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109TH CONGRESS
1ST SESSION

H. R. 243

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

IN THE HOUSE OF REPRESENTATIVES

JANUARY 6, 2005

Mr. EHLERS introduced the following bill; which was referred to the Committee on Science

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A BILL

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

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

SECTION 1. TABLE OF CONTENTS.

The table of contents for this Act is as follows:

SEC. 2. FINDINGS.

The Congress finds the following:

(1) Research and development is critical to developing and maintaining a transportation system that meets the goals of safety, mobility, economic vitality, efficiency, equity, and environmental protection.

(2) Federally sponsored surface transportation research and development has produced many successes. The development of rumble strips has increased safety; research on materials has increased the lifespan of pavements, saving money and reducing the disruption caused by construction; and Geographic Information Systems have improved the management and efficiency of transit fleets.

(3) Despite these important successes, the Federal surface transportation research and development investment represents only about 0.5 percent of overall government spending on surface transportation.

(4) While Congress increased funding for overall transportation programs by about 40 percent in the Transportation Equity Act for the 21st Century, funding for transportation research and development remained relatively flat.

(5) The Federal investment in research and development should be balanced between short-term applied and long-term fundamental research and development. The investment should also cover a wide range of research areas, including research on materials and construction, research on operations, research on transportation trends and human factors, and research addressing the institutional barriers to deployment of new technologies.

(6) Therefore, Congress finds that it is in the United States interest to increase the Federal investment in transportation research and development, and to conduct research in critical research gaps, in order to ensure that the transportation system meets the goals of safety, mobility, economic vitality, efficiency, equity, and environmental protection.

TITLE I—SURFACE TRANSPORTATION RESEARCH

SEC. 101. AUTHORIZATION OF APPROPRIATIONS.

(a) IN GENERAL.—

(1) SURFACE TRANSPORTATION RESEARCH, DEVELOPMENT, AND DEPLOYMENT.—To carry out sections 502, 503, 506, 507, and 509 of title 23, United States Code, and section 109 of this Act, relating to research and development, there are authorized to be appropriated to the Secretary of Transportation the following:

(A) $228,000,000 for fiscal year 2005, of which—

(i) $15,000,000 shall be set aside to carry out the Surface Transportation Environment and Planning Cooperative Research Program under section 507 of title 23, United States Code;

(ii) $7,000,000 shall be set aside to carry out advanced exploratory research under section 502(d) of title 23, United States Code; and

(iii) $5,000,000 shall be set aside to carry out the National Multimodal Trends

Research Progam under section 109 of this Act.

(B) $272,000,000 for fiscal year 2006, of which—

(i) $15,000,000 shall be set aside to carry out the Surface Transportation Environment and Planning Cooperative Research Program under section 507 of title 23, United States Code;

(ii) $10,000,000 shall be set aside to carry out research under section 502(d) of title 23, United States Code; and

(iii) $5,000,000 shall be set aside to carry out research under section 109 of this Act.

(C) $316,000,000 for fiscal year 2007, of which—

(i) $20,000,000 shall be set aside to carry out the Surface Transportation Environment and Planning Cooperative Research Program under section 507 of title 23, United States Code;

(ii) $15,000,000 shall be set aside to carry out research under section 502(d) of title 23, United States Code; and

(iii) $5,000,000 shall be set aside to carry out research under section 109 of this Act.

(D) $367,000,000 for fiscal year 2008, of which—

(i) $20,000,000 shall be set aside to carry out the Surface Transportation Environment and Planning Cooperative Research Program under section 507 of title 23, United States Code;

(ii) $15,000,000 shall be set aside to carry out research under section 502(d) of title 23, United States Code; and

(iii) $5,000,000 shall be set aside to carry out research under section 109 of this Act.

(E) $423,000,000 for fiscal year 2009, of which—

(i) $30,000,000 shall be set aside to carry out the Surface Transportation Environment and Planning Cooperative Research Program under section 507 of title 23, United States Code;

(ii) $15,000,000 shall be set aside to carry out research under section 502(d) of title 23, United States Code; and

(iii) $5,000,000 shall be set aside to carry out research under section 109 of this Act.

(F) $490,000,000 for fiscal year 2010, of which—

(i) $30,000,000 shall be set aside to carry out the Surface Transportation Environment and Planning Cooperative Research Program under section 507 of title 23, United States Code;

(ii) $15,000,000 shall be set aside to carry out research under section 502(d) of title 23, United States Code; and

(iii) $5,000,000 shall be set aside to carry out research under section 109 of this Act.

(2) UNIVERSITY TRANSPORTATION RESEARCH.—For carrying out section 5505 of title 49, United States Code, there are authorized to be appropriated to the Secretary of Transportation the following:

(A) $56,000,000 for fiscal year 2005.

(B) $66,000,000 for fiscal year 2006.

(C) $76,000,000 for fiscal year 2007.

(D) $90,000,000 for fiscal year 2008.

(E) $90,000,000 for fiscal year 2009.

(F) $90,000,000 for fiscal year 2010.

(3) INTELLIGENT TRANSPORTATION SYSTEMS RESEARCH.—For carrying out the Intelligent Transportation Systems Act of 2005, there are authorized to be appropriated to the Secretary of Transportation the following:

(A) $130,000,000 for fiscal year 2005.

(B) $135,000,000 for fiscal year 2006.

(C) $140,000,000 for fiscal year 2007.

(D) $140,000,000 for fiscal year 2008.

(E) $145,000,000 for fiscal year 2009.

(F) $145,000,000 for fiscal year 2010.

(b) COLLABORATIVE RESEARCH AND DEVELOPMENT.—Section 502(b) of title 23, United States Code, is amended—

(1) by striking paragraph (3); and

(2) by redesignating paragraphs (4) and (5) as paragraphs (3) and (4), respectively.

SEC. 102. GOALS, PRINCIPLES, AND PROCESSES.

(a) GOALS.—The Federal Government shall support surface transportation research in order to support the

goals established for the surface transportation system as set forth in the Transportation Equity Act for the 21st Century, including supporting economic vitality, improving safety and security, increasing mobility, protecting and enhancing the environment, improving integration between modes of transportation, promoting efficiency, and emphasizing the preservation of the existing transportation system.

(b) BASIC PRINCIPLES GOVERNING RESEARCH AND DEVELOPMENT.—

(1) FEDERAL RESPONSIBILITY.—Funding and conducting surface transportation research and development and technology transfer activities shall be the responsibility of the Federal Government when—

(A) the work is of national significance;

(B) it supports research in which there is a clear public benefit, and private sector investment is less than optimal due to market failure;

(C) it supports critical research that is not otherwise being conducted by the public or private sector;

(D) it supports a Federal stewardship role in ensuring that State and local governments use national resources efficiently; or

(E) it presents the best means to support Federal policy goals compared to other policy alternatives.

(2) ROLE.—Consistent with these Federal responsibilities, the Secretary of Transportation shall—

(A) conduct research;

(B) support and facilitate research and development and technology transfer activities by State highway agencies, metropolitan planning organizations, and local governments;

(C) share results of completed research; and

(D) support and facilitate technology and innovation deployment.

(3) PROGRAM CONTENT.—The surface transportation research and development program shall include—

(A) fundamental, long-term research;

(B) research aimed at significant research gaps, and emerging issues with national implications; and

(C) research related to policy and planning.

(c) PROCESSES.—

(1) STAKEHOLDER INPUT.—Federally sponsored surface transportation research and development activities shall address the needs of partners and stakeholders. Stakeholders include users of research (such as States, metropolitan planning organizations, local governments, and the private sector), researchers, research sponsors, and other affected parties, including public interest groups. Stakeholders shall be included at every level of research including strategic planning, agenda setting, and program evaluation. The Secretary shall expand the range and diversity of stakeholders engaged in the process.

(2) COMPETITION AND PEER REVIEW.—All parties entering into contracts or cooperative agreements with the Secretary, or receiving grants, to perform research and development activities or provide technical assistance under this Act shall be selected on a competitive basis, and on the basis of the results of peer review of proposals submitted to the Secretary.

(3) PERFORMANCE REVIEW AND EVALUATION.—All surface transportation research and development projects shall include a component of performance measurement and evaluation. Performance

measures shall be established during the proposal stage of a research project and shall, to the maximum extent possible, be outcome-based. All evaluations shall be made readily available to the public. The results of all surface transportation research and development funded under this Act shall be peer reviewed.

SEC. 103. TRANSPORTATION RESEARCH AND DEVELOPMENT STRATEGIC PLANNING AND ANNUAL REPORTING.

(a) AMENDMENT.—Section 508 of title 23, United States Code, is amended to read as follows:

"§ 508. Transportation research and development strategic planning and annual reporting

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

''(1) establish a strategic planning process, consistent with section 306 of title 5 for the Department of Transportation to determine national transportation research and development priorities;

''(2) set national transportation strategic goals and research and development priorities;

''(3) coordinate Federal transportation research and development activities;

''(4) measure the results of those activities and how they impact the performance of the transportation systems of the United States; and

''(5) ensure that planning and reporting activities carried out under this section are coordinated with all other transportation planning and reporting requirements.

