administered by the Assistant Secretary of Research and Technology. The purposes of the program shall be to—

“(1) support research that addresses the long-term barriers to development of multimodal advanced transportation technologies with the potential to meet the Nation’s long-term safety, competitiveness, and transportation goals;

“(2) support high-risk research and development to accelerate transformational transportation innovations and make federal investments in emerging technology development;

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

“(4) educate and train students in science, technology, engineering, and mathematics fields to conduct research and standards development rel-
evant to transportation technologies, materials, sys-
tems, operations, processes, and policies; and
“(5) fostering collaboration among Federal re-
searchers and academic researchers.
“(b) INTERAGENCY COLLABORATION.—The Sec-
retary shall collaborate on, identify, and disseminate within the Department, as appropriate, advanced transpor-
tation research, development, and other activities of other Federal agencies, including the Office of Science and Technology Policy, the National Science Foundation, the Department of Energy, the National Institute of Standards and Technology, the Department of Homeland Security, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, and the Department of Defense to ensure the Department’s research investments are making the best possible contribution to the Nation’s goals of public health and safety, economic prosperity, national security, and envi-
rmental quality.
“(c) RESEARCH GRANTS.—The Secretary may sup-
port the purposes of the program and carry out activities described under subsection (a) through—
“(1) competitive, merit-based basic research grants to individual investigators and teams of in-
vestigators; and
“(2) centers of excellence selected through a competitive, merit-based process.

“(d) Application.—

“(1) In general.—An investigator, team of investigators, or an institution of higher education (or consortium thereof) seeking funding under this section shall submit an application to the Secretary at such time, in such manner, and containing such information as the Secretary may require.

“(2) Research centers.—Each application under paragraph (1) from an institution of higher education (or consortium thereof) shall include a description of how the Center will promote multidisciplinary transportation research and development collaboration.

“(e) Authorization of Appropriations.—There is authorized to be appropriated to carry out this section $25,000,000 for each of fiscal years 2022 through 2026.

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

“(g) Review.—Not later than September 30, 2026, the Secretary shall enter into an agreement with the National Academies to conduct a review of the research and activities carried out under this program and assess
whether they are consistent with meeting the purposes described in subsection (a). Members of the review panel shall represent, at a minimum, multimodal surface transportation researchers and practitioners.

“(h) REPORT.—Not later than one year after the date of enactment of this Act, and biennially thereafter, the Secretary shall provide to the Committees on Commerce, Science, and Transportation and Environment and Public Works of the Senate and the Committees on Transportation and Infrastructure and Science, Space, and Technology of the House of Representatives a report on implementation of this program and research areas that the program will support.”.

(b) CONFORMING AMENDMENT.—The table of sections for such subchapter, as amended, is further amended by adding at the end the following:

“5509. Advanced Transportation Research and Innovation Program”.

SEC. 211. RAIL COOPERATIVE RESEARCH PROGRAM.

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

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

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

"
SEC. 212. MULTIMODAL TRANSPORTATION DEMONSTRATION PROGRAM.

(a) Establishment.—The Secretary may establish a program for the demonstration of advanced transportation technologies, including autonomous systems, for surface transportation modes, including highways, public transportation, freight, ports, and maritime.

(b) Purpose.—The purpose of this program is to provide Federal investment in the demonstration of emerging technologies in small and mid-sized communities to achieve the purposes of the national transportation research and development program described in section 6503 of title 49, United States Code. Activities supported under this section may include data interoperability, mobility-on-demand and micro-mobility projects to demonstrate first-mile/last-mile transportation, and any other topics as determined by the Secretary. Where appropriate, joint interagency funding for projects is authorized to support multimodal projects.

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

(d) Application.—
(1) IN GENERAL.—An organization seeking funding under this section shall submit an application to the Secretary at such time, in such manner, and containing such information as the Secretary may require.

(2) COLLABORATION.—Each application submitted under this section shall describe how that organization will collaborate, as appropriate, with institutions of higher education, State and local governments, regional transportation organizations, nonprofit research organizations, and private sector entities.

(e) AUTHORIZATION.—There is authorized to be appropriated to carry out activities under this section $30,000,000 for each of fiscal years 2022 through 2026.

SEC. 213. ADVISORY COUNCIL ON TRANSPORTATION RESEARCH AND DEVELOPMENT.

(a) ESTABLISHMENT.—In consultation with the Assistant Secretary for Research and Technology, the Secretary shall establish a surface transportation research and development advisory board.

(b) DUTIES.—It shall be the duty of the advisory board to review and make recommendations to the Secretary and the Assistant Secretary for Research and Technology for general policy for the Department’s surface
transportation research and development activities, its organization, its budget and its programs as they relate to national surface transportation policies.

(c) MEMBERSHIP.—The Secretary shall appoint not less than 9 members from State transportation departments, local governments, nonprofit organizations, academia, and the private sector, a majority of whom shall be from institutions of higher education.

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

(1) shall be experts in areas such as Federal transportation research and development, engineering, education, climate change, resilient transportation technologies; public-private partnerships; data science; information and communications technologies; and social, behavioral and economic sciences.

(2) shall be selected solely on the basis of established records of distinguished service;

(3) shall not be employees of the Federal Government; and

(4) shall represent multiple surface transportation modes and disciplines of legacy and emerging technologies, materials, and processes.
(c) REPORT.—The advisory board established in this section shall make publicly available a biennial report of recommendations made by the advisory board to the Secretary and the Assistant Secretary for Research and Technology and any such additional reports the advisory board deems necessary.

SEC. 214. TRANSPORTATION RESEARCH AND DEVELOPMENT QUINQUENNIAL REVIEW AND STRATEGIC PLAN.

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

(1) in subsection (a), by striking “The Secretary” and inserting “For each 5-year period beginning with fiscal year 2022, the Secretary”;

(2) in subsection (c)(1)—

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

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

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

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