

## “(c) TRANSLINK.—

“(1) IN GENERAL.—The Secretary shall make grants to the Texas Transportation Institute to continue the Translink Research program.

“(2) FUNDING.—Of the amounts allocated for each of fiscal years 1999 through 2001 by section 5001(a)(6) of this Act, \$1,300,000 per fiscal year shall be available to carry out this paragraph.

## “SEC. 5213. REPEAL.

“The Intermodal Surface Transportation Efficiency Act of 1991 [Pub. L. 102-240] is amended by striking part B [§§ 6051-6059] of title VI (23 U.S.C. 307 note; 105 Stat. 2189).”

[Pub. L. 109-59, title V, § 5509, Aug. 10, 2005, 119 Stat. 1828, provided that the amendment made by section 5509, repealing sections 5208 and 5209 of Pub. L. 105-178, set out above, is effective Oct. 1 2005.]

## RESEARCH ADVISORY COMMITTEE

Pub. L. 102-240, title VI, § 6011, Dec. 18, 1991, 105 Stat. 2179, as amended by Pub. L. 117-286, § 4(a)(175), Dec. 27, 2022, 136 Stat. 4325, provided that:

“(a) ESTABLISHMENT.—Not later than 180 days after the date of transmittal of the report to Congress under section 6010 [of Pub. L. 102-240, formerly set out as a note under section 307 of this title], the Secretary shall establish an independent surface transportation research advisory committee (hereinafter in this section referred to as the ‘advisory committee’).

“(b) PURPOSES.—The advisory committee shall provide ongoing advice and recommendations to the Secretary regarding needs, objectives, plans, approaches, content, and accomplishments with respect to short-term and long-term surface transportation research and development. The advisory committee shall also assist in ensuring that such research and development is coordinated with similar research and development being conducted outside of the Department of Transportation.

“(c) MEMBERSHIP.—The advisory committee shall be composed of not less than 20 and not more than 30 members appointed by the Secretary from among individuals who are not employees of the Department of Transportation and who are specially qualified to serve on the advisory committee by virtue of their education, training, or experience. A majority of the members of the advisory committee shall be individuals with experience in conducting surface transportation research and development. The Secretary in appointing the members of the advisory committee shall ensure that representatives of Federal, State, and local governments, other public agencies, colleges and universities, public, private, and nonprofit research organizations, and organizations representing transportation providers, shippers, labor, and the financial community are represented on an equitable basis.

“(d) CHAIRMAN.—The chairman of the advisory committee shall be designated by the Secretary.

“(e) PAY AND EXPENSES.—Members of the advisory committee shall serve without pay, except that the Secretary may allow any member, while engaged in the business of the advisory committee or a subordinate committee, travel expenses, including per diem in lieu of subsistence, in accordance with sections 5702 and 5703 of title 5, United States Code.

“(f) SUBORDINATE COMMITTEES.—The Secretary shall establish a subordinate committee to the advisory committee to provide advice on advanced highway vehicle technology research and development, and may establish other subordinate committees to provide advice on specific areas of surface transportation research and development. Such subordinate committees shall be subject to subsections (e), (g), and (i) of this section.

“(g) ASSISTANCE OF SECRETARY.—Upon request of the advisory committee, the Secretary shall provide such information, administrative services, support staff, and supplies as the Secretary determines to be necessary for the advisory committee to carry out its functions.

“(h) REPORTS.—The advisory committee shall, within 1 year after the date of establishment of the advisory committee, and annually thereafter, submit to the Congress a report summarizing its activities under this section.

“(i) TERMINATION.—Section 1013 of title 5, United States Code, shall not apply to the advisory committee established under this section.”

## FUNDAMENTAL PROPERTIES OF ASPHALTS AND MODIFIED ASPHALTS

Pub. L. 102-240, title VI, § 6016, Dec. 18, 1991, 105 Stat. 2182, as amended by Pub. L. 114-94, div. A, title I, § 1419(a), Dec. 4, 2015, 129 Stat. 1423, required the Administrator of the Federal Highway Administration to conduct studies of the fundamental chemical and physical properties of petroleum asphalts and modified asphalts used in highway construction in the United States and to submit reports on the progress of the studies and authorized appropriations for fiscal years 1992 to 1996.

## STUDY OF FACTORS AFFECTING SAFE AND EFFICIENT OPERATION OF BRIDGES, TUNNELS AND ROADS WITHIN UNITED STATES

Pub. L. 95-599, title I, § 166, Nov. 6, 1978, 92 Stat. 2722, provided that: “The Secretary of Transportation shall make a full and complete investigation and study of all those factors affecting the safe and efficient operation of bridges, tunnels, and roads within the United States, including, but not limited to, structural, operational, environmental, and civil disturbance factors.”

**§ 503. Research and technology development and deployment**

## (a) IN GENERAL.—The Secretary shall—

(1) carry out research, development, and deployment activities that encompass the entire innovation lifecycle; and

(2) ensure that all research carried out under this section aligns with the transportation research and development strategic plan of the Secretary under section 6503 of title 49.

## (b) HIGHWAY RESEARCH AND DEVELOPMENT PROGRAM.—

(1) OBJECTIVES.—In carrying out the highway research and development program, the Secretary, to address current and emerging highway transportation needs, shall—

(A) identify research topics;

(B) coordinate research and development activities;

(C) carry out research, testing, and evaluation activities;

(D) provide technology transfer and technical assistance;

(E) engage with public and private entities to spur advancement of emerging transformative innovations through accelerated market readiness; and

(F) consult frequently with public and private entities on new transportation technologies.

## (2) IMPROVING HIGHWAY SAFETY.—

(A) IN GENERAL.—The Secretary shall carry out research and development activities from an integrated perspective to establish and implement systematic measures to improve highway safety.

(B) OBJECTIVES.—In carrying out this paragraph, the Secretary shall carry out research and development activities—

(i) to achieve greater long-term safety gains;

- (ii) to reduce the number of fatalities and serious injuries on public roads;
- (iii) to fill knowledge gaps that limit the effectiveness of research;
- (iv) to support the development and implementation of State strategic highway safety plans;
- (v) to advance improvements in, and use of, performance prediction analysis for decisionmaking; and
- (vi) to expand technology transfer to partners and stakeholders.

(C) CONTENTS.—Research and technology activities carried out under this paragraph may include—

- (i) safety assessments and decision-making tools;
- (ii) data collection and analysis;
- (iii) crash reduction projections;
- (iv) low-cost safety countermeasures;
- (v) innovative operational improvements and designs of roadway and roadside features;
- (vi) evaluation of countermeasure costs and benefits;
- (vii) development of tools for projecting impacts of safety countermeasures;
- (viii) rural road safety measures;
- (ix) safety measures for vulnerable road users, including bicyclists and pedestrians;
- (x) safety measures to reduce the number of wildlife-vehicle collisions;
- (xi) safety policy studies;
- (xii) human factors studies and measures;
- (xiii) safety technology deployment;
- (xiv) safety workforce professional capacity building initiatives;
- (xv) safety program and process improvements; and
- (xvi) tools and methods to enhance safety performance, including achievement of statewide safety performance targets.

(3) IMPROVING INFRASTRUCTURE INTEGRITY.—

(A) IN GENERAL.—The Secretary shall carry out and facilitate highway and bridge infrastructure research and development activities—

- (i) to maintain infrastructure integrity;
- (ii) to meet user needs; and
- (iii) to link Federal transportation investments to improvements in system performance.

(B) OBJECTIVES.—In carrying out this paragraph, the Secretary shall carry out research and development activities—

- (i) to reduce the number of fatalities attributable to infrastructure design characteristics and work zones;
- (ii) to improve the safety and security of highway infrastructure;
- (iii) to increase the reliability of lifecycle performance predictions used in infrastructure design, construction, and management;
- (iv) to improve the ability of transportation agencies to deliver projects that meet expectations for timeliness, quality, and cost;
- (v) to reduce user delay attributable to infrastructure system performance, maintenance, rehabilitation, and construction;

- (vi) to improve highway condition and performance through increased use of design, materials, construction, and maintenance innovations;

- (vii) to reduce the environmental impacts of highway infrastructure through innovations in design, construction, operation, preservation, and maintenance; and

- (viii) to study vulnerabilities of the transportation system to seismic activities and extreme events, including weather, and methods to reduce those vulnerabilities.

(C) CONTENTS.—Research and technology activities carried out under this paragraph may include—

- (i) long-term infrastructure performance programs addressing pavements, bridges, tunnels, and other structures;
- (ii) short-term and accelerated studies of infrastructure performance;
- (iii) research to develop more durable infrastructure materials and systems;
- (iv) advanced infrastructure design methods;
- (v) accelerated highway and bridge construction;
- (vi) performance-based specifications;
- (vii) construction and materials quality assurance;
- (viii) comprehensive and integrated infrastructure asset management;
- (ix) infrastructure safety assurance;
- (x) sustainable infrastructure design and construction;
- (xi) infrastructure rehabilitation and preservation techniques, including techniques to rehabilitate and preserve historic infrastructure;
- (xii) hydraulic, geotechnical, and aerodynamic aspects of infrastructure;
- (xiii) improved highway construction technologies and practices;
- (xiv) improved tools, technologies, and models for infrastructure management, including assessment and monitoring of infrastructure condition;
- (xv) studies to improve flexibility and resiliency of infrastructure systems to withstand extreme weather events and climate variability;
- (xvi) studies on the effectiveness of fiber-based additives to improve the durability of surface transportation materials in various geographic regions;
- (xvii) studies of infrastructure resilience and other adaptation measures;
- (xviii) maintenance of seismic research activities, including research carried out in conjunction with other Federal agencies to study the vulnerability of the transportation system to seismic activity and methods to reduce that vulnerability;
- (xix) technology transfer and adoption of permeable, pervious, or porous paving materials, practices, and systems that are designed to minimize environmental impacts, stormwater runoff, and flooding and to treat or remove pollutants by allowing stormwater to infiltrate through the pavement in a manner similar to predevelopment hydrologic conditions; and

(xx) studies on the deployment and revenue potential of the deployment of energy and broadband infrastructure in highway rights-of-way, including potential adverse impacts of the use or nonuse of those rights-of-way.