''(b) IMPLEMENTATION.—The Secretary shall—

''(1) provide for the integrated planning, coordination, and consultation among the operating administrations of the Department of Transportation, including the aviation, transit, and rail operating administrations, all other Federal agencies with responsibility for surface transportation research and technology development, State and local governments, institutions of higher education, industry, and other private and public sector organizations engaged in surface transportation-related research and development activities;

''(2) ensure that the transportation research and development programs of the Department do not duplicate other Federal, State, or private sector research and development programs; and

''(3) provide for independent validation of the scientific and technical assumptions underlying the

transportation research and development programs of the Department.

''(c) TRANSPORTATION RESEARCH AND DEVELOPMENT STRATEGIC PLAN.—

''(1) DEVELOPMENT.—Not later than 1 year after the date of enactment of this paragraph, the Secretary shall develop an integrated transportation research and development strategic plan. The Secretary shall periodically revise such plan.

''(2) CONTENTS.—The plan shall—

''(A) include the general goals and principles of the Department of Transportation for transportation research and development program set forth in section 102 of the Act that enacted this subparagraph;

''(B) define the roles of the Department and other Federal agencies in achieving the goals and principles identified under subparagraph (A), in order to avoid unnecessary duplication of effort;

''(C) define the Department's overall strategy and research and development priorities, and for each research area specified in section 502, set out—

''(i) specific research strategies;

"(ii) research objectives and priorities;

"(iii) projects to be carried out;

"(iv) recommended technology transfer activities to promote the deployment of research results; and

"(v) short-term, medium-term, and long-term technology development and deployment activities;

"(D) define the role of each of the operating administrations of the Department in carrying out the plan over the next 5 years, including a description of procedures for coordination of the efforts of the Secretary with the efforts of the operating administrations of the Department and other Federal agencies;

"(E) assess how State and local research and development activities are contributing to the achievement of the goals identified under subparagraph (A) and priorities identified under subparagraph (C);

"(F) provide details of the transportation research and development programs of the Department, including performance goals, resources needed to achieve those goals, and performance indicators as described in section

1115(a) of title 31 for the next 5 years for each area of research and development;

"(G) incorporate input from a wide range of interests in the transportation community, including State transportation officials, metropolitan planning organizations, local governments, business, environmental and community organizations, academia, and other relevant Federal agencies, and summarize significant comments on the plan obtained from these interests; and

"(H) incorporate the input of the National Academy of Sciences and include responses to significant comments obtained from the Academy and other advisory bodies, and describe any corrective actions taken pursuant to such comments.

"(3) NATIONAL ACADEMY OF SCIENCES REVIEW.—The Secretary shall enter into an agreement for the review by the National Academy of Sciences of the details of each—

"(A) strategic plan or revision required under section 306 of title 5;

"(B) performance plan required under section 1115 of title 31; and

''(C) program performance report required under section 1116 of title 31,

with respect to transportation research and development.

''(4) PERFORMANCE PLANS AND REPORTS.—In reports submitted under sections 1115 and 1116 of title 31, the Secretary shall include—

''(A) a summary of the results for the previous fiscal year of transportation research and development programs to which the Department of Transportation contributes, along with—

''(i) an analysis of the relationship between those results and the goals identified under paragraph (2)(A); and

''(ii) a description of the methodology used for assessing the results; and

''(B) a description of significant transportation research and development initiatives, if any, undertaken during the previous fiscal year that were not in the plan developed under paragraph (1), and any significant changes in the plan from the previous year's plan.

''(d) MERIT REVIEW AND PERFORMANCE MEASUREMENT.—Not later than 1 year after the date of enactment of this subsection, the Secretary shall transmit to Con-

gress a report describing competitive merit review procedures for use in selecting grantees and contractors in the programs covered by the plan developed under subsection (c) and performance measurement procedures for evaluating the programs.

''(e) PROCUREMENT PROCEDURES.—The Secretary shall—

''(1) develop model procurement procedures that encourage the use of advanced technologies; and

''(2) develop model transactions for carrying out and coordinating Federal and State transportation research and development activities.

''(f) ANNUAL PROJECT REPORTS.—The Secretary shall publish and make publicly available an annual report documenting all transportation research and development activities of the Department. The report shall include detailed accounting of how Federal funds were expended.

''(g) CONSISTENCY WITH GOVERNMENT PERFORMANCE AND RESULTS ACT OF 1993.—The plans and reports developed under this section shall be consistent with and incorporated as part of the plans developed under section 306 of title 5 and sections 1115 and 1116 of title 31.''.

(b) CONFORMING AMENDMENT.—The analysis for chapter 5 of title 23, United States Code, is amended by

striking the item related to section 508 and inserting the following:

"508. Transportation research and development strategic planning and annual reporting.".

SEC. 104. SURFACE TRANSPORTATION RESEARCH AND DEVELOPMENT.

(a) SURFACE TRANSPORTATION RESEARCH AND DEVELOPMENT.—Section 502 of title 23, United States Code, is amended—

(1) in subsection (a)—

(A) by striking subparagraphs (B) and (C) of paragraph (1) and inserting the following:

"(B) all phases of transportation planning and development (including construction, transportation system management and operation, modernization, development, design, maintenance, safety, data collection, performance analysis, multimodal assessment, financing, demand forecasting, and traffic conditions);

"(C) institutional arrangements and support; and

"(D) the effect of State laws on the activities described in subparagraphs (A), (B), and (C)."; and

(B) in paragraph (3)(C), by inserting ''academic researcher,'' after ''association, institution,'';

(2) in subsection (c)—

(A) in paragraph (1), by inserting ''accessibility, connectivity,'' after ''United States, including'';

(B) by redesignating paragraphs (4) through (11) as paragraphs (5) through (12), respectively;

(C) by inserting after paragraph (3) the following new paragraph:

''(4) Methods and testing to determine the impacts, both positive and negative, to communities from major transportation investments.'';

(D) in paragraph (6), as so redesignated by subparagraph (B) of this paragraph—

(i) by striking ''research project'' and inserting ''improvements against policy objectives'' in subparagraph (B); and

(ii) by inserting ''and management'' after ''transportation operations'' in subparagraph (C);

(E) in paragraph (12), as so redesignated by subparagraph (B) of this paragraph, by

striking ‘‘, including unobtrusive eyetracking technology’’; and

(F) by adding at the end the following new paragraphs:

‘‘(13) Environmental research, including research described in the Transportation Research Board Special Report 268, entitled ‘Surface Transportation Environmental Research: A Long-Term Strategy’, published in 2002.

‘‘(14) Assessment of planning strategies that link land use and transportation in metropolitan areas.

‘‘(15) Exploratory advanced research under subsection (d).

‘‘(16) Research aimed at understanding how emerging trends (including demographic, economic, and social trends) will affect and are affected by surface transportation usage and needs.

‘‘(17) Research on the link between transportation and health (including asthma and obesity).

‘‘(18) Research on, and dissemination of recommendations and best practices aimed at addressing, nontechnical barriers to technology deployment (which include fragmented local authority, rigid pro-

curement rules, and privacy and liability considerations).

''(19) Research on the effects of climate conditions (such as freezing, thawing, and precipitation) on highway construction and maintenance, including research to reduce or repair damage caused by climatic conditions, development of materials that can withstand climatic conditions, and research on the effects of climatic conditions on the costs of highway construction and maintenance.

''(20) Research to improve the infrastructure investment needs report under subsection (g) through new methods of collecting better quality data, monitoring in a system-wide manner, the determination of critical metrics to assess condition and performance, and new methods of statistical analysis and computer models to improve the prediction of future needs.

''(21) Research, development, and technology transfer related to asset management.

''(22) Any other surface transportation research topics that the Secretary determines, in accordance with the strategic planning process under section 508, to be critical.'';

(3) in subsection (d)—

(A) in paragraph (1)—

(i) by inserting ''exploratory'' after ''shall establish an''; and

(ii) by inserting ''fundamental'' after ''508, that addresses''; and

(B) by striking paragraph (2) and inserting the following new paragraphs:

''(2) GOAL.—The goal of the research program under this subsection shall be to achieve breakthroughs in understanding transportation phenomena. Exploratory advanced research should have a broader objective, longer time frame, multidisciplinary nature, and have both a higher risk and a higher potential payoff than for problem-solving research.

''(3) AGENDA.—Not later than 15 months after that date of enactment of this paragraph, the Secretary shall develop an agenda for exploratory advanced research. The agenda shall outline key questions to be addressed and proposed areas of research to address these questions. The agenda shall also document the best way to accomplish this research (such as through Federal laboratories or academic researchers). Upon completion, the agenda shall be transmitted to the Committee on Transportation and

Infrastructure and the Committee on Science of the House of Representatives, and the Committee on Environment and Public Works of the Senate, and made available to the general public.

''(4) CONSULTATION.—The Secretary shall consult with the National Science Foundation in reviewing fundamental research proposals, and to obtain advice on peer review protocols.

''(5) WORKSHOP.—In order to develop the agenda for exploratory advanced research under paragraph (3), the Secretary shall convene a workshop with appropriate researchers and policymakers from Federal and State agencies, as well as academic researchers, to gather recommendations. The goal of the workshop shall be to determine priority areas of exploratory advanced research for Federal investment. Emphasis shall be placed on hearing from a diverse group of stakeholders. The Secretary shall make the results of the workshop widely available to the public. The workshop shall be held within 9 months after the date of the enactment of this paragraph.

