''(C) the data interfaces and information flows between physical subsystems; and

''(D) the communications requirements associated with the information flows.

''(7) STANDARD.—The term 'standard' means a document that—

''(A) contains technical specifications or other precise criteria for intelligent transportation systems that are to be used consistently as rules, guidelines, or definitions of characteristics so as to ensure that materials, products, processes, and services are fit for their purposes; and

''(B) may support the national architecture and promote—

''(i) the widespread use and adoption of intelligent transportation system technology as a component of the surface transportation systems of the United States; and

''(ii) interoperability among intelligent transportation system technologies implemented throughout the States.

''(8) STATE.—The term 'State' has the meaning given the term under section 101 of title 23, United States Code.

''SEC. 5212. PROJECT FUNDING.

''(a) USE OF HAZARDOUS MATERIALS MONITORING SYSTEMS.—

''(1) IN GENERAL.—The Secretary shall conduct research on improved methods of deploying and integrating existing ITS projects to include hazardous materials monitoring systems across various modes of transportation.

''(2) FUNDING.—Of the amounts made available for each of fiscal years 1998 through 2003 by section 5001(a)(6) of this Act [112 Stat. 420], $1,500,000 per fiscal year shall be available to carry out this paragraph.

''(b) OUTREACH AND TECHNOLOGY TRANSFER ACTIVITIES.—

''(1) IN GENERAL.—The Secretary shall continue to support the Urban Consortium's ITS outreach and technology transfer activities.

''(2) FUNDING.—Of the amounts made available for each of fiscal years 1998 through 2003 by section 5001(a)(5) of this Act [112 Stat. 420], $500,000 per fiscal year shall be available to carry out this paragraph.

''(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, 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 14 of the Federal Advisory Committee Act [5 U.S.C. App.] 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, 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 508.

(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; and

(D) provide technology transfer and technical assistance.

(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 decisionmaking 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 policy studies;

(xi) human factors studies and measures;

(xii) safety technology deployment;

(xiii) safety workforce professional capacity building initiatives;

(xiv) safety program and process improvements; and

(xv) 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 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 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; and

(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.

(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 re-

search 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; and

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

(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—

(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; and

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

(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 future highway and bridge needs of the United States and the backlog of current highway and bridge 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.

(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, 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; and

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

(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 improved tools and methods to accelerate the adoption 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 administered 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.

(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 nondestructive 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) FUNDING.—The Secretary shall obligate for each of fiscal years 2013 through 2014 from funds made available to carry out this subsection $12,000,000 to accelerate the deployment and implementation of pavement technology.

(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.)

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.

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

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 ef-

forts 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).

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.

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;

(B) regional, State, and metropolitan planning organizations;

(C) State and local police, public safety, and motor vehicle employees; and

(D) United States citizens and foreign nationals engaged or to be engaged in surface transportation work of interest to the United States.

(3) COURSES.—

(A) IN GENERAL.—The Institute shall—

(i) develop or update existing courses in asset management, including courses that include such components as—

(I) the determination of life-cycle costs;

(II) the valuation of assets;

(III) benefit-to-cost ratio calculations; and

(IV) objective decisionmaking processes for project selection; and

(ii) continually develop courses relating to the application of emerging technologies for—

(I) transportation infrastructure applications and asset management;

(II) intelligent transportation systems;

(III) operations (including security operations);

(IV) the collection and archiving of data;

(V) reducing the amount of time required for the planning and development of transportation projects; and

(VI) the intermodal movement of individuals and freight.

(B) ADDITIONAL COURSES.—In addition to the courses developed under subparagraph