(D) LIFECYCLE COSTS ANALYSIS STUDY.—

(i) IN GENERAL.—In this subparagraph, the term “lifecycle costs analysis” means a process for evaluating the total economic worth of a usable project segment by analyzing initial costs and discounted future costs, such as maintenance, user, reconstruction, rehabilitation, restoring, and resurfacing costs, over the life of the project segment.

(ii) STUDY.—The Comptroller General shall conduct a study of the best practices for calculating lifecycle costs and benefits for federally funded highway projects, which shall include, at a minimum, a thorough literature review and a survey of current lifecycle cost practices of State departments of transportation.

(iii) CONSULTATION.—In carrying out the study, the Comptroller shall consult with, at a minimum—

- (I) the American Association of State Highway and Transportation Officials;
- (II) appropriate experts in the field of lifecycle cost analysis; and
- (III) appropriate industry experts and research centers.

(E) REPORT.—Not later than 1 year after the date of enactment of the Transportation Research and Innovative Technology Act of 2012, the Comptroller General shall submit to the Committee on 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 the results of the study which shall include—

(i) a summary of the latest research on lifecycle cost analysis; and

(ii) recommendations on the appropriate—

- (I) period of analysis;
- (II) design period;
- (III) discount rates; and
- (IV) use of actual material life and maintenance cost data.

(4) STRENGTHENING TRANSPORTATION PLANNING AND ENVIRONMENTAL DECISIONMAKING.—

(A) IN GENERAL.—The Secretary may carry out research—

(i) to minimize the cost of transportation planning and environmental decisionmaking processes;

(ii) to improve transportation planning and environmental decisionmaking processes; and

(iii) to minimize the potential impact of surface transportation on the environment.

(B) OBJECTIVES.—In carrying out this paragraph the Secretary may carry out research and development activities—

(i) to minimize the cost of highway infrastructure and operations;

(ii) to reduce the potential impact of highway infrastructure and operations on the environment;

(iii) to advance improvements in environmental analyses and processes and context sensitive solutions for transportation decisionmaking;

(iv) to improve construction techniques;

(v) to accelerate construction to reduce congestion and related emissions;

(vi) to reduce the impact of highway runoff on the environment;

(vii) to improve understanding and modeling of the factors that contribute to the demand for transportation; and

(viii) to improve transportation planning decisionmaking and coordination.

(C) CONTENTS.—Research and technology activities carried out under this paragraph may include—

(i) creation of models and tools for evaluating transportation measures and transportation system designs, including the costs and benefits;

(ii) congestion reduction efforts;

(iii) transportation and economic development planning in rural areas and small communities;

(iv) improvement of State, local, and tribal government capabilities relating to surface transportation planning and the environment; and

(v) streamlining of project delivery processes.

(5) REDUCING CONGESTION, IMPROVING HIGHWAY OPERATIONS, AND ENHANCING FREIGHT PRODUCTIVITY.—

(A) IN GENERAL.—The Secretary shall carry out research under this paragraph with the goals of—

(i) addressing congestion problems;

(ii) reducing the costs of congestion;

(iii) improving freight movement;

(iv) increasing productivity; and

(v) improving the economic competitiveness of the United States.

(B) OBJECTIVES.—In carrying out this paragraph, the Secretary shall carry out research and development activities to identify, develop, and assess innovations that have the potential—

(i) to reduce traffic congestion;

(ii) to improve freight movement; and

(iii) to reduce freight-related congestion throughout the transportation network.

(C) CONTENTS.—Research and technology activities carried out under this paragraph may include—

(i) active traffic and demand management;

(ii) acceleration of the implementation of Intelligent Transportation Systems technology;

(iii) advanced transportation concepts and analysis;

(iv) arterial management and traffic signal operation;

(v) congestion pricing;

(vi) corridor management;

- (vii) emergency operations;
- (viii) research relating to enabling technologies and applications;
- (ix) freeway management;
- (x) evaluation of enabling technologies;
- (xi) impacts of vehicle size and weight on congestion;
- (xii) freight operations and technology;
- (xiii) operations and freight performance measurement and management;
- (xiv) organization and planning for operations;
- (xv) planned special events management;
- (xvi) real-time transportation information;
- (xvii) road weather management;
- (xviii) traffic and freight data and analysis tools;
- (xix) traffic control devices;
- (xx) traffic incident management;
- (xxi) work zone management;
- (xxii) communication of travel, roadway, and emergency information to persons with disabilities;
- (xxiii) research on enhanced mode choice and intermodal connectivity;
- (xxiv) techniques for estimating and quantifying public benefits derived from freight transportation projects; and
- (xxv) other research areas to identify and address emerging needs related to freight transportation by all modes.

(6) EXPLORATORY ADVANCED RESEARCH.—The Secretary shall carry out research and development activities relating to exploratory advanced research—

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

(B) to develop potentially transformational solutions to improve the durability, efficiency, environmental impact, productivity, and safety aspects of highway and intermodal transportation systems; and

(C) to support research on non-market-ready technologies in consultation with public and private entities.

(7) TURNER-FAIRBANK HIGHWAY RESEARCH CENTER.—

(A) IN GENERAL.—The Secretary shall continue to operate in the Federal Highway Administration a Turner-Fairbank Highway Research Center.

(B) USES OF THE CENTER.—The Turner-Fairbank Highway Research Center shall support innovations by leading—

(i) the conduct of highway research and development relating to emerging highway technology;

(ii) the development of understandings, tools, and techniques that provide solutions to complex technical problems through the development of economical and environmentally sensitive designs, efficient and quality-controlled construction practices, and durable materials;

(iii) the development of innovative highway products and practices;

(iv) the conduct of long-term, high-risk research to improve the materials used in highway infrastructure; and

(v) the evaluation of information from accelerated market readiness efforts, including non-market-ready technologies, in consultation with other offices of the Federal Highway Administration, the National Highway Traffic Safety Administration, and other key partners.

(8) INFRASTRUCTURE INVESTMENT NEEDS REPORT.—

(A) IN GENERAL.—Not later than July 31, 2013, and July 31 of every second year thereafter, the Secretary shall submit to the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Environment and Public Works of the Senate a report that describes estimates of the current conditions and future needs of highways, bridges, and tunnels of the United States, including—

- (i) the conditions and performance of the highway network for freight movement;
- (ii) intelligent transportation systems;
- (iii) resilience needs; and
- (iv) the backlog of current highway, bridge, and tunnel needs.

(B) COMPARISONS.—Each report under subparagraph (A) shall include all information necessary to relate and compare the conditions and service measures used in the previous biennial reports to conditions and service measures used in the current report.

(C) INCLUSIONS.—Each report under subparagraph (A) shall provide recommendations to Congress on changes to the highway performance monitoring system that address—

(i) improvements to the quality and standardization of data collection on all functional classifications of Federal-aid highways for accurate system length, lane length, and vehicle-mile of travel; and

(ii) changes to the reporting requirements authorized under section 315, to reflect recommendations under this paragraph for collection, storage, analysis, reporting, and display of data for Federal-aid highways and, to the maximum extent practical, all public roads.

(9) ANALYSIS TOOLS.—The Secretary may develop interactive modeling tools and databases that—

(A) track the full condition of highway assets, including interchanges, and the reconstruction history of those assets;

(B) can be used to assess transportation options;

(C) allow for the monitoring and modeling of network-level traffic flows on highways; and

(D) further Federal and State understanding of the importance of national and regional connectivity and the need for long-distance and interregional passenger and freight travel by highway and other surface transportation modes.

(c) TECHNOLOGY AND INNOVATION DEPLOYMENT PROGRAM.—

(1) IN GENERAL.—The Secretary shall carry out a technology and innovation deployment

program relating to all aspects of highway transportation, including planning, financing, operation, structures, use of rights-of-way permissible under applicable law, materials, pavements, environment, construction, and the duration of time between project planning and project delivery, with the goals of—

(A) significantly accelerating the adoption of innovative technologies by the surface transportation community;

(B) providing leadership and incentives to demonstrate and promote state-of-the-art technologies, elevated performance standards, and new business practices in highway construction processes that result in improved safety, faster construction, reduced congestion from construction, and improved quality and user satisfaction;

(C) constructing longer-lasting highways through the use of innovative technologies and practices that lead to faster construction of efficient and safe highways and bridges;

(D) improving highway efficiency, safety, mobility, reliability, service life, environmental protection, and sustainability;

(E) developing and deploying new tools, techniques, and practices to accelerate the adoption of innovation in all aspects of highway transportation; and

(F) disseminating and evaluating information from accelerated market readiness efforts, including non-market-ready technologies, to public and private entities.

(2) IMPLEMENTATION.—

(A) IN GENERAL.—The Secretary shall promote, facilitate, and carry out the program established under paragraph (1) to distribute the products, technologies, tools, methods, or other findings that result from highway research and development activities, including research and development activities carried out under this chapter.

(B) ACCELERATED INNOVATION DEPLOYMENT.—In carrying out the program established under paragraph (1), the Secretary shall—

(i) establish and carry out demonstration programs;

(ii) provide technical assistance, and training to researchers and developers; and

(iii) develop and deploy improved tools and methods to accelerate the adoption of early-stage and proven innovative practices and technologies and, as the Secretary determines to be appropriate, support continued implementation of proven innovative practices and technologies as standard practices.