''(6) USE OF FUNDS.—In any fiscal year with respect to which $5,000,000 or more is appropriated for carrying out this subsection, at least ½ of the

funds in excess of $5,000,000 shall be used to carry out the grant program described in paragraph (7). Funds appropriated for carrying out this subsection not used for the grant program described in paragraph (7) shall be used to carry out the agenda developed under paragraph (3). All exploratory advanced research proposals and results under this subsection shall be peer reviewed.

''(7) GRANT PROGRAM.—If funds are available under paragraph (6), the Secretary shall administer a competitive, merit-reviewed and peer-reviewed grant program to support fundamental research outside of the Federal Government. Eligible applicants include academic researchers, and for-profit and not-for-profit research institutions. Under this grant program, research solicitations shall be open and broad in order to spur creativity and innovation. Funds may be used under this paragraph to support research in a range of topics, including materials, operations, and social science. Proposals with the greatest merit shall be funded, and projects may receive funding for multiple years.'';

(4) in subsection (e), by striking ''(105 Stat.'' and all that follows through ''performance program''

and inserting ''and the Transportation Equity Act for the 21st Century'';

(5) by amending subsection (f) to read as follows:

''(f) LONG-TERM BRIDGE PERFORMANCE PROGRAM.—

''(1) AUTHORITY.—The Secretary shall establish a 20 year long-term bridge performance program.

''(2) GRANTS, COOPERATIVE AGREEMENTS, AND CONTRACTS.—Under the program, the Secretary shall make grants and enter into cooperative agreements and contracts to—

''(A) monitor, material-test, and evaluate test bridges;

''(B) analyze the data obtained in carrying out subparagraph (A); and

''(C) prepare products to fulfill program objectives and meet future bridge technology needs.'';

(6) in subsection (g)—

(A) in paragraph (1), by striking ''highway and bridge'' each place it appears and inserting ''surface transportation''; and

(B) in paragraph (2), by striking ''biannual reports'' and all that follows through ''21st Century'' and inserting ''previous reports under this subsection''; and

(7) by adding at the end the following new subsection:

''(h) TURNER-FAIRBANK HIGHWAY RESEARCH CENTER.—

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

''(2) USES OF THE CENTER.—The Turner-Fairbank Highway Research Center shall support the—

''(A) conduct of highway research and development related to new highway technology;

''(B) 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; and

''(C) development of innovative highway products and practices.''.

(b) GEOSPATIAL INFORMATION SYSTEMS.—Section 5113 of the Transportation Equity Act of the 21st Century (23 U.S.C. 502 note) is amended by revising subsection (b) to read as follows:

''(b) PROGRAM.—

''(1) NATIONAL POLICY.—The Secretary shall establish and maintain a national policy for the use of commercial remote sensing products and geospatial information technologies in national transportation infrastructure development and construction.

''(2) POLICY IMPLEMENTATION.—The Secretary shall develop new applications of commercial remote sensing products and geospatial information technologies for the implementation of the national policy established and maintained under (b)(1) of this section.''.

(c) ENVIRONMENT AND PLANNING.—

(1) AMENDMENT.—Section 507 of title 23, United States Code, is amended to read as follows:

''§ 507. Surface Transportation Environment and Planning Cooperative Research Program

''(a) ESTABLISHMENT.—The Secretary shall establish and support a collaborative, public-private,

multimodal surface transportation environment and planning cooperative research program.

''(b) AGREEMENT.—The Secretary shall make grants to or enter into cooperative agreements with the National Academy of Sciences, or another nonprofit research organization established for this purpose, to support, administer, and manage the surface transportation environment and planning cooperative research program.

''(c) ADVISORY BOARD.—

''(1) ESTABLISHMENT.—The organization described in subsection (b) shall establish an independent advisory board drawn from core partners that represent environment, transportation, scientific, and other interests, including the Department of Transportation, the Environmental Protection Agency, the National Science Foundation, other Federal agencies, the States, regional and local governments, nonprofit organizations, academia, foundations, and the private sector.

''(2) RESPONSIBILITIES.—The Advisory Board shall have the responsibility for—

''(A) development of a research agenda, which shall be published annually, shall serve as the basis of the annual project solicitation, and shall be based on the multiyear strategy de-

scribed in subsection (e), as revised under subparagraph (D) of this paragraph;

"(B) annual solicitation of project proposals, including open competition and peer review of research proposals;

"(C) development of project selection criteria, through an open and public consultation process with stakeholders, that emphasize—

"(i) the development of fundamental knowledge; and

"(ii) collaborative research and funding; and

"(D) revision of the contents of the multiyear strategy described in subsection (e), through an open and public consultation process, with the first revision to be completed 3 years after the first grants are awarded under this section and subsequent revisions biennially thereafter.

"(d) DISSEMINATION OF RESEARCH FINDINGS.—The organization described in subsection (b) and the Department of Transportation shall proactively disseminate research findings under this section to researchers, practitioners, and decisionmakers, through conferences and seminars, field demonstrations, workshops, training pro-

grams, presentations, testimony to government officials, the Internet, and publications for the general public.

''(e) CONTENTS.—The national research agenda for the surface transportation environment and planning cooperative research program required under subsection (c)(2)(C) shall be based on Transportation Research Board Special Report 268, entitled 'Surface Transportation Environmental Research: A Long-Term Strategy', published in 2002, which included the following research areas:

''(1) Human Health.

''(2) Ecology and Natural Systems.

''(3) Environmental and Social Justice.

''(4) Emerging Technologies.

''(5) Land Use.

''(6) Planning and Performance Measures.

''(f) PROJECT FUNDING.—

''(1) MULTIYEAR FUNDING.—Projects may receive funding for multiple years under this section.

''(2) JOINT PROJECT FUNDING.—In addition to using funds authorized for this section, the organization that administers this program may seek and accept additional funding sources from public and private entities capable of attracting and accepting

funding from Federal agencies, States, local governments, nonprofit foundations, and the private sector.

''(g) PROGRAMMATIC EVALUATIONS.—(1) Not later than 2 years after the first research project grants or contracts are awarded under this section, the Secretary shall enter into an arrangement with the National Academy of Public Administration to review the program under this section, and recommend improvements.

''(2) The National Academy of Public Administration review shall—

''(A) assess the degree to which the projects funded under this section have addressed the research topics identified in the strategy established in the Transportation Research Board Special Report 268, including identifying those topics which have not yet been addressed;

''(B) assess the peer review process for project proposals, and assess research project results; and

''(C) assess the extent of stakeholder involvement in all facets of the program.

''(h) ANNUAL REPORT.—The organization described in subsection (b) shall prepare and transmit to the Secretary an annual report that includes a project summary for every project funded under this section. Each summary

shall characterize the project, summarize its status, and identify sponsors.''.

(2) CONFORMING AMENDMENT.—The analysis for chapter 5 of title 23, United States Code, is amended by striking the item related to section 507 and inserting the following:

''507. Surface transportation environment and planning cooperative research program.''.

SEC. 105. TECHNOLOGY DEPLOYMENT.

Section 503 of title 23, United States Code, is amended—

(1) in subsection (a)—

(A) by amending paragraph (7) to read as follows:

''(7) GRANTS, COOPERATIVE AGREEMENTS, AND CONTRACTS.—

''(A) IN GENERAL.—Under the program, the Secretary may make grants and enter into cooperative agreements and contracts with States, metropolitan planning organizations, local governments, other Federal agencies, universities and colleges, private sector entities, and nonprofit organizations to foster alliances and support efforts to stimulate advances in transportation technology, and to pay the Federal share of the costs of research, development,

and technology transfer concerning innovative technologies.

''(B) APPLICATIONS.—To receive a grant, cooperative agreement, or contract, under this paragraph, an entity described in subparagraph (A) shall submit an application to the Secretary. The application shall be in such form and contain such information as the Secretary may require. The Secretary shall select and approve the applications based on the applications' merit and on whether the project that is the subject of the grant, cooperative agreement, or contract meets the goals of the program described in paragraph (3).'';

(B) in paragraph (8), by inserting ''and the Committee on Science'' after ''Transportation and Infrastructure'';

(C) by redesignating paragraph (9) as paragraph (11); and

(D) by inserting after paragraph (8) the following new paragraphs:

''(9) TECHNOLOGY AND INFORMATION TRANSFER.—The Secretary shall ensure that the information and technology resulting from research conducted under this subsection is made available to

State and local transportation departments, metropolitan planning organizations, and other interested parties.

''(10) FEDERAL SHARE.—The Federal share of the cost of a project under this subsection shall be determined by the Secretary.''; and

(2) in subsection (b)—

(A) by striking ''Bridge Research and Construction'' and inserting ''Research and Deployment'' in the subsection heading;

(B) by amending paragraphs (1) and (2) to read as follows:

''(1) IN GENERAL.—The Secretary shall establish and carry out a program to demonstrate the application of innovative technology in surface transportation infrastructure construction (such as bridges, pavements, and other structures) and safety.