(C) IMPLEMENTATION OF FUTURE STRATEGIC HIGHWAY RESEARCH PROGRAM FINDINGS AND RESULTS.—

(i) IN GENERAL.—The Secretary, in consultation with the American Association of State Highway and Transportation Officials and the Transportation Research Board of the National Academy of Sciences, shall promote research results and products developed under the future strategic highway research program ad-

ministered by the Transportation Research Board of the National Academy of Sciences.

(ii) BASIS FOR FINDINGS.—The activities carried out under this subparagraph shall be based on the report submitted to Congress by the Transportation Research Board of the National Academy of Sciences under section 510(e).

(iii) PERSONNEL.—The Secretary may use funds made available to carry out this subsection for administrative costs under this subparagraph.

(D) REPORT.—Not later than 2 years after the date of enactment of this subparagraph and every 2 years thereafter, the Secretary shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives and make publicly available on an internet website a report that describes—

(i) the activities the Secretary has undertaken to carry out the program established under paragraph (1); and

(ii) how and to what extent the Secretary has worked to disseminate non-market-ready technologies to public and private entities.

(3) ACCELERATED IMPLEMENTATION AND DEPLOYMENT OF PAVEMENT TECHNOLOGIES.—

(A) IN GENERAL.—The Secretary shall establish and implement a program under the technology and innovation deployment program to promote, implement, deploy, demonstrate, showcase, support, and document the application of innovative pavement technologies, practices, performance, and benefits.

(B) GOALS.—The goals of the accelerated implementation and deployment of pavement technologies program shall include—

(i) the deployment of new, cost-effective designs, materials, recycled materials, and practices to extend the pavement life and performance and to improve user satisfaction;

(ii) the reduction of initial costs and lifecycle costs of pavements, including the costs of new construction, replacement, maintenance, and rehabilitation;

(iii) the deployment of accelerated construction techniques to increase safety and reduce construction time and traffic disruption and congestion;

(iv) the deployment of engineering design criteria and specifications for new and efficient practices, products, and materials for use in highway pavements;

(v) the deployment of new non-destructive and real-time pavement evaluation technologies and construction techniques; and

(vi) effective technology transfer and information dissemination to accelerate implementation of new technologies and to improve life, performance, cost effectiveness, safety, and user satisfaction.

(C) HIGH-FRICTION SURFACE TREATMENT APPLICATION STUDY.—

(i) DEFINITION OF INSTITUTION.—In this subparagraph, the term “institution” means a private sector entity, public agency, research university or other research institution, or organization representing transportation and technology leaders or other transportation stakeholders that, as determined by the Secretary, is capable of working with State highway agencies, the Federal Highway Administration, and the highway construction industry to develop and evaluate new products, design technologies, and construction methods that quickly lead to pavement improvements.

(ii) STUDY.—The Secretary shall seek to enter into an agreement with an institution to carry out a study on the use of natural and synthetic calcined bauxite as a high-friction surface treatment application on pavement.

(iii) REPORT.—Not later than 18 months after the date of enactment of the Surface Transportation Reauthorization Act of 2021, the Secretary shall submit a report on the results of the study under clause (ii) to—

- (I) the Committee on Environment and Public Works of the Senate;
- (II) the Committee on Transportation and Infrastructure of the House of Representatives;
- (III) the Federal Highway Administration; and
- (IV) the American Association of State Highway and Transportation Officials.

(D) FUNDING.—The Secretary shall obligate for each of fiscal years 2022 through 2026 from funds made available to carry out this subsection \$12,000,000 to accelerate the deployment and implementation of pavement technology.

(E) PUBLICATION.—

(i) IN GENERAL.—Not less frequently than once every 3 years, the Secretary shall issue and make available to the public on an Internet website a report on the cost and benefits from deployment of new technology and innovations that substantially and directly resulted from the program established under this paragraph.

(ii) INCLUSIONS.—The report under clause (i) may include an analysis of—

- (I) Federal, State, and local cost savings;
- (II) project delivery time improvements;
- (III) reduced fatalities;
- (IV) congestion impacts;
- (V) pavement monitoring and data collection practices;
- (VI) pavement durability and resilience;
- (VII) stormwater management;
- (VIII) impacts on vehicle efficiency;
- (IX) the energy efficiency of the production of paving materials and the ability of paving materials to enhance the environment and promote sustainability; and
- (X) integration of renewable energy in pavement designs.

(4) ADVANCED TRANSPORTATION TECHNOLOGIES AND INNOVATIVE MOBILITY DEPLOYMENT.—

(A) IN GENERAL.—The Secretary shall provide grants to eligible entities to deploy, install, and operate advanced transportation technologies to improve safety, mobility, efficiency, system performance, intermodal connectivity, and infrastructure return on investment.

(B) CRITERIA.—The Secretary shall develop criteria for selection of an eligible entity to receive a grant under this paragraph, including how the deployment of technology will—

- (i) improve the mobility of people and goods;
- (ii) improve the durability and extend the life of transportation infrastructure;
- (iii) reduce costs and improve return on investments, including through optimization of existing transportation capacity;
- (iv) protect the environment and deliver environmental benefits that alleviate congestion and streamline traffic flow;
- (v) measure and improve the operational performance of the applicable transportation network;
- (vi) reduce the number and severity of traffic crashes and increase driver, passenger, and pedestrian safety;
- (vii) collect, disseminate, and use real-time traffic, work zone, weather, transit, paratransit, parking, and other transportation-related information to improve mobility, reduce congestion, and provide for more efficient, accessible, and integrated transportation and transportation services;
- (viii) facilitate account-based payments for transportation access and services and integrate payment systems across modes;
- (ix) monitor transportation assets to improve infrastructure management, reduce maintenance costs, prioritize investment decisions, and ensure a state of good repair;
- (x) deliver economic benefits by reducing delays, improving system performance, and providing for the efficient and reliable movement of goods and services;
- (xi) accelerate the deployment of vehicle-to-vehicle, vehicle-to-infrastructure, vehicle-to-pedestrian, autonomous vehicles, and other technologies; or
- (xii) incentivize travelers—
  - (I) to share trips during periods in which travel demand exceeds system capacity; or
  - (II) to shift trips to periods in which travel demand does not exceed system capacity.

(C) APPLICATIONS.—

- (i) REQUEST.—Each fiscal year for which funding is made available for activities under this paragraph, the Secretary shall request applications in accordance with clause (ii).
- (ii) CONTENTS.—An application submitted under this subparagraph shall include the following:
  - (I) PLAN.—A plan to deploy and provide for the long-term operation and mainte-

nance of advanced transportation and congestion management technologies to improve safety, mobility, efficiency, system performance, and return on investment.

(II) OBJECTIVES.—Quantifiable system performance improvements, such as—

- (aa) reducing traffic-related crashes, congestion, and costs;
- (bb) optimizing system efficiency;
- (cc) improving access to transportation services; and
- (dd) facilitating payment for transportation services.

(III) RESULTS.—Quantifiable safety, mobility, and environmental benefit projections such as data-driven estimates of how the project will improve the region's transportation system efficiency and reduce traffic congestion.

(IV) PARTNERSHIPS.—A plan for partnering with the private sector or public agencies, including multimodal and multijurisdictional entities, research institutions, organizations representing transportation and technology leaders, or other transportation stakeholders.

(V) LEVERAGING.—A plan to leverage and optimize existing local and regional advanced transportation technology investments.

(D) GRANT SELECTION.—

(i) GRANT AWARDS.—Each fiscal year for which funding is made available for activities under this paragraph, the Secretary shall award grants to not less than 5 and not more than 10 eligible entities.

(ii) GEOGRAPHIC DIVERSITY.—

(I) IN GENERAL.—Subject to subclause (II), in awarding a grant under this paragraph, the Secretary shall ensure, to the extent practicable, that grant recipients represent diverse geographic areas of the United States, including urban and rural areas.

(II) RURAL SET-ASIDE.—Not less than 20 percent of the amounts made available to carry out this paragraph shall be reserved for projects serving rural areas.

(iii) TECHNOLOGY DIVERSITY.—In awarding a grant under this paragraph, the Secretary shall ensure, to the extent practicable, that grant recipients represent diverse technology solutions.

(E) USE OF GRANT FUNDS.—A grant recipient may use funds awarded under this paragraph to deploy advanced transportation and congestion management technologies, including—

- (i) advanced traveler information systems;
- (ii) advanced transportation management technologies;
- (iii) advanced transportation technologies to improve emergency evacuation and response by Federal, State, and local authorities;
- (iv) infrastructure maintenance, monitoring, and condition assessment;

(v) advanced public transportation systems;

(vi) transportation system performance data collection, analysis, and dissemination systems;

(vii) advanced safety systems, including vehicle-to-vehicle and vehicle-to-infrastructure communications, technologies associated with autonomous vehicles, and other collision avoidance technologies, including systems using cellular technology;

(viii) integration of intelligent transportation systems with the Smart Grid and other energy distribution and charging systems;

(ix) integrated corridor management systems;

(x) advanced parking reservation or variable pricing systems;

(xi) electronic pricing, toll collection, and payment systems;

(xii) technology that enhances high occupancy vehicle toll lanes, cordon pricing, or congestion pricing;

(xiii) integration of transportation service payment systems;

(xiv) advanced mobility, access, and on-demand transportation service technologies, such as dynamic ridesharing and other shared-use mobility applications and information systems to support human services for elderly and disabled individuals;

(xv) retrofitting dedicated short-range communications (DSRC) technology deployed as part of an existing pilot program to cellular vehicle-to-everything (C-V2X) technology, subject to the condition that the retrofitted technology operates only within the existing spectrum allocations for connected vehicle systems; or

(xvi) advanced transportation technologies, in accordance with the research areas described in section 6503 of title 49.

(F) REPORT TO SECRETARY.—For each eligible entity that receives a grant under this paragraph, not later than 1 year after the entity receives the grant, and each year thereafter, the entity shall submit a report to the Secretary that describes—

(i) deployment and operational costs of the project compared to the benefits and savings the project provides; and

(ii) how the project has met the original expectations projected in the deployment plan submitted with the application, such as—

(I) data on how the project has helped reduce traffic crashes, congestion, costs, and other benefits of the deployed systems;

(II) data on the effect of measuring and improving transportation system performance through the deployment of advanced technologies;

(III) the effectiveness of providing real-time integrated traffic, transit, and multimodal transportation information to the public to make informed travel decisions; and

(IV) lessons learned and recommendations for future deployment strategies to

optimize transportation mobility, efficiency, multimodal system performance, and payment system performance.

(G) REPORT.—Not later than 3 years after the date that the first grant is awarded under this paragraph, and each year thereafter, the Secretary shall make available to the public on an Internet website a report that describes the effectiveness of grant recipients in meeting their projected deployment plans, including data provided under subparagraph (F) on how the program has—

- (i) reduced traffic-related fatalities and injuries;
- (ii) reduced traffic congestion and improved travel time reliability;
- (iii) reduced transportation-related emissions;
- (iv) optimized multimodal system performance;
- (v) improved access to transportation alternatives;
- (vi) improved integration of payment systems;
- (vii) provided the public with access to real-time integrated traffic, transit, and multimodal transportation information to make informed travel decisions;
- (viii) provided cost savings to transportation agencies, businesses, and the traveling public; or
- (ix) provided other benefits to transportation users and the general public.

(H) ADDITIONAL GRANTS.—The Secretary may cease to provide additional grant funds to a recipient of a grant under this paragraph if—

- (i) the Secretary determines from such recipient's report that the recipient is not carrying out the requirements of the grant; and
- (ii) the Secretary provides written notice 60 days prior to withholding funds to the Committees on Transportation and Infrastructure and Science, Space, and Technology of the House of Representatives and the Committees on Environment and Public Works and Commerce, Science, and Transportation of the Senate.

(I) FUNDING.—

(i) IN GENERAL.—From funds made available to carry out subsection (b), this subsection, and sections 512 through 518, the Secretary shall set aside for grants awarded under subparagraph (D) \$60,000,000 for each of fiscal years 2022 through 2026.

(ii) EXPENSES FOR THE SECRETARY.—Of the amounts set aside under clause (i), the Secretary may set aside \$2,000,000 each fiscal year for program reporting, evaluation, and administrative costs related to this paragraph.

(J) FEDERAL SHARE.—The Federal share of the cost of a project for which a grant is awarded under this subsection shall not exceed 80 percent of the cost of the project.

(K) GRANT LIMITATION.—The Secretary may not award more than 20 percent of the amount described under subparagraph (I) in a fiscal year to a single grant recipient.

(L) EXPENSES FOR GRANT RECIPIENTS.—A grant recipient under this paragraph may use not more than 5 percent of the funds awarded each fiscal year to carry out planning and reporting requirements.

(M) GRANT FLEXIBILITY.—

(i) IN GENERAL.—If, by August 1 of each fiscal year, the Secretary determines that there are not enough grant applications that meet the requirements described in subparagraph (C) to carry out this section for a fiscal year, the Secretary shall transfer to the programs specified in clause (ii)—

(I) any of the funds reserved for the fiscal year under subparagraph (I) that the Secretary has not yet awarded under this paragraph; and

(II) an amount of obligation limitation equal to the amount of funds that the Secretary transfers under subclause (I).

(ii) PROGRAMS.—The programs referred to in clause (i) are—

(I) the program under subsection (b);

(II) the program under this subsection; and

(III) the programs under sections 512 through 518.

(iii) DISTRIBUTION.—Any transfer of funds and obligation limitation under clause (i) shall be divided among the programs referred to in that clause in the same proportions as the Secretary originally reserved funding from the programs for the fiscal year under subparagraph (I).

(N) DEFINITIONS.—In this paragraph:

(i) ELIGIBLE ENTITY.—The term “eligible entity” means a State or local government, a transit agency, metropolitan planning organization, or other political subdivision of a State or local government or a multijurisdictional group or a consortia of research institutions or academic institutions.

(ii) ADVANCED AND CONGESTION MANAGEMENT TRANSPORTATION TECHNOLOGIES.—The term “advanced transportation and congestion management technologies” means technologies that improve the efficiency, safety, or state of good repair of surface transportation systems, including intelligent transportation systems.

(iii) MULTIJURISDICTIONAL GROUP.—The term “multijurisdictional group” means any combination of State governments, local governments, metropolitan planning agencies, transit agencies, or other political subdivisions of a State for which each member of the group—

(I) has signed a written agreement to implement the advanced transportation technologies deployment initiative across jurisdictional boundaries; and

(II) is an eligible entity under this paragraph.

(5) ACCELERATED IMPLEMENTATION AND DEPLOYMENT OF ADVANCED DIGITAL CONSTRUCTION MANAGEMENT SYSTEMS.—

(A) IN GENERAL.—The Secretary shall establish and implement a program under the

technology and innovation deployment program established under paragraph (1) to promote, implement, deploy, demonstrate, showcase, support, and document the application of advanced digital construction management systems, practices, performance, and benefits.

(B) GOALS.—The goals of the accelerated implementation and deployment of advanced digital construction management systems program established under subparagraph (A) shall include—

(i) accelerated State adoption of advanced digital construction management systems applied throughout the construction lifecycle (including through the design and engineering, construction, and operations phases) that—

- (I) maximize interoperability with other systems, products, tools, or applications;
- (II) boost productivity;
- (III) manage complexity;
- (IV) reduce project delays and cost overruns; and
- (V) enhance safety and quality;

(ii) more timely and productive information-sharing among stakeholders through reduced reliance on paper to manage construction processes and deliverables such as blueprints, design drawings, procurement and supply-chain orders, equipment logs, daily progress reports, and punch lists;

(iii) deployment of digital management systems that enable and leverage the use of digital technologies on construction sites by contractors, such as state-of-the-art automated and connected machinery and optimized routing software that allows construction workers to perform tasks faster, safer, more accurately, and with minimal supervision;

(iv) the development and deployment of best practices for use in digital construction management;

(v) increased technology adoption and deployment by States and units of local government that enables project sponsors—

- (I) to integrate the adoption of digital management systems and technologies in contracts; and

- (II) to weigh the cost of digitization and technology in setting project budgets;

(vi) technology training and workforce development to build the capabilities of project managers and sponsors that enables States and units of local government—

- (I) to better manage projects using advanced construction management technologies; and

- (II) to properly measure and reward technology adoption across projects of the State or unit of local government;

(vii) development of guidance to assist States in updating regulations of the State to allow project sponsors and contractors—

(I) to report data relating to the project in digital formats; and

(II) to fully capture the efficiencies and benefits of advanced digital construction management systems and related technologies;

(viii) reduction in the environmental footprint of construction projects using advanced digital construction management systems resulting from elimination of congestion through more efficient projects; and

(ix) enhanced worker and pedestrian safety resulting from increased transparency.

(C) FUNDING.—For each of fiscal years 2022 through 2026, the Secretary shall obligate from funds made available to carry out this subsection \$20,000,000 to accelerate the deployment and implementation of advanced digital construction management systems.

(D) PUBLICATION.—

(i) IN GENERAL.—Not less frequently than annually, the Secretary shall issue and make available to the public on a website a report on—

(I) progress made in the implementation of advanced digital management systems by States; and

(II) the costs and benefits of the deployment of new technology and innovations that substantially and directly resulted from the program established under this paragraph.

(ii) INCLUSIONS.—The report under clause

(i) may include an analysis of—

(I) Federal, State, and local cost savings;

(II) project delivery time improvements;

(III) congestion impacts; and

(IV) safety improvements for roadway users and construction workers.

(6) CENTER OF EXCELLENCE.—

(A) DEFINITIONS.—In this paragraph:

(i) HIGHLY AUTOMATED VEHICLE.—The term “highly automated vehicle” means a motor vehicle that—

(I) has a taxable gross weight (as defined in section 41.4482(b)-1 of title 26, Code of Federal Regulations (or successor regulations)) of 10,000 pounds or less; and

(II) is equipped with a Level 3, Level 4, or Level 5 automated driving system (as defined in the SAE International Recommended Practice numbered J3016 and dated June 15, 2018 (or a subsequent standard adopted by the Secretary)).

(ii) NEW MOBILITY.—The term “new mobility” includes shared services such as—

(I) docked and dockless bicycles;

(II) docked and dockless electric scooters; and

(III) transportation network companies.

(B) ESTABLISHMENT.—Not later than 1 year after the date of enactment of the Surface

Transportation Reauthorization Act of 2021, the Secretary shall establish a Center of Excellence to collect, conduct, and fund research on the impacts of new mobility and highly automated vehicles on land use, urban design, transportation, real estate, equity, and municipal budgets.

(C) REPORT.—Not later than 1 year after the date on which the Center of Excellence is established, the Secretary shall submit a report that describes the results of the research regarding the impacts of new mobility and highly automated vehicles to the Committees on Environment and Public Works and Commerce, Science, and Transportation of the Senate and the Committees on Transportation and Infrastructure and Energy and Commerce of the House of Representatives.

(D) PARTNERSHIPS.—In establishing the Center of Excellence under subparagraph (B), the Secretary shall enter into appropriate partnerships with any institution of higher education (as defined in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001)) or public or private research entity.