''(2) GOALS.—The goals of the program shall include—

''(A) the development of new, cost-effective innovative material for surface transportation infrastructure applications;

''(B) the deployment and evaluation of safety technologies and innovations at the State

and local levels, and the deployment of best practices in training, management, design, and planning;

"(C) the reduction of life-cycle costs of surface transportation infrastructure, including the costs of new construction, replacement, maintenance, and rehabilitation of deficient highway infrastructure;

"(D) the development and deployment of construction techniques to increase safety and reduce construction time and traffic congestion;

"(E) the development of engineering design criteria for innovative products and materials for use in surface transportation infrastructure;

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

"(G) the evaluation and documentation of the performance and benefits of innovative technologies deployed to improve life, performance, cost effectiveness, safety, and customer satisfaction;

''(H) the refinement of innovative technologies based on the evaluation described in subparagraph (G);

''(I) the wide dissemination of information developed under subparagraph (G);

''(J) the development of surface transportation infrastructure, including alternative processes for the seismic retrofit of bridges, that will withstand natural disasters and terrorist attacks;

''(K) for pavements, the development of designs and materials to reduce impacts of storm water runoff;

''(L) the development of new nondestructive infrastructure evaluation technologies and techniques; and

''(M) effective technology transfer and information dissemination to accelerate implementation of innovative technologies.'';

(C) in paragraph (5), by striking ''section'' and inserting ''subsection''; and

(D) by adding at the end the following new subsection:

''(c) RESEARCH ON THE NONTECHNICAL BARRIERS TO TECHNOLOGY DEPLOYMENT.—In order to support the

deployment goals established under subsection (a)(3), the Secretary shall carry out a research program addressing the nontechnical barriers to technology deployment, including fragmented authority at the local and regional level and rigid procurement rules. The goal of this research shall be to generate proposals for how to overcome these nontechnical barriers.''.

SEC. 106. FUTURE STRATEGIC HIGHWAY RESEARCH PROGRAM.

(a) AMENDMENT.—Chapter 5 of title 23, United States Code, is amended by adding at the end the following new section:

''§ 509. Future Strategic Highway Research Program

''(a) ESTABLISHMENT.—The Secretary, in consultation with the American Association of State Highway and Transportation Officials, shall enter into an arrangement with the National Academy of Sciences for the establishment of a Future Strategic Highway Research Program.

''(b) GRANTS, COOPERATIVE AGREEMENTS, AND CONTRACTS.—The Secretary may make grants to, and enter into cooperative agreements and contracts with, the American Association of State Highway and Transportation Officials and the National Academy of Sciences to carry out activities under this section. Advance payments may be made as necessary to carry out the program under

this section. Although no matching funds are required for this program, collaborative research projects with multiple sources of funding shall be encouraged.

''(c) PERIOD OF AVAILABILITY.—Funds set aside to carry out this section shall remain available for the fiscal year for which such funds are made available and the three succeeding fiscal years.

''(d) SET ASIDE.—There are authorized to be appropriated to the Secretary of Transportation for each of fiscal years 2005 through 2010, to carry out this section, $75,000,000.

''(e) PROGRAM ADMINISTRATION.—In carrying out the program under this section, the National Academy of Sciences shall ensure that—

''(1) the selection of projects and researchers shall be based on the open solicitation of proposals and be reviewed by panels of appropriate experts; and

''(2) State transportation officials and other stakeholders, including business, local governments, metropolitan planning organizations, environmental and community organizations, academia, other relevant Federal agencies, and other members of the transportation community are involved in the governance of the program at the executive, the overall

program, and the technical levels, through the use of expert panels and committees.

''(f) CONTENTS.—The program established under this section shall be based on Transportation Research Board Special Report 260, entitled 'Strategic Highway Research: Saving Lives, Reducing Congestion, Improving Quality of Life'. It shall include the following research areas:

''(1) Accelerating the renewal of America's highways.

''(2) Making a significant improvement in highway safety.

''(3) Providing a highway system with reliable travel times.

''(4) Providing highway capacity in support of the Nation's economic, environmental, multi-modal transportation, and social goals.

''(g) PROJECT EVALUATION.—The products of all research grants, cooperative agreements, and contracts awarded under this section shall be subject to peer review.

''(h) PROGRAMMATIC EVALUATIONS.—Within 2 years after the first research project grants, cooperative agreements, or contracts are awarded under this section, the Secretary shall enter into an arrangement with the National Academy of Public Administration to review the

program under this section, and to recommend improvements. The review shall—

''(1) assess the degree to which projects funded under this section have addressed the research topics identified in the research agenda established in Transportation Research Board Special Report 260, including identifying those topics which have not yet been addressed;

''(2) assess the merit and peer review process for project proposals, and assess research project results; and

''(3) assess the extent of stakeholder involvement in all facets of the program.

''(i) ANNUAL PROGRESS AND PERFORMANCE REPORT.—The National Academy of Sciences shall produce an annual progress and performance report for the program under this section. The report shall summarize the status, funding, and sponsors of all funded projects by the research areas specified in subsection (f). It shall document the progress of each project relative to milestones included in the project proposal. The report shall identify research areas and projects remaining unfunded, and anticipated funding needs for completing that research. The report shall be submitted to the Secretary, to the Committee on Transportation and Infrastructure and the

Committee on Science of the House of Representatives, and to the Committee on Environment and Public Works of the Senate.''.

(b) CONFORMING AMENDMENT.—The analysis of chapter 5 of title 23, United States Code, is amended by adding at the end the following new item:

''509. Future strategic highway research program.''.

SEC. 107. UNIVERSITY TRANSPORTATION CENTERS.

Section 5505 of title 49, United States Code, is amended to read as follows:

''§ 5505. University transportation research

''(a) REGIONAL CENTERS.—The Secretary of Transportation shall make grants to nonprofit institutions of higher learning to establish and operate 1 university transportation center in each of the 10 United States Government regions that comprise the Standard Federal Regional Boundary System.

''(b) OTHER CENTERS.—The Secretary shall make grants to nonprofit institutions of higher learning to establish and operate university transportation centers, in addition to the centers receiving grants under subsection (a), to address transportation management and research and development matters, with special attention to increasing the number of highly skilled individuals entering the field of transportation.

''(c) SELECTION OF GRANT RECIPIENTS.—

''(1) APPLICATIONS.—In order to be eligible to receive a grant under this section, a nonprofit institution of higher learning shall submit to the Secretary an application that is in such form and contains such information as the Secretary may require.

''(2) SELECTION CRITERIA.—Except as otherwise provided by this section, the Secretary shall select each recipient of a grant under this section through a competitive, peer-reviewed process on the basis of the following:

''(A) For regional centers, the location of the center within the Federal region to be served.

''(B) The demonstrated research and extension resources available to the recipient to carry out this section.

''(C) The capability of the recipient to provide leadership in making national and regional contributions to the solution of immediate and long-range transportation problems.

''(D) The recipient's establishment of a surface transportation program encompassing several modes of transportation.

''(E) The recipient's demonstrated commitment of at least $200,000 in regularly budgeted

institutional amounts each year to support ongoing transportation research and education programs.

''(F) The recipient's demonstrated ability to disseminate results of transportation research and education programs through a statewide or regionwide continuing education program.

''(G) The strategic plan the recipient proposes to carry out under the grant.

''(d) OBJECTIVES.—Each university transportation center receiving a grant under this section shall conduct the following programs and activities:

''(1) Basic and applied research that supports the Department's research agenda consistent with section 508 of title 23, the products of which are peer-reviewed by other experts in the field to advance the body of knowledge in transportation.

''(2) An education program that includes multidisciplinary course work, faculty and student participation in research, and an opportunity for practical experience.

''(3) An ongoing program of technology transfer that makes research results available to potential

users in a form that can be implemented, utilized, or otherwise applied.

''(e) MAINTENANCE OF EFFORT.—To be eligible to receive a grant under this section, an applicant shall—

''(1) enter into an agreement with the Secretary to ensure that the applicant will maintain total expenditures from all other sources to establish and operate a university transportation center and related educational and research activities at a level that is at least equal to the average level of those expenditures during the 2 fiscal years before the date on which the grant is provided;

''(2) provide the annual institutional contribution required under subsection (c)(2);

''(3) submit to the Secretary, in a timely manner, for use by the Secretary in the preparation of the annual research report under section 508(c)(5) of title 23, an annual report on the projects and activities of the university transportation center for which funds are made available for the fiscal year covered by the report, a description of—

''(A) the goals of the center;

''(B) the educational activities carried out by the center (including a detailed summary of the budget for those educational activities);

''(C) teaching activities of faculty at the center;

''(D) each research project carried out by the center, including—

''(i) the identity and location of each investigator working on a research project;

''(ii) the overall funding amount for each research project (including the amounts expended for the project as of the date of the report);

''(iii) the current schedule for each research project; and

''(iv) the results of each research project through the date of submission of the report, with particular emphasis on results for the fiscal year covered by the report; and

''(E) overall technology transfer and implementation efforts of the center;

''(4) make use of National Research Council, Transportation Research Board, and Transportation Research Information Services online databases for—

''(A) program development and strategic planning;

''(B) reporting of activities funded under this section; and

''(C) input and dissemination of results and reports from completed research; and

''(5) recommend a representative to serve as liaison to the Transportation Research Board.

''(f) FEDERAL SHARE.—The Federal share of the costs of activities carried out using a grant made under subsection (a) is 80 percent of costs, and under subsection (b) is 50 percent of costs. The non-Federal share may include funds provided to a recipient under section 503, 504(b), or 505 of title 23, United States Code.