(Added Pub. L. 105-178, title V, §5103, June 9, 1998, 112 Stat. 427; amended Pub. L. 109-59, title V, §§5202(b)(1), (2), 5203(a), (b)(1), (c)(1), (d), Aug. 10, 2005, 119 Stat. 1786-1789; Pub. L. 112-141, div. E, title II, §52003(a), July 6, 2012, 126 Stat. 872; Pub. L. 114-94, div. A, title VI, §§6003, 6004, Dec. 4, 2015, 129 Stat. 1562; Pub. L. 117-58, div. A, title III, §13006(a)-(c), Nov. 15, 2021, 135 Stat. 630-637.)

#### Editorial Notes

#### REFERENCES IN TEXT

The date of enactment of the Transportation Research and Innovative Technology Act of 2012, referred to in subsec. (b)(3)(E), is the date of enactment of div. E of Pub. L. 112-141, which was approved July 6, 2012.

The date of enactment of this subparagraph and the date of enactment of the Surface Transportation Reauthorization Act of 2021, referred to in subsec. (c)(2)(D), (3)(C)(iii), (6)(B), are the date of enactment of div. A of Pub. L. 117-58, which was approved Nov. 15, 2021.

#### PRIOR PROVISIONS

A prior section 503, added Pub. L. 90-495, §30, Aug. 23, 1968, 82 Stat. 831, related to administration of highway relocation assistance program, prior to repeal by Pub. L. 91-646, title II, §220(a)(10), Jan. 2, 1971, 84 Stat. 1903.

#### AMENDMENTS

2021—Subsec. (a)(2). Pub. L. 117-58, §13006(a)(1), substituted “section 6503 of title 49” for “section 508”.

Subsec. (b)(1)(E), (F). Pub. L. 117-58, §13006(a)(2)(A), added subpars. (E) and (F).

Subsec. (b)(2)(C)(x) to (xvi). Pub. L. 117-58, §13006(a)(2)(B), added cl. (x) and redesignated former cl. (x) to (xv) as (xi) to (xvi), respectively.

Subsec. (b)(3)(B)(viii). Pub. L. 117-58, §13006(a)(2)(C)(i), inserted “, including weather,” after “events”.

Subsec. (b)(3)(C)(xv). Pub. L. 117-58, §13006(a)(2)(C)(ii)(I), inserted “extreme weather events and” after “withstand”.

Subsec. (b)(3)(C)(xx). Pub. L. 117-58, §13006(a)(2)(C)(ii)(II)-(IV), added cl. (xx).

Subsec. (b)(6)(C). Pub. L. 117-58, §13006(a)(2)(D), added subpar. (C).

Subsec. (b)(7)(B). Pub. L. 117-58, §13006(a)(2)(E)(i), inserted “innovations by leading” after “support” in introductory provisions.

Subsec. (b)(7)(B)(v). Pub. L. 117-58, §13006(a)(2)(E)(ii)-(iv), added cl. (v).

Subsec. (b)(8)(A). Pub. L. 117-58, §13006(a)(2)(F), substituted “current conditions and future needs of highways, bridges, and tunnels of the United States, including—” and cl. (i) to (iv) for “future highway and bridge needs of the United States and the backlog of current highway and bridge needs.”

Subsec. (b)(9). Pub. L. 117-58, §13006(a)(2)(G), added par. (9).

Subsec. (c)(1). Pub. L. 117-58, §13006(a)(3)(A)(i), inserted “use of rights-of-way permissible under applicable law,” after “structures,” in introductory provisions.

Subsec. (c)(1)(F). Pub. L. 117-58, §13006(a)(3)(A)(ii)-(iv), added subpar. (F).

Subsec. (c)(2)(B)(iii). Pub. L. 117-58, §13006(a)(3)(B)(i), substituted “and deploy improved tools and methods to accelerate the adoption of early-stage and proven innovative practices and technologies and, as the Secretary determines to be appropriate, support continued implementation” for “improved tools and methods to accelerate the adoption”.

Subsec. (c)(2)(D). Pub. L. 117-58, §13006(a)(3)(B)(ii), added subpar. (D).

Subsec. (c)(3)(C). Pub. L. 117-58, §13006(a)(3)(C)(ii), added subpar. (C). Former subpar. (C) redesignated (D).

Subsec. (c)(3)(D). Pub. L. 117-58, §13006(a)(3)(C)(i), (iii), redesignated subpar. (C) as (D) and substituted “fiscal years 2022 through 2026” for “fiscal years 2016 through 2020”. Former subpar. (D) redesignated (E).

Subsec. (c)(3)(E). Pub. L. 117-58, §13006(a)(3)(C)(i), redesignated subpar. (D) as (E).

Subsec. (c)(3)(E)(i). Pub. L. 117-58, §13006(a)(3)(C)(iv)(I), substituted “once every 3 years” for “annually”.

Subsec. (c)(3)(E)(ii)(V) to (X). Pub. L. 117-58, §13006(a)(3)(C)(iv)(II), added subcls. (V) to (X).

Subsec. (c)(4). Pub. L. 117-58, §13006(b)(1), inserted “and innovative mobility” before “deployment” in heading.

Subsec. (c)(4)(A). Pub. L. 117-58, §13006(b)(2), added subpar. (A) and struck out former subpar. (A). Prior to amendment, text read as follows: “Not later than 6 months after the date of enactment of this paragraph, the Secretary shall establish an advanced transportation and congestion management technologies deployment initiative to provide grants to eligible entities to develop model deployment sites for large scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and infrastructure return on investment.”

Subsec. (c)(4)(B)(i). Pub. L. 117-58, §13006(b)(3)(D), added cl. (i). Former cl. (i) redesignated (iii).

Pub. L. 117-58, §13006(b)(3)(A), substituted “optimization” for “the enhanced use”.

Subsec. (c)(4)(B)(ii). Pub. L. 117-58, §13006(b)(3)(D), added cl. (ii). Former cl. (ii) redesignated (iv).

Subsec. (c)(4)(B)(iii). Pub. L. 117-58, §13006(b)(3)(C), redesignated cl. (i) as (iii). Former cl. (iii) redesignated (v).

Subsec. (c)(4)(B)(iv). Pub. L. 117-58, §13006(b)(3)(C), (E), redesignated cl. (ii) as (iv) and substituted “protect the environment and deliver” for “deliver”. Former cl. (iv) redesignated (vi).

Subsec. (c)(4)(B)(v). Pub. L. 117-58, §13006(b)(3)(C), redesignated cl. (iii) as (v). Former cl. (v) redesignated (vii).

Pub. L. 117-58, §13006(b)(3)(B), substituted “work zone, weather, transit, paratransit,” for “transit,” and “, accessible, and integrated transportation and transportation services” for “and accessible transportation”.

Subsec. (c)(4)(B)(vi), (vii). Pub. L. 117-58, §13006(b)(3)(C), redesignated cl. (iv) and (v) as (vi) and (vii), respectively. Former cl. (vii) redesignated (x).

Subsec. (c)(4)(B)(viii). Pub. L. 117-58, §13006(b)(3)(F), added cl. (viii).

Subsec. (c)(4)(B)(ix). Pub. L. 117-58, §13006(b)(3)(C), redesignated cl. (vi) as (ix).

Subsec. (c)(4)(B)(x). Pub. L. 117-58, §13006(b)(3)(C), (G), redesignated cl. (vii) as (x) and struck out “or” at end.

Subsec. (c)(4)(B)(xi). Pub. L. 117-58, §13006(b)(3)(C), (H), redesignated cl. (viii) as (xi), inserted “vehicle-to-pedestrian,” after “vehicle-to-infrastructure,”, and substituted “; or” for period at end.

Subsec. (c)(4)(B)(xii). Pub. L. 117-58, §13006(b)(3)(I), added cl. (xii).

Subsec. (c)(4)(C)(i). Pub. L. 117-58, §13006(b)(4)(A), substituted “Each fiscal year for which funding is made available for activities under this paragraph” for “Not later than 6 months after the date of enactment of this paragraph, and for every fiscal year thereafter”.

Subsec. (c)(4)(C)(ii)(I). Pub. L. 117-58, §13006(b)(4)(B)(i), inserted “mobility,” after “safety.”.

Subsec. (c)(4)(C)(ii)(II)(dd). Pub. L. 117-58, §13006(b)(4)(B)(ii), added item (dd).

Subsec. (c)(4)(D)(i). Pub. L. 117-58, §13006(b)(5)(A), substituted “Each fiscal year for which funding is made available for activities under this paragraph” for “Not later than 1 year after the date of enactment of this paragraph, and for every fiscal year thereafter”.

Subsec. (c)(4)(D)(ii). Pub. L. 117-58, §13006(b)(5)(B), designated existing provisions as subcl. (I), inserted heading, substituted “Subject to subclause (II), in awarding” for “In awarding”, and added subcl. (II).

Subsec. (c)(4)(E)(iii) to (x). Pub. L. 117-58, §13006(b)(6)(A)-(C), added clss. (iii), (ix), and (x) and redesignated former clss. (iii) to (vii) as (iv) to (viii), respectively. Former clss. (viii) and (ix) redesignated (xi) and (xiv), respectively.

Subsec. (c)(4)(E)(xi). Pub. L. 117-58, §13006(b)(6)(A), (D), redesignated cl. (viii) as (xi), inserted “, toll collection,” after “pricing”, and struck out “or” at end.

Subsec. (c)(4)(E)(xii), (xiii). Pub. L. 117-58, §13006(b)(6)(E), added clss. (xii) and (xiii).

Subsec. (c)(4)(E)(xiv). Pub. L. 117-58, §13006(b)(6)(A), (F), redesignated cl. (ix) as (xiv), substituted “, access, and on-demand transportation service” for “and access”, inserted “and other shared-use mobility applications” after “ridesharing”, and substituted semicolon for period at end.