''(g) PROGRAM COORDINATION.—

''(1) COORDINATION.—The Secretary shall coordinate the research, education, training, and technology transfer activities that grant recipients carry out under this section, disseminate the results of the research, and establish and operate a clearinghouse.

''(2) ANNUAL REVIEW AND EVALUATION.—At least annually and consistent with the plan developed under section 508 of title 23, United States Code, the Secretary shall review and evaluate programs the grant recipients carry out.

''(3) FUNDING LIMITATION.—The Secretary may use not more than 1 percent of amounts made

available from Government sources to carry out this subsection.

''(h) LIMITATION ON AVAILABILITY OF FUNDS.—Funds made available to carry out this program shall remain available for obligation for a period of 2 years after the last day of the fiscal year for which such funds are authorized.

''(i) GRANTS.—The Secretary may make grants under this section as follows:

''(1) For grants under subsection (a)—

''(A) $2,000,000 for fiscal year 2005;

''(B) $3,000,000 for fiscal year 2006;

''(C) $4,000,000 for fiscal year 2007;

''(D) $4,000,000 for fiscal year 2008;

''(E) $4,000,000 for fiscal year 2009; and

''(F) $4,000,000 for fiscal year 2010.

''(2) For grants under subsection (b) to centers that received funding for fiscal years 2002 and 2003 under this section—

''(A) $2,000,000 for fiscal year 2005;

''(B) $2,000,000 for fiscal year 2006; and

''(C) $2,000,000 for fiscal year 2007.

''(3) For 6 additional grants under subsection (b)—

''(A) $2,000,000 for fiscal year 2005;

''(B) $2,000,000 for fiscal year 2006; and

''(C) $2,000,000 for fiscal year 2007.

''(4) For 16 grants under subsection (b), which may include grants to centers described in paragraph (2)—

''(A) $3,000,000 for fiscal year 2008;

''(B) $3,000,000 for fiscal year 2009; and

''(C) $3,000,000 for fiscal year 2010.

''(j) TRANSPORTATION EDUCATION DEVELOPMENT PILOT PROGRAM.—

''(1) ESTABLISHMENT.—The Secretary shall establish a program to make grants to State Departments of Transportation, who in conjunction with nonprofit institutions of higher education, will develop and test new curricula to educate the transportation workforce.

''(2) SELECTION OF GRANT RECIPIENTS.—In selecting applications for awards under this subsection, the Secretary shall consider—

''(A) the degree to which the new curricula will address the specific workforce needs of the State, evaluated on the basis of a State's development of a strategic human resources plan and how the new curricula will help fulfill the plan;

''(B) the degree to which the new curricula will provide expertise in areas other than engineering, such as business administration, economics, information technology, environmental science, and law, as determined necessary by the State; and

''(C) a State's commitment to continuing the program beyond the pilot effort.

''(3) NUMBER AND AMOUNT OF GRANTS.—For fiscal years 2005, 2006, and 2007, the Secretary shall make 4 grants under this subsection, each in the amount of $1,000,000. For fiscal years 2008, 2009, and 2010, the Secretary shall make 4 grants under this subsection, each in the amount of $500,000.''.

SEC. 108. INTELLIGENT TRANSPORTATION SYSTEMS.

(a) AMENDMENT.—Subtitle C of title V of the Transportation Equity Act for the 21st Century is amended to read as follows:

''Subtitle C—Intelligent Transportation Systems

''SEC. 5201. SHORT TITLE.

''This subtitle may be cited as the 'Intelligent Transportation Systems Act of 2005' .

"SEC. 5202. GOALS AND PURPOSES.

''(a) GOALS.—The goals of the intelligent transportation system program include—

''(1) enhancement of surface transportation efficiency and facilitation of intermodalism and international trade to enable existing facilities to meet a significant portion of future transportation needs, including public access to employment, goods, and services, and to reduce regulatory, financial, and other transaction costs to public agencies and system users;

''(2) achievement of national transportation safety goals, including the enhancement of safe operation of motor vehicles and nonmotorized vehicles, with particular emphasis on decreasing the number and severity of collisions;

''(3) protection and enhancement of the natural environment and communities affected by surface transportation, with particular emphasis on assisting State and local governments to achieve national environmental goals;

''(4) accommodation of the needs of all users of surface transportation systems, including operators of commercial vehicles, passenger vehicles, motorcycles, and bicycles, and including pedestrians and individuals with disabilities; and

''(5) improvement of the Nation's ability to respond to security related or other man made emergencies and natural disasters, and enhancement of national defense mobility.

''(b) PURPOSES.—The Secretary shall implement activities under the intelligent transportation system program to, at a minimum—

''(1) develop and test new and emerging technologies to meet the goals described in subsection (a);

''(2) expedite deployment, in both metropolitan and rural areas, and ensure integration and interoperability of proven intelligent transportation systems;

''(3) ensure that Federal, State, and local transportation officials have adequate knowledge of intelligent transportation systems for full consideration in the transportation planning process;

''(4) improve regional cooperation and operations planning for effective intelligent transportation system deployment;

''(5) promote the innovative use of private resources;

''(6) develop a workforce capable of developing, operating, and maintaining intelligent transportation systems; and

''(7) evaluate costs and benefits of intelligent transportation systems projects.

''SEC. 5203. GENERAL AUTHORITIES AND REQUIREMENTS.

''(a) SCOPE.—Subject to the provisions of this subtitle, the Secretary shall conduct an ongoing intelligent transportation system program to research, develop, and operationally test intelligent transportation systems and advance nationwide deployment of proven systems through research on barriers to deployment as a component of the surface transportation systems of the United States.

''(b) POLICY.—Intelligent transportation system research, development, operational tests, and deployment projects funded pursuant to this subtitle shall encourage and not displace public-private partnerships or private sector investment in such research and development tests and projects.

''(c) COOPERATION WITH GOVERNMENTAL, PRIVATE, AND EDUCATIONAL ENTITIES.—The Secretary shall carry out the intelligent transportation system program in cooperation with State and local governments and other public entities, the United States private sector, the Federal laboratories, and colleges and universities, includ-

ing historically black colleges and universities and other minority institutions of higher education.

''(d) CONSULTATION WITH FEDERAL OFFICIALS.—In carrying out the intelligent transportation system program, the Secretary, as appropriate, shall consult with the Secretary of Commerce, the Secretary of the Treasury, the Secretary of Homeland Security, the Administrator of the Environmental Protection Agency, the Director of the National Science Foundation, and the heads of other Federal departments and agencies.

''(e) TECHNICAL ASSISTANCE, TRAINING, AND INFORMATION.—The Secretary shall provide technical assistance, training, and information to State and local governments seeking to implement, operate, maintain, or evaluate intelligent transportation system technologies and services.

''(f) TRANSPORTATION PLANNING.—The Secretary may provide funding to support adequate consideration of transportation system management and operations, including intelligent transportation systems, within metropolitan and statewide transportation planning processes.

''(g) INFORMATION CLEARINGHOUSE.—

''(1) IN GENERAL.—The Secretary shall—

''(A) maintain a repository for technical and safety data collected as a result of federally

sponsored projects carried out under this subtitle; and

"(B) make that information (except for proprietary information and data) readily available to all users of the repository at an appropriate cost.

"(2) DELEGATION OF AUTHORITY.—

"(A) IN GENERAL.—The Secretary may delegate the responsibility of the Secretary under this subsection, with continuing oversight by the Secretary, to an appropriate entity not within the Department of Transportation.

"(B) FEDERAL ASSISTANCE.—If the Secretary delegates the responsibility, the entity to which the responsibility is delegated shall be eligible for Federal assistance under this section.

"(h) ADVISORY COMMITTEE.—

"(1) IN GENERAL.—The Secretary shall establish an Advisory Committee to advise the Secretary on carrying out this subtitle.

"(2) MEMBERSHIP.—The Advisory Committee shall have no more than 20 members and include, at a minimum—

"(A) a representative from a State highway department;

"(B) a representative from a local highway department;

"(C) a representative from a State, local, or regional transit agency;

"(D) a representative from a metropolitan planning organization;

"(E) a private sector vendor of intelligent transportation system technologies;

"(F) a private sector user of intelligent transportation system technologies;

"(G) a academic researcher who is a civil engineer;

"(H) a academic researcher who is a social scientist;

"(I) a representative from the Intelligent Transportation Society of America;

"(J) a representative from a public interest group concerned with safety;

"(K) a representative from a public interest group concerned with community development; and

"(L) members with expertise in planning, safety, and operations.

"(3) DUTIES.—The Advisory Committee shall, at a minimum, perform the following duties—

"(A) Provide input into the development of the National ITS Program Plan, and the Intelligent Transportation System portion of each strategic plan under section 508 of title 23, United States Code.

"(B) Review the National ITS Program Plan and the Intelligent Transportation System portion of each strategic plan under section 508 of title 23, United States Code, and transmit the Advisory Committee's views on the plans to Congress.

"(C) Analyze intelligent transportation systems technologies, for which a plan or budget proposal has recommended funding for research and development activities or operational tests, to advise the Department on—

"(i) whether the intelligent transportation system technologies are likely to be deployed by users, and, if not, to determine the barriers to deployment;

"(ii) the appropriate roles for government and the private sector in investing in specific intelligent transportation system technologies; and

''(iii) whether these activities are likely to advance either the state-of-the-practice or state-of-the-art in intelligent transportation systems.