Subsec. (c)(4)(E)(xv), (xvi). Pub. L. 117-58, §13006(b)(6)(G), added clss. (xv) and (xvi).

Subsec. (c)(4)(F)(ii)(IV). Pub. L. 117-58, §13006(b)(7), substituted “mobility, efficiency, multimodal system performance, and payment system performance” for “efficiency and multimodal system performance”.

Subsec. (c)(4)(G)(vi) to (ix). Pub. L. 117-58, §13006(b)(8), added cl. (vi) and redesignated former clss. (vi) to (viii) as (vii) to (ix), respectively.

Subsec. (c)(4)(I)(i). Pub. L. 117-58, §13006(b)(9), substituted “fiscal years 2022 through 2026” for “fiscal years 2016 through 2020”.

Subsec. (c)(4)(J). Pub. L. 117-58, §13006(b)(10), substituted ‘80” for ‘50”.

Subsec. (c)(4)(N). Pub. L. 117-58, §13006(b)(11)(A), struck out “, the following definitions apply” after “In this paragraph” in introductory provisions.

Subsec. (c)(4)(N)(i). Pub. L. 117-58, §13006(b)(11)(B), struck out “representing a population of over 200,000, after “metropolitan planning organization”.

Subsec. (c)(4)(N)(iii). Pub. L. 117-58, §13006(b)(11)(C), substituted “any” for “a any” in introductory provisions.

Subsec. (c)(5). Pub. L. 117-58, §13006(a)(3)(D), added par. (5).

Subsec. (c)(6). Pub. L. 117-58, §13006(c), added par. (6). 2015—Subsec. (c)(3)(C). Pub. L. 114-94, §6003(1), substituted ‘2016 through 2020’ for ‘2013 through 2014’.

Subsec. (c)(3)(D). Pub. L. 114-94, §6003(2), added subpar. (D).

Subsec. (c)(4). Pub. L. 114-94, §6004, added par. (4).

2012—Pub. L. 112-141 amended section generally. Prior to amendment, section related to technology deployment.

2005—Subsec. (a). Pub. L. 109-59, §5203(a)(1), struck out “INITIATIVES AND PARTNERSHIPS” before “PROGRAM” in heading.

Subsec. (a)(1). Pub. L. 109-59, §5203(a)(2), added par. (1) and struck out heading and text of former par. (1). Text

read as follows: “The Secretary shall develop and administer a national technology deployment initiatives and partnerships program.”

Subsec. (a)(7). Pub. L. 109-59, §5203(a)(3), added par. (7) and struck out heading and text of former par. (7). Text read as follows: “Under the program, the Secretary may make grants and enter into cooperative agreements and contracts to foster alliances and support efforts to stimulate advances in transportation technology, including—

“(A) the testing and evaluation of products of the strategic highway research program;

“(B) the further development and implementation of technology in areas such as the Superpave system and the use of lithium salts and other alternatives to prevent and mitigate alkali silica reactivity;

“(C) the provision of support for long-term pavement performance product implementation and technology access; and

“(D) other activities to achieve the goals established under paragraph (3).”

Subsec. (a)(8). Pub. L. 109-59, §5203(a)(4), added par. (8) and struck out heading and text of former par. (8). Text read as follows: “Not later than 18 months after the date of enactment of this section, and biennially thereafter, the Secretary shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report on the progress and results of activities carried out under this section.”

Subsec. (b)(1). Pub. L. 109-59, §5202(b)(1), reenacted heading without change and amended text of par. (1) generally. Prior to amendment, text read as follows: “The Secretary shall establish and carry out a program to demonstrate the application of innovative material technology in the construction of bridges and other structures.”

Subsec. (b)(2). Pub. L. 109-59, §5202(b)(2), reenacted heading without change and amended text of par. (2) generally. Prior to amendment, text read as follows: “The goals of the program shall include—

“(A) the development of new, cost-effective innovative material highway bridge applications;

“(B) the reduction of maintenance costs and life-cycle costs of bridges, including the costs of new construction, replacement, or rehabilitation of deficient bridges;

“(C) the development of construction techniques to increase safety and reduce construction time and traffic congestion;

“(D) the development of engineering design criteria for innovative products and materials for use in highway bridges and structures;

“(E) the development of cost-effective and innovative techniques to separate vehicle and pedestrian traffic from railroad traffic;

“(F) the development of highway bridges and structures that will withstand natural disasters, including alternative processes for the seismic retrofit of bridges; and

“(G) the development of new nondestructive bridge evaluation technologies and techniques.”

Subsec. (c). Pub. L. 109-59, §5203(b)(1), added subsec. (c).

Subsec. (d). Pub. L. 109-59, §5203(c)(1), added subsec. (d).

Subsec. (e). Pub. L. 109-59, §5203(d), added subsec. (e).

#### Statutory Notes and Related Subsidiaries

##### EFFECTIVE DATE OF 2021 AMENDMENT

Amendment by Pub. L. 117-58 effective Oct. 1, 2021, see section 10003 of Pub. L. 117-58, set out as a note under section 101 of this title.

##### EFFECTIVE DATE OF 2015 AMENDMENT

Amendment by Pub. L. 114-94 effective Oct. 1, 2015, see section 1003 of Pub. L. 114-94, set out as a note under section 5313 of Title 5, Government Organization and Employees.

## EFFECTIVE DATE OF 2012 AMENDMENT

Amendment by Pub. L. 112-141 effective Oct. 1, 2012, see section 3(a) of Pub. L. 112-141, set out as an Effective and Termination Dates of 2012 Amendment note under section 101 of this title.

## STRATEGIC INNOVATION FOR REVENUE COLLECTION

Pub. L. 117-58, div. A, title III, § 13001(a)–(e), Nov. 15, 2021, 135 Stat. 622-624, provided that:

“(a) IN GENERAL.—The Secretary [of Transportation] shall establish a program to test the feasibility of a road usage fee and other user-based alternative revenue mechanisms (referred to in this section as ‘user-based alternative revenue mechanisms’) to help maintain the long-term solvency of the Highway Trust Fund, through pilot projects at the State, local, and regional level.

## “(b) GRANTS.—

“(1) IN GENERAL.—The Secretary shall provide grants to eligible entities to carry out pilot projects under this section.

“(2) APPLICATIONS.—To be eligible for a grant under this section, an eligible entity shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

“(3) OBJECTIVES.—The Secretary shall ensure that, in the aggregate, the pilot projects carried out using funds provided under this section meet the following objectives:

“(A) To test the design, acceptance, equity, and implementation of user-based alternative revenue mechanisms, including among—

- “(i) differing income groups; and
- “(ii) rural and urban drivers, as applicable.

“(B) To provide recommendations regarding adoption and implementation of user-based alternative revenue mechanisms.

“(C) To quantify and minimize the administrative costs of any potential user-based alternative revenue mechanisms.

“(D) To test a variety of solutions, including the use of independent and private third-party vendors, for the collection of data and fees from user-based alternative revenue mechanisms, including the reliability and security of those solutions and vendors.

“(E) To test solutions to ensure the privacy and security of data collected for the purpose of implementing a user-based alternative revenue mechanism.

“(F) To conduct public education and outreach to increase public awareness regarding the need for user-based alternative revenue mechanisms for surface transportation programs.

“(G) To evaluate the ease of compliance and enforcement of a variety of implementation approaches for different users of the surface transportation system.

“(H) To ensure, to the greatest extent practicable, the use of innovation.

“(I) To consider, to the greatest extent practicable, the potential for revenue collection along a network of alternative fueling stations.

“(J) To evaluate the impacts of the imposition of a user-based alternative revenue mechanism on—

- “(i) transportation revenues;
- “(ii) personal mobility, driving patterns, congestion, and transportation costs; and
- “(iii) freight movement and costs.

“(K) To evaluate options for the integration of a user-based alternative revenue mechanism with—

- “(i) nationwide transportation revenue collections and regulations;
- “(ii) toll revenue collection platforms;
- “(iii) transportation network company fees; and
- “(iv) any other relevant transportation revenue mechanisms.

“(4) ELIGIBLE ENTITY.—An entity eligible to apply for a grant under this section is—

“(A) a State or a group of States;

“(B) a local government or a group of local governments; or

“(C) a metropolitan planning organization (as defined in section 134(b) of title 23, United States Code) or a group of metropolitan planning organizations.

“(5) USE OF FUNDS.—An eligible entity that receives a grant under this section shall use the grant to carry out a pilot project to address 1 or more of the objectives described in paragraph (3).

“(6) CONSIDERATION.—The Secretary shall consider geographic diversity in awarding grants under this subsection.

“(7) FEDERAL SHARE.—The Federal share of the cost of a pilot project carried out under this section may not exceed—

“(A) 80 percent of the total cost of a project carried out by an eligible entity that has not otherwise received a grant under this section; and

“(B) 70 percent of the total cost of a project carried out by an eligible entity that has received at least 1 grant under this section.

“(c) LIMITATION ON REVENUE COLLECTED.—Any revenue collected through a user-based alternative revenue mechanism established using funds provided under this section shall not be considered a toll under section 301 of title 23, United States Code.

“(d) RECOMMENDATIONS AND REPORT.—Not later than 3 years after the date of enactment of this Act [Nov. 15, 2021], the Secretary, in coordination with the Secretary of the Treasury and the Federal System Funding Alternative Advisory Board established under section 13002(g)(1) [of Pub. L. 117-58, set out below], shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report that—

“(1) summarizes the results of the pilot projects under this section and the national pilot program under section 13002; and

“(2) provides recommendations, if applicable, to enable potential implementation of a nationwide user-based alternative revenue mechanism.

## “(e) FUNDING.—

“(1) IN GENERAL.—Of the funds made available to carry out section 503(b) of title 23, United States Code, for each of fiscal years 2022 through 2026[,] \$15,000,000 shall be used for pilot projects under this section.

“(2) FLEXIBILITY.—If, by August 1 of each fiscal year, the Secretary determines that there are not enough grant applications to meet the requirements of this section for that fiscal year, the Secretary shall transfer to the national pilot program under section 13002 or to the highway research and development program under section 503(b) of title 23, United States Code—

“(A) any funds reserved for a fiscal year under paragraph (1) that the Secretary has not yet awarded under this section; and

“(B) an amount of obligation limitation equal to the amount of funds that the Secretary transfers under subparagraph (A).”

## NATIONAL MOTOR VEHICLE PER-MILE USER FEE PILOT

Pub. L. 117-58, div. A, title III, § 13002, Nov. 15, 2021, 135 Stat. 624, provided that:

## “(a) DEFINITIONS.—In this section:

“(1) ADVISORY BOARD.—The term ‘advisory board’ means the Federal System Funding Alternative Advisory Board established under subsection (g)(1).

“(2) COMMERCIAL VEHICLE.—The term ‘commercial vehicle’ has the meaning given the term commercial motor vehicle in section 31101 of title 49, United States Code.

“(3) HIGHWAY TRUST FUND.—The term ‘Highway Trust Fund’ means the Highway Trust Fund established under section 9503 of the Internal Revenue Code of 1986 [26 U.S.C. 9503].

“(4) LIGHT TRUCK.—The term ‘light truck’ has the meaning given the term in section 523.2 of title 49, Code of Federal Regulations (or successor regulations).

“(5) MEDIUM- AND HEAVY-DUTY TRUCK.—The term ‘medium- and heavy-duty truck’ has the meaning given the term ‘commercial medium- and heavy-duty on-highway vehicle’ in section 32901(a) of title 49, United States Code.

“(6) PASSENGER MOTOR VEHICLE.—The term ‘passenger motor vehicle’ has the meaning given the term in section 32101 of title 49, United States Code.

“(7) PER-MILE USER FEE.—The term ‘per-mile user fee’ means a revenue mechanism that—

“(A) is applied to road users operating motor vehicles on the surface transportation system; and

“(B) is based on the number of vehicle miles traveled by an individual road user.

“(8) PILOT PROGRAM.—The term ‘pilot program’ means the pilot program established under subsection (b)(1).

“(9) VOLUNTEER PARTICIPANT.—The term ‘volunteer participant’ means—

“(A) an owner or lessee of a private, personal motor vehicle who volunteers to participate in the pilot program;

“(B) a commercial vehicle operator who volunteers to participate in the pilot program; or

“(C) an owner of a motor vehicle fleet who volunteers to participate in the pilot program.

“(b) ESTABLISHMENT.—

“(1) IN GENERAL.—The Secretary [of Transportation], in coordination with the Secretary of the Treasury, and consistent with the recommendations of the advisory board, shall establish a pilot program to demonstrate a national motor vehicle per-mile user fee—

“(A) to restore and maintain the long-term solvency of the Highway Trust Fund; and

“(B) to improve and maintain the surface transportation system.

“(2) OBJECTIVES.—The objectives of the pilot program are—

“(A) to test the design, acceptance, implementation, and financial sustainability of a national motor vehicle per-mile user fee;

“(B) to address the need for additional revenue for surface transportation infrastructure and a national motor vehicle per-mile user fee; and

“(C) to provide recommendations relating to the adoption and implementation of a national motor vehicle per-mile user fee.

“(c) PARAMETERS.—In carrying out the pilot program, the Secretary, in coordination with the Secretary of the Treasury, shall—

“(1) provide different methods that volunteer participants can choose from to track motor vehicle miles traveled;

“(2) solicit volunteer participants from all 50 States, the District of Columbia, and the Commonwealth of Puerto Rico;

“(3) ensure an equitable geographic distribution by population among volunteer participants;

“(4) include commercial vehicles and passenger motor vehicles; and

“(5) use components of and, where appropriate, coordinate with—

“(A) the States that received a grant under section 6020 of the FAST Act ([former] 23 U.S.C. 503 note; Public Law 114-94) (as in effect on the day before the date of enactment of this Act [Nov. 15, 2021]); and

“(B) eligible entities that received a grant under section 13001 [of Pub. L. 117-58, set out above].

“(d) METHODS.—

“(1) TOOLS.—In selecting the methods described in subsection (c)(1), the Secretary shall coordinate with entities that voluntarily provide to the Secretary for use under the pilot program any of the following vehicle-miles-traveled collection tools:

“(A) Third-party on-board diagnostic (OBD-II) devices.

“(B) Smart phone applications.

“(C) Telemetric data collected by automakers.

“(D) Motor vehicle data obtained by car insurance companies.

“(E) Data from the States that received a grant under section 6020 of the FAST Act ([former] 23 U.S.C. 503 note; Public Law 114-94) (as in effect on the day before the date of enactment of this Act [Nov. 15, 2021]).

“(F) Motor vehicle data obtained from fueling stations.

“(G) Any other method that the Secretary considers appropriate.

“(2) COORDINATION.—

“(A) SELECTION.—The Secretary shall determine which collection tools under paragraph (1) are selected for the pilot program.

“(B) VOLUNTEER PARTICIPANTS.—In a manner that the Secretary considers appropriate, the Secretary shall enable each volunteer participant to choose 1 of the selected collection tools under paragraph (1).

“(e) MOTOR VEHICLE PER-MILE USER FEES.—For the purposes of the pilot program, the Secretary of the Treasury shall establish, on an annual basis, per-mile user fees for passenger motor vehicles, light trucks, and medium- and heavy-duty trucks, which amount may vary between vehicle types and weight classes to reflect estimated impacts on infrastructure, safety, congestion, the environment, or other related social impacts.

“(f) VOLUNTEER PARTICIPANTS.—The Secretary, in coordination with the Secretary of the Treasury, shall—

“(1)(A) ensure, to the extent practicable, that the greatest number of volunteer participants participate in the pilot program; and

“(B) ensure that such volunteer participants represent geographically diverse regions of the United States, including from urban and rural areas; and

“(2) issue policies relating to the protection of volunteer participants, including policies that—

“(A) protect the privacy of volunteer participants; and

“(B) secure the data provided by volunteer participants.

“(g) FEDERAL SYSTEM FUNDING ALTERNATIVE ADVISORY BOARD.—

“(1) IN GENERAL.—Not later than 90 days after the date of enactment of this Act [Nov. 15, 2021], the Secretary shall establish an advisory board, to be known as the ‘Federal System Funding Alternative Advisory Board’, to assist with—

“(A) providing the Secretary with recommendations related to the structure, scope, and methodology for developing and implementing the pilot program;

“(B) carrying out the public awareness campaign under subsection (h); and

“(C) developing the report under subsection (n).

“(2) MEMBERSHIP.—The advisory board shall include, at a minimum, the following representatives and entities, to be appointed by the Secretary:

“(A) State departments of transportation.

“(B) Any public or nonprofit entity that led a surface transportation system funding alternatives pilot project under section 6020 of the FAST Act ([former] 23 U.S.C. 503 note; Public Law 114-94) (as in effect on the day before the date of enactment of this Act [Nov. 15, 2021]).

“(C) Representatives of the trucking industry, including owner-operator independent drivers.

“(D) Data security experts with expertise in personal privacy.

“(E) Academic experts on surface transportation systems.

“(F) Consumer advocates, including privacy experts.

“(G) Advocacy groups focused on equity.

“(H) Owners of motor vehicle fleets.

“(I) Owners and operators of toll facilities.

“(J) Tribal groups or representatives.

“(K) Any other representatives or entities, as determined appropriate by the Secretary.

“(3) RECOMMENDATIONS.—Not later than 1 year after the date on which the advisory board is established under paragraph (1), the advisory board shall provide the Secretary with the recommendations described in subparagraph (A) of that paragraph, which the Secretary shall use in implementing the pilot program.

“(h) PUBLIC AWARENESS CAMPAIGN.—

“(1) IN GENERAL.—The Secretary, with guidance from the advisory board, may carry out a public awareness campaign to increase public awareness regarding a national motor vehicle per-mile user fee, including distributing information—

“(A) related to the pilot program;

“(B) from the State surface transportation system funding alternatives pilot program under section 6020 of the FAST Act ([former] 23 U.S.C. 503 note; Public Law 114-94) (as in effect on the day before the date of enactment of this Act [Nov. 15, 2021]); and

“(C) related to consumer privacy.

“(2) CONSIDERATIONS.—In carrying out the public awareness campaign under this subsection, the Secretary shall consider issues unique to each State.

“(i) REVENUE COLLECTION.—The Secretary of the Treasury, in coordination with the Secretary, shall establish a mechanism to collect motor vehicle per-mile user fees established under subsection (e) from volunteer participants, which—

“(1) may be adjusted as needed to address technical challenges; and

“(2) may allow independent and private third-party vendors to collect the motor vehicle per-mile user fees and forward such fees to the Treasury.

“(j) AGREEMENT.—The Secretary may enter into an agreement with a volunteer participant containing such terms and conditions as the Secretary considers necessary for participation in the pilot program.

“(k) LIMITATION.—Any revenue collected through the mechanism established under subsection (i) shall not be considered a toll under section 301 of title 23, United States Code.

“(l) HIGHWAY TRUST FUND.—The Secretary of the Treasury shall ensure that any revenue collected under subsection (i) is deposited into the Highway Trust Fund.