''(4) APPLICABILITY OF FEDERAL ADVISORY COMMITTEE ACT.—The Advisory Committee shall be subject to the Federal Advisory Committee Act (5 U.S.C. App.).

''(i) PROCUREMENT METHODS.—

''(1) TECHNICAL ASSISTANCE.—The Secretary shall develop appropriate technical assistance and guidance to assist State and local agencies in evaluating and selecting appropriate methods of procurement for intelligent transportation system projects carried out using funds made available from the Highway Trust Fund, including innovative and non-traditional methods such as the Information Technology Omnibus Procurement.

''(2) INTELLIGENT TRANSPORTATION SYSTEM SOFTWARE.—To the maximum extent practicable, contracting officials shall use as a critical evaluation criterion the Software Engineering Institute's Capability Maturity Model, or another similar recognized software design and development methodology, to reduce the cost, schedule, and performance risks asso-

ciated with the development, management, and integration of intelligent transportation system software.

''(j) EVALUATIONS.—

''(1) GUIDELINES AND REQUIREMENTS.—

''(A) IN GENERAL.—The Secretary shall issue guidelines and requirements for the evaluation of operational tests and model deployment projects carried out under this subtitle.

''(B) CONTENT.—Such evaluations shall include specific, quantitative measures to determine whether a technology is meeting its intended goal. To the maximum extent practicable, these measures shall evaluate the outcome of the technology (such as accidents avoided or decreased travel times or travel time variability).

''(C) OBJECTIVITY AND INDEPENDENCE.—The guidelines and requirements issued under subparagraph (A) shall include provisions to ensure the objectivity and independence of the evaluator so as to avoid any real or apparent conflict of interest or potential influence on the outcome by parties to any such test or deployment project or by any other formal evaluation carried out under this subtitle.

''(D) FUNDING.—The guidelines and requirements issued under subparagraph (A) shall establish evaluation funding levels, based on the size and scope of each test or project, that ensure adequate evaluation of the results of the test or project.

''(E) DISSEMINATION.—The Secretary shall make readily available through the Internet all information collected through evaluations carried out under this subtitle.

''(2) SPECIAL RULE.—Any survey, questionnaire, or interview that the Secretary considers necessary to carry out the evaluation of any test, deployment project, or program assessment activity under this subtitle shall not be subject to chapter 35 of title 44, United States Code.

''(k) USE OF RIGHTS-OF-WAY.—Intelligent transportation system projects specified in section 5117(b)(3) and 5117(b)(6) and involving privately owned intelligent transportation system components that are carried out using funds made available from the Highway Trust Fund shall not be subject to any law or regulation of a State or political subdivision of a State prohibiting or regulating commercial activities in the rights-of-way of a highway for which Federal-aid highway funds have been utilized for

planning, design, construction, or maintenance, if the Secretary of Transportation determines that such use is in the public interest. Nothing in this subsection shall affect the authority of a State or political subdivision of a State to regulate highway safety.

"SEC. 5204. NATIONAL ITS PROGRAM PLAN.

"(a) IN GENERAL.—

"(1) UPDATES.—The Secretary shall publish an update of the 'National Intelligent Transportation Systems Program Plan Five-Year Horizon', published in August, 2000. The Secretary shall consult with the Advisory Committee established under section 5203(h) in carrying out this section.

"(2) SCOPE.—The National ITS Program Plan update shall—

"(A) specify the goals, objectives, and milestones for the research and deployment of intelligent transportation systems in the context of major metropolitan areas, smaller metropolitan and rural areas, and commercial vehicle operations;

"(B) evaluate how the intelligent transportation systems program has progressed in achieving the goals, objectives, and milestones referred to in subparagraph (A);

"(C) compare actual outcomes of the intelligent transportation systems program over the last 5 years to projections from the 2000 Plan referred to in paragraph (1);

"(D) for each goal, objective, milestone, or projection found under subparagraph (B) or (C) not to have been achieved, document the barriers to achievement;

"(E) specify how specific programs and projects will achieve the goals, objectives, and milestones referred to in subparagraph (A), in the next 5 years;

"(F) specify necessary and realistically achievable timeframes and funding levels to conduct the programs and projects referred to in subparagraph (E) in order to achieve the goals, objectives, and milestones referred to in subparagraph (A);

"(G) develop a plan for addressing barriers documented under subparagraph (D);

"(H) identify activities that provide for the dynamic development of standards and protocols to promote and ensure interoperability in the implementation of intelligent transportation

system technologies, including actions taken to establish critical standards; and

''(I) establish a cooperative process with State and local governments for determining desired surface transportation system performance levels and developing plans for incorporation of specific intelligent transportation system capabilities into surface transportation systems.

''(b) REPORTING.—The National ITS Program Plan shall be transmitted to the Congress not later than August 31, 2007.

''(c) ADVISORY COMMITTEE REVIEW.—The Advisory Committee established under section 5203(h) shall review the National ITS Program Plan that is transmitted to Congress under this section, and shall transmit the Advisory Committee's views on the Plan to Congress.

''SEC. 5205. INFORMATION STRATEGY.

''(a) DEVELOPMENT AND IMPLEMENTATION.—The Secretary shall develop and implement a strategy to use information collected from intelligent transportation system technologies (including technologies used in roadway, transit, and in-vehicle applications) for traffic management and for planning, performance monitoring, program assessment, and policy applications. The Secretary shall ensure that the Bureau of Transportation Statistics plays

a significant role in the development of the strategy under this section.

''(b) CONSIDERATIONS.—The strategy developed under this section shall—

''(1) consider current data sources and propose future data sources, as well as proposing strategies for both real-time use and archived use of data;

''(2) determine what data should be centralized nationally in support of national planning and goals, what information should be aggregated regionally, and what information should be kept locally, and for nationally centralized data, identify how to ensure that data is collected and reported consistently;

''(3) assess the need for data standards;

''(4) outline how transportation decision processes can make best use of real-time data;

''(5) outline a vision for the future linkages between intelligent transportation system technologies and data;

''(6) identify public and private data sources other than intelligent transportation system data sources (such as roadway characteristics inventories and incident information) that, combined with intelligent transportation system data, would enhance the utility of intelligent transportation system data to

decisionmakers, and how these data sources can be merged;

''(7) identify how to make data most accessible and useful to users; and

''(8) identify what information would be useful to stakeholders at the local, State, regional, and national levels.

''(c) STAKEHOLDER INVOLVEMENT.—In developing the strategy under this section, the Secretary shall involve developers and users of intelligent transportation system technologies, including State and local highway departments, metropolitan planning organizations, transit agencies, travelers, the private sector, not-for-profit organizations, and representatives from the planning, safety, operations, and research communities.

''(d) INCORPORATION INTO NATIONAL ARCHITECTURE.—The strategy developed under this section shall, to the extent practicable, be incorporated into the national architecture.

''(e) REPORT TO CONGRESS.—Not later than 1 year after the date of the enactment of this subsection, the Secretary shall transmit to the Congress a report outlining the strategy developed under this section.

''SEC. 5206. NATIONAL ARCHITECTURE AND STANDARDS.

''(a) IN GENERAL.—

''(1) DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE.—Consistent with section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note; 110 Stat. 783), the Secretary shall develop, implement, and maintain a national architecture and supporting standards and protocols to promote the widespread use and evaluation of intelligent transportation system technology as a component of the surface transportation systems of the United States.

''(2) GOAL.—The goal of the national architecture and standards shall be to ensure interoperability among, and efficiency of, intelligent transportation system technologies implemented throughout the United States.

''(3) USE OF STANDARDS DEVELOPMENT ORGANIZATIONS.—In carrying out this section, the Secretary may use the services of such standards development organizations as the Secretary determines to be appropriate.

''(4) STANDARD VALIDATION.—The Secretary shall ensure that new standards promulgated for intelligent transportation system technologies are tested and validated, and shall ensure that the results

of such testing and validation are made publicly available.

''(b) PROVISIONAL STANDARDS.—

''(1) IN GENERAL.—If the Secretary finds that the development or balloting of an intelligent transportation system standard jeopardizes the timely achievement of the objectives identified in subsection (a)(1) and (2), the Secretary may establish a provisional standard after consultation with affected parties, and using, to the extent practicable, the work product of appropriate standards development organizations.

''(2) PERIOD OF EFFECTIVENESS.—A provisional standard established under paragraph (1) shall be published in the Federal Register and remain in effect until the appropriate standards development organization adopts and publishes a standard.

''(c) CONFORMITY WITH NATIONAL ARCHITECTURE.—

''(1) IN GENERAL.—Except as provided in paragraphs (2) and (3), the Secretary shall ensure that intelligent transportation system projects carried out using funds made available from the Highway Trust Fund, including funds made available to deploy in-

telligent transportation system technologies, conform to the national architecture, applicable standards or provisional standards, and protocols developed under subsection (a).