“(m) PAYMENT.—Not more than 60 days after the end of each calendar quarter in which a volunteer participant has participated in the pilot program, the Secretary of the Treasury, in consultation with the Secretary of Transportation, shall estimate an amount of payment for each volunteer based on the vehicle miles submitted by the volunteer for the calendar quarter and issue such payment to such volunteer participant.

“(n) REPORT TO CONGRESS.—Not later than 1 year after the date on which volunteer participants begin participating in the pilot program, and each year thereafter for the duration of the pilot program, the Secretary and the Secretary of the Treasury shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report that includes an analysis of—

“(1) whether the objectives described in subsection (b)(2) were achieved;

“(2) how volunteer participant protections in subsection (f)(2) were complied with;

“(3) whether motor vehicle per-mile user fees can maintain the long-term solvency of the Highway Trust Fund and improve and maintain the surface transportation system, which shall include estimates of administrative costs related to collecting such motor vehicle per mile user fees;

“(4) how the privacy of volunteers was maintained; and

“(5) equity impacts of the pilot program, including the impacts of the pilot program on low-income commuters.

“(o) FUNDING.—

“(1) IN GENERAL.—Of the funds made available to carry out section 503(b) of title 23, United States Code, for each of fiscal years 2022 through 2026[,] \$10,000,000 shall be used to carry out the pilot program under this section.

“(2) EXCESS FUNDS.—Any excess funds remaining after carrying out the pilot program under this section shall be available to make grants for pilot projects under section 13001 [of Pub. L. 117-58, set out above].”

#### DATA INTEGRATION PILOT PROGRAM

Pub. L. 117-58, div. A, title III, §13004, Nov. 15, 2021, 135 Stat. 629, provided that:

“(a) ESTABLISHMENT.—The Secretary [of Transportation] shall establish a pilot program—

“(1) to provide research and develop models that integrate, in near-real-time, data from multiple sources, including geolocated—

“(A) weather conditions;

“(B) roadway conditions;

“(C) incidents, work zones, and other non-recurring events related to emergency planning; and

“(D) information from emergency responders; and

“(2) to facilitate data integration between the Department [of Transportation], the National Weather Service, and other sources of data that provide real-time data with respect to roadway conditions during or as a result of severe weather events, including, at a minimum—

“(A) winter weather;

“(B) heavy rainfall; and

“(C) tropical weather events.

“(b) REQUIREMENTS.—In carrying out subsection (a)(1), the Secretary shall—

“(1) address the safety, resiliency, and vulnerability of the transportation system to disasters; and

“(2) develop tools for decisionmakers and other end-users who could use or benefit from the integrated data described in that subsection to improve public safety and mobility.

“(c) TREATMENT.—Except as otherwise provided in this section, the Secretary shall carry out activities under the pilot program under this section as if—

“(1) those activities were authorized under chapter 5 of title 23, United States Code; and

“(2) the funds made available to carry out the pilot program were made available under that chapter.

“(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section \$2,500,000 for each of fiscal years 2022 through 2026, to remain available until expended.”

#### EMERGING TECHNOLOGY RESEARCH PILOT PROGRAM

Pub. L. 117-58, div. A, title III, §13005, Nov. 15, 2021, 135 Stat. 629, provided that:

“(a) ESTABLISHMENT.—The Secretary [of Transportation] shall establish a pilot program to conduct emerging technology research in accordance with this section.

“(b) ACTIVITIES.—The pilot program under this section shall include—

“(1) research and development activities relating to leveraging advanced and additive manufacturing technologies to increase the structural integrity and cost-effectiveness of surface transportation infrastructure; and

“(2) research and development activities (including laboratory and test track supported accelerated pavement testing research regarding the impacts of connected, autonomous, and platooned vehicles on pavement and infrastructure performance)—

“(A) to reduce the impact of automated and connected driving systems and advanced driver-assistance systems on pavement and infrastructure performance; and

“(B) to improve transportation infrastructure design in anticipation of increased usage of auto-

mated driving systems and advanced driver-assistance systems.

“(c) TREATMENT.—Except as otherwise provided in this section, the Secretary shall carry out activities under the pilot program under this section as if—

“(1) those activities were authorized under chapter 5 of title 23, United States Code; and

“(2) the funds made available to carry out the pilot program were made available under that chapter.

“(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section \$5,000,000 for each of fiscal years 2022 through 2026, to remain available until expended.”

#### OPEN CHALLENGE AND RESEARCH PROPOSAL PILOT PROGRAM

Pub. L. 117-58, div. A, title III, § 13006(e), Nov. 15, 2021, 135 Stat. 638, provided that:

“(1) IN GENERAL.—The Secretary [of Transportation] shall establish an open challenge and research proposal pilot program under which eligible entities may propose open highway challenges and research proposals that are linked to identified or potential research needs.

“(2) REQUIREMENTS.—A research proposal submitted to the Secretary by an eligible entity shall address—

“(A) a research need identified by the Secretary or the Administrator of the Federal Highway Administration; or

“(B) an issue or challenge that the Secretary determines to be important.

“(3) ELIGIBLE ENTITIES.—An entity eligible to submit a research proposal under the pilot program under paragraph (1) is—

“(A) a State;

“(B) a unit of local government;

“(C) a university transportation center under section 5505 of title 49, United States Code;

“(D) a private nonprofit organization;

“(E) a private sector organization working in collaboration with an entity described in subparagraphs (A) through (D); and

“(F) any other individual or entity that the Secretary determines to be appropriate.

“(4) PROJECT REVIEW.—The Secretary shall—

“(A) review each research proposal submitted under the pilot program under paragraph (1); and

“(B) provide to the eligible entity a written notice that—

“(i) if the research proposal is not selected—

“(I) notifies the eligible entity that the research proposal has not been selected for funding;

“(II) provides an explanation as to why the research proposal was not selected, including if the research proposal does not cover an area of need; and

“(III) if applicable, recommend that the research proposal be submitted to another research program and provide guidance and direction to the eligible entity and the proposed research program office; and

“(ii) if the research proposal is selected, notifies the eligible entity that the research proposal has been selected for funding.

“(5) FEDERAL SHARE.—

“(A) IN GENERAL.—The Federal share of the cost of an activity carried out under this subsection shall not exceed 80 percent.

“(B) NON-FEDERAL SHARE.—All costs directly incurred by the non-Federal partners, including personnel, travel, facility, and hardware development costs, shall be credited toward the non-Federal share of the cost of an activity carried out under this subsection.”

#### RESEARCH ON CONNECTED VEHICLE TECHNOLOGY

Pub. L. 117-58, div. B, title IV, § 24219, Nov. 15, 2021, 135 Stat. 831, provided that: “The Administrator of the National Highway Traffic Safety Administration, in col-

laboration with the head of the Intelligent Transportation Systems Joint Program Office and the Administrator of the Federal Highway Administration, shall—

“(1) not later than 180 days after the date of enactment of this Act [Nov. 15, 2021], expand vehicle-to-pedestrian research efforts focused on incorporating bicyclists and other vulnerable road users into the safe deployment of connected vehicle systems; and

“(2) not later than 2 years after the date of enactment of this Act, submit to Congress and make publicly available a report describing the findings of the research efforts described in paragraph (1), including an analysis of the extent to which applications supporting vulnerable road users can be accommodated within existing spectrum allocations for connected vehicle systems.”

#### SURFACE TRANSPORTATION SYSTEM FUNDING ALTERNATIVES

Pub. L. 114-94, div. A, title VI, § 6020, Dec. 4, 2015, 129 Stat. 1582, which established a program to provide grants to States to demonstrate user-based alternative revenue mechanisms that utilize a user fee structure to maintain the long-term solvency of the Highway Trust Fund, was repealed by Pub. L. 117-58, div. A, title III, § 13001(t)(1), Nov. 15, 2021, 135 Stat. 624.

#### HIGH PERFORMING STEEL BRIDGE RESEARCH AND TECHNOLOGY TRANSFER

Pub. L. 109-59, title V, § 5202(c), Aug. 10, 2005, 119 Stat. 1786, provided that:

“(1) IN GENERAL.—The Secretary [of Transportation] shall carry out a program to demonstrate the application of high-performing steel in the construction and rehabilitation of bridges.

“(2) FUNDING.—Of the amounts made available by section 5101(a)(1) of this Act [119 Stat. 1779], \$4,100,000 for each of fiscal years 2006 through 2009 shall be available to carry out this subsection.”

#### STEEL BRIDGE TESTING

Pub. L. 109-59, title V, § 5202(d), Aug. 10, 2005, 119 Stat. 1787, provided that:

“(1) IN GENERAL.—The Secretary [of Transportation] shall carry out a program to test steel bridges using a nondestructive technology that is able to detect growing cracks, including subsurface flaws as small as 0.010 inches in length or depth, in the bridges.

“(2) FUNDING.—Of the amounts made available by section 5101(a)(1) of this Act [119 Stat. 1779], \$1,250,000 for each of fiscal years 2006 through 2009 shall be available to carry out this subsection.

“(3) FEDERAL SHARE.—The Federal share of the cost of activities carried out in accordance with this subsection shall be 80 percent.”

#### § 504. Training and education

##### (a) NATIONAL HIGHWAY INSTITUTE.—

(1) IN GENERAL.—The Secretary shall operate in the Federal Highway Administration a National Highway Institute (in this subsection referred to as the “Institute”). The Secretary shall administer, through the Institute, the authority vested in the Secretary by this title or by any other law for the development and conduct of education and training programs relating to highways.

(2) DUTIES OF THE INSTITUTE.—In cooperation with State transportation departments, United States industry, and any national or international entity, the Institute shall develop and administer education and training programs of instruction for—

(A) Federal Highway Administration, State, and local transportation agency employees and the employees of any other applicable Federal agency;