''(2) SECRETARY'S DISCRETION.—The Secretary may authorize exceptions to paragraph (1) for—

''(A) projects designed to achieve specific research objectives outlined in the National ITS Program Plan under section 5204 or the Surface Transportation Research and Development Strategic Plan developed under section 508 of title 23, United States Code; or

''(B) the upgrade or expansion of an intelligent transportation system in existence on the date of enactment of the Transportation Equity Act for the 21st Century, if the Secretary determines that the upgrade or expansion—

''(i) would not adversely affect the goals or purposes of this subtitle;

''(ii) is carried out before the end of the useful life of such system; and

''(iii) is cost-effective as compared to alternatives that would meet the conformity requirement of paragraph (1).

''(3) EXCEPTIONS.—Paragraph (1) shall not apply to funds used for operation or maintenance of an intelligent transportation system in existence on the date of enactment of the Transportation Equity Act for the 21st Century.

"SEC. 5207. RESEARCH AND DEVELOPMENT.

''(a) IN GENERAL.—The Secretary shall carry out a comprehensive program of research, development, and operational tests of intelligent vehicles and intelligent infrastructure systems, as well as research into barriers to their deployment, and other similar activities that are necessary to carry out this subtitle.

''(b) PRIORITY AREAS.—Under the program, the Secretary shall give higher priority to funding projects that—

''(1) reduce congestion in metropolitan regions;

''(2) improve mobility and efficiency by addressing traffic management, incident management, transit management, toll collection, traveler information, or highway operations systems;

''(3) improve safety by focusing on crash-avoidance and integration of in-vehicle crash protection technologies with other onboard safety systems, including the interaction of air bags and safety belts;

''(4) improve security by focusing on responding to security-related emergencies, and preventing such

emergencies, through tracking the movement of goods;

''(5) incorporate human factors research, including the science of the driving process;

''(6) improve deployment of proven technologies by addressing nontechnical barriers to the deployment of intelligent transportation system technologies, including institutional barriers such as fragmented authority at the local level, privacy considerations, and rigid procurement rules, and the best ways to develop partnerships to successfully deploy intelligent transportation system technologies;

''(7) facilitate the integration of intelligent infrastructure, vehicle, and control technologies, including magnetic guidance control systems or other materials or magnetics research;

''(8) incorporate research on the impact of environmental, weather, and natural conditions on intelligent transportation systems, including the effects of cold climates; or

''(9) facilitate high-performance transportation systems, through methods such as congestion pricing, real-time facility management, rapid emergency response, and just-in-time transit.

''(c) OPERATIONAL TESTS.—Operational tests shall be used to evaluate promising technologies that have not yet been demonstrated. Operational tests conducted under this section shall be designed for the collection of data to permit objective evaluation of the results of the tests, derivation of cost-benefit information that is useful to others contemplating deployment of similar systems, and development and implementation of standards.

''(d) FEDERAL SHARE.—The Federal share of the cost of operational tests and demonstrations under subsection (a) shall not exceed 80 percent.

''SEC. 5208. USE OF FUNDS.

''(a) CONGESTION REDUCTION.—At least ⅓ of funds spent under section 5207 for intelligent transportation systems research and development shall be used to research, develop, and operationally test technologies whose primary purpose is to reduce congestion.

''(b) OUTREACH AND PUBLIC RELATIONS LIMITATION.—

''(1) IN GENERAL.—For each fiscal year, not more than $5,000,000 of the funds made available to carry out this subtitle shall be used for intelligent transportation system outreach, public relations, displays, scholarships, tours, and brochures.

''(2) APPLICABILITY.—Paragraph (1) shall not apply to intelligent transportation system training or the publication or distribution of research findings, technical guidance, or similar documents.

''(c) INFRASTRUCTURE DEVELOPMENT.—Funds made available to carry out this subtitle for operational tests—

''(1) shall be used primarily for the development of intelligent transportation system infrastructure; and

''(2) to the maximum extent practicable, shall not be used for the construction of physical highway and transit infrastructure unless the construction is incidental and critically necessary to the implementation of an intelligent transportation system project.

''(d) USE OF INNOVATIVE FINANCING.—

''(1) IN GENERAL.—The Secretary may use up to 25 percent of the funds made available to carry out this subtitle to make available loans, lines of credit, and loan guarantees for projects that are eligible for assistance under this subtitle and that have significant intelligent transportation system elements.

''(2) CONSISTENCY WITH OTHER LAW.—Credit assistance described in paragraph (1) shall be made available in a manner consistent with the Transportation Infrastructure Finance and Innovation Act of 1998.

''SEC. 5209. PROGRAM EVALUATION.

''The Secretary shall enter into an arrangement with the National Academy of Sciences, or another independent institution, to evaluate the Department of Transportation's intelligent transportation system program. The evaluation shall assess, at a minimum—

''(1) how well the intelligent transportation system program has achieved its goals as set forth in the 2000 5-year plan referred to in section 5204(a)(1), including—

''(A) expediting integrated intelligent transportation system deployment in metropolitan and rural areas for both passenger and freight transportation;

''(B) ensuring that Federal, State, and local transportation officials consider intelligent transportation systems in the transportation planning process and have adequate knowledge to do so;

''(C) improving regional cooperation and operations planning for effective intelligent transportation system deployment;

''(D) promoting the innovative use of private resources; and

''(E) developing a workforce capable of deploying, operating, and maintaining intelligent transportation systems; and

''(2) in areas where the intelligent transportation system program has not met its goals, assess the barriers to meeting those goals, and make recommendations for how those barriers may be overcome.

''SEC. 5210. DEFINITIONS.

''In this subtitle, the following definitions apply:

''(1) INTELLIGENT TRANSPORTATION INFRASTRUCTURE.—The term 'intelligent transportation infrastructure' means fully integrated public sector intelligent transportation system components, as defined by the Secretary.

''(2) INTELLIGENT TRANSPORTATION SYSTEM.—The term 'intelligent transportation system' means electronics, communications, or information processing used singly or in combination to improve

the efficiency or safety of a surface transportation system.

''(3) NATIONAL ARCHITECTURE.—The term 'national architecture' means the common framework for interoperability adopted by the Secretary that defines—

''(A) the functions associated with intelligent transportation system user services;

''(B) the physical entities or subsystems within which the functions reside;

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

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

''(4) NATIONAL ITS PROGRAM PLAN.—The term 'National ITS Program Plan' means the plan update required under section 5204(a).

''(5) 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.

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

(b) TABLE OF CONTENTS AMENDMENT.—The items relating to subtitle C of title V in the table of contents of the Transportation Equity Act for the 21st Century are amended to read as follows:

''Subtitle C—Intelligent Transportation Systems

(c) REPEAL.—The Intermodal Surface Transportation Efficiency Act of 1991 is amended by striking part B of title VI (23 U.S.C. 307 note; 105 Stat. 2189).

SEC. 109. NATIONAL MULTIMODAL TRENDS POLICY RESEARCH PROGRAM.

(a) IN GENERAL.—The Secretary shall establish and carry out a National Multimodal Trends Policy Research Program that systematically addresses critical short-term, medium-term, and long-term social science issues affecting and affected by the transportation system.

(b) CONTENTS.—The program to be carried out under this section shall include—

(1) research on—

(A) the critical factors and major trends affecting the success and performance of the Nation's transportation system, as well as how such information can be incorporated into national, State, and local decisionmaking;

(B) the short-term, medium-term, and especially long-term economic, demographic, and social trends that are affecting and are affected by the transportation system, including topics such as—

(i) economic trends, including globalization and it effects on the transpor-

tation of people and goods, rapidly changing information technology, the growing importance of metropolitan economies, diversification of employment sites, innovations in goods movement, and larger capacity and faster goods movement;

(ii) demographic trends, including population growth, increasing minority populations, increasing urbanization, and the aging of the population; and

(iii) social trends and issues, including increasing income disparity and its implication for mobility and access to jobs, services and health care, the unique needs of rural populations, and the link between human factors and driver behavior;

(C) improvements in evaluation methodologies and performance measures, and the evaluation of project and transportation system performance relative to the goals set forth in section 102;

(D) how institutional factors within and among the public and private sectors affect the development and successful deployment of new technologies;

(E) links between public health and the transportation system; and

(F) other critical issues identified by the Advisory Board established under subsection (e); and

(2) research on and the development of policy analysis tools and methods.

(c) ESTABLISHMENT.—Not later than 120 days after the date of enactment of this Act, the Secretary shall enter into an arrangement with the National Academy of Sciences to establish an advisory board under subsection (e) and, except as provided in subsection (e), to support, administer, and manage the program.

(d) STRATEGIC PLAN.—Not later than 2 years after entering into the arrangement under subsection (c) and upon each update thereafter, the National Academy of Sciences shall transmit the strategic plan developed by the advisory board under subsection (e) to the Secretary, to the Committee on Transportation and Infrastructure and the Committee on Science of the House of Representatives, and to the Committee on Environment and Public Works of the Senate.

(e) ADVISORY BOARD.—

(1) ESTABLISHMENT.—The National Academy of Sciences shall establish an independent advisory board.

(2) MEMBERSHIP.—

(A) IN GENERAL.—A majority of members of the advisory board shall be experts in—

(i) transportation social science research; or

(ii) other social science fields with important or potentially important relationships to transportation, selected after consultation with the Consortium of Social Science Associations.

Members selected under this subparagraph shall, to the extent practicable, be evenly divided between experts described in clause (i) and experts described in clause (ii).

(B) ADDITIONAL MEMBERS.—Additional members of the advisory board shall be evenly balanced among representatives of Federal, State, and local transportation agencies, other agencies with appropriate expertise, metropolitan planning organizations, transit operating agencies, and environmental and other nonprofit organizations.

(3) RESPONSIBILITIES.—The advisory board shall be responsible for—

(A) the development of a strategic plan which shall specify at a minimum the goals, research priorities, and fiscal needs of the program, and which shall be updated periodically;

(B) overseeing the awarding of grants and contracts to carry out the research strategy;

(C) the development of the annual request for proposals and the solicitation of proposals through open competition with peer review; and

(D) the development of project selection criteria, through an open and public consultation process with stakeholders.

(4) EVALUATION OF RESEARCH.—Research contracts and grants under this section shall require peer review of the research results.

(5) ELIGIBLE RESEARCH.—At least 75 percent of funds made available for research under this section shall support research directed to the priorities in the strategic plan, and up to 25 percent of such funds may support appropriate sponsor directed research.

(f) DISSEMINATION OF RESEARCH FINDINGS.—The National Academy of Sciences and the Department of

Transportation shall disseminate research findings under this section to researchers, practitioners, and decision-makers, through conferences and seminars, field demonstrations, workshops, training programs, presentations, testimony to government officials, the Internet, and publications for the general public.

TITLE II—MISCELLANEOUS

SEC. 201. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary of Transportation to carry out sections 5312, 5313, 5314, 5315, and 5322 of title 49, United States Code, and section 202 of this Act, relating to research and development, $75,000,000 for each of the fiscal years 2005 through 2010.

SEC. 202. TRANSIT RESEARCH.

(a) AMENDMENT.—Chapter 5 of title 23, United States Code, as amended by this Act, is further amended by adding at the end the following new section:

"§ 510. Innovative Practices and Technologies Demonstration and Deployment Program

''(a) ESTABLISHMENT.—The Secretary shall establish an Innovative Practices and Technologies Demonstration and Deployment Program.

''(b) PROGRAM GOALS.—The goals of the program are to—

''(1) demonstrate promising new transit practices and technologies, including new business models for managing and operating transit systems, that may increase ridership, increase accessibility, reduce cost, improve customer satisfaction, and improve safety;

''(2) evaluate, refine, and document the performance, benefits, and costs of innovative practices and technologies; and

''(3) effectively disseminate information to accelerate deployment of innovative practices and technologies.

''(c) GRANTS, COOPERATIVE AGREEMENTS, AND CONTRACTS.—The Secretary may make grants to, or enter into cooperative agreements or contracts with, transit agencies, States, other Federal agencies, universities and colleges, private sector entities, and nonprofit organizations to pay the Federal share of the cost of demonstration and deployment projects concerning innovative practices and technologies.

''(d) APPLICATIONS.—To receive a grant, cooperative agreement, or contract under this section, an entity described in subsection (c) shall submit an application to the Secretary. The application shall be in such form and contain such information as the Secretary may require. The

Secretary shall select and approve the applications based on the following criteria:

''(1) Whether the project meets the goals of the program.

''(2) Merit review.

''(3) The likelihood that the project will result in more widespread deployment of the practice or technology being proposed.

''(4) Preference shall be given to an application that represents a public-private partnership.

''(e) TECHNOLOGY AND INFORMATION TRANSFER.—The Secretary shall ensure that information about innovative practices and technologies supported under this section is made available to transit agencies, State and local transportation departments, and other interested parties. Information disseminated under this subsection shall include both the costs and benefits of deploying an innovative practice or technology, and shall document—

''(1) best practices for adopting successful practices or technologies; and

''(2) the transferability of these practices and technologies.

''(f) FEDERAL SHARE.—The Federal share of the cost of a project under this section shall be determined by the Secretary.''.

(b) CONFORMING AMENDMENT.—The analysis of chapter 5 of title 23, United States Code, as amended by this Act, is further amended by adding at the end the following new item:

"510. Innovative Practices and Technologies Demonstration and Deployment Program.".

SEC. 203. TRANSPORTATION, ENERGY, AND ENVIRONMENT.

(a) IN GENERAL.—As part of the National Climate Change Technology Initiative and the Climate Change Research Initiative, the Secretary shall establish and carry out a multimodal energy and climate change program to study the relationship of transportation, energy, and climate change.

(b) CONTENTS.—The program to be carried out under this section shall include, but not be limited to, research designed to—

(1) identify, develop and evaluate strategies to improve energy efficiency and reduce greenhouse gas emissions from transportation sources; and

(2) identify and evaluate the potential effects of climate changes on the nation's transportation systems, and strategies to address these effects.

(c) PROJECT SELECTION.—Activities to be undertaken in this program will be determined by an internal steering committee established by the Secretary of Transportation. This intermodal committee shall include rep-

resentatives from the Office of the Secretary and operating administrations within the Department of Transportation as designated by the Secretary.

(d) GRANTS, COOPERATIVE AGREEMENTS AND CONTRACTS.—The Secretary may carry out this program independently or by making grants to, or entering into contracts and cooperative agreements with, a Federal agency, State agency, local agency, authority, association, nonprofit or for-profit corporation, or institution of higher education.

SEC. 204. NATIONAL COOPERATIVE FREIGHT TRANSPORTATION RESEARCH PROGRAM.

(a) AUTHORIZATION.—To carry out a national cooperative freight transportation research program, there is authorized the following sums:

(1) $8,000,000 for each of fiscal years 2005 and 2006.

(2) $10,000,000 for each of fiscal years 2007 and 2008.

(3) $12,000,000 for each of fiscal years 2009 and 2010.

(b) IN GENERAL.—Chapter 5 of title 23, United States Code, is amended by adding at the end the following:

"§ 509. National Cooperative Freight Transportation Research Program

''(a) ESTABLISHMENT.—The Secretary shall establish and support a national cooperative freight transportation research program.

''(b) AGREEMENT.—The Secretary shall enter into an agreement with the National Academy of Sciences to support and carry out administrative and management activities relating to the governance of the national cooperative freight transportation research program.

''(c) ADVISORY COMMITTEE.—The National Academy of Sciences shall select an advisory committee consisting of a representative cross-section of freight stakeholders, including the Department of Transportation, other Federal agencies, State transportation departments, local governments, the American Association of State Highway and Transportation Officials and other nonprofit entities (including environmental groups), academia, and the private sector.

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

''(1) NATIONAL RESEARCH AGENDA.—The advisory committee, in consultation with stakeholders, shall recommend a national research agenda for the

national cooperative freight transportation research program. The national research agenda shall include a multi-year strategic plan.

''(2) STAKEHOLDER INVOLVEMENT.—Stakeholders may—

''(A) submit research proposals to the advisory committee;

''(B) participate in merit reviews of research proposals and peer reviews of research products; and

''(C) receive research results.

''(3) OPEN COMPETITION AND PEER REVIEW OF RESEARCH PROPOSALS.—The National Academy of Sciences shall award research contracts and grants through open competition and merit review conducted on a regular basis.

''(4) EVALUATION OF RESEARCH.—

''(A) PEER REVIEW.—Research contracts and grants shall allow peer review of the research results.

''(B) PROGRAMMATIC EVALUATIONS.—The National Academy of Sciences may conduct periodic programmatic evaluations on a regular basis.

''(5) DISSEMINATION OF RESEARCH FINDINGS.—The National Academy of Sciences shall disseminate research findings to researchers, practitioners, and decision-makers, through conferences and seminars, field demonstrations, workshops, training programs, presentations, testimony to government officials, world wide web, publications for the general public, and other appropriate means.

''(e) CONTENTS.—The national research agenda for the national cooperative freight transportation research program required under subsection (d)(1) shall include research in the following areas:

''(1) Techniques for estimating and quantifying public benefits derived from freight transportation projects.

''(2) Alternative approaches to calculating the contribution of truck traffic to congestion on specific highway segments.

''(3) The feasibility of freight villages as a means of consolidating origins and destinations for freight movement.

''(4) Methods for incorporating estimates of international trade into landside transportation planning.

''(5) The use of technology applications to increase capacity of highway lanes dedicated to truck-only traffic.

''(6) Development of physical and policy alternatives for separating car and truck traffic.

''(7) Ways to synchronize infrastructure improvements with freight transportation demand.

''(8) The effect of changing patterns of freight movement on transportation planning decisions relating to rest areas.

''(9) Additional priorities to identify and address the emerging and future research needs related to freight transportation.

''(f) FUNDING.—

''(1) FEDERAL SHARE.—The Federal share of the cost of an activity carried out using such funds shall be up to 100 percent, and such funds shall remain available until expended.

''(2) USE OF NON-FEDERAL FUNDS.—In addition to using funds authorized for this section, the National Academy of Sciences may seek and accept additional funding sources from public and private entities capable of accepting funding from the United States Department of Transportation (Federal Highway Administration, Federal Transit Ad-

ministration, Federal Railroad Administration, Research and Special Programs Administration, and the National Highway Traffic Safety Administration), states, local governments, nonprofit foundations, and the private sector.''.

(c) CONFORMING AMENDMENT.—The analysis for chapter 5 of title 23, United States Code, is amended by redesignating section 509 as follows:

''509. National cooperative freight transportation research program.''.

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