115TH CONGRESS
2D SESSION

S. 3341

To encourage the research and use of innovative materials and associated techniques in the construction and preservation of the domestic transportation and water infrastructure system, and for other purposes.

IN THE SENATE OF THE UNITED STATES

AUGUST 1, 2018

Mr. WHITEHOUSE (for himself, Mr. ALEXANDER, Mr. ROUNDS, and Mr. BOOKER) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

---

A BILL

To encourage the research and use of innovative materials and associated techniques in the construction and preservation of the domestic transportation and water infrastructure system, and for other purposes.

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

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Innovative Materials for America's Growth and Infrastructure Newly Expanded Act of 2018'' or the ''IMAGINE Act''.

SEC. 2. PURPOSES.

The purposes of this Act are—

(1) to encourage the research and use of innovative materials, in concert with traditional materials, and associated techniques in the construction and preservation of the domestic infrastructure network;

(2) to accelerate the deployment and extend the service life, improve the performance, and reduce the cost of infrastructure projects; and

(3) to improve the economy, resilience, maintainability, sustainability, and safety of the domestic infrastructure network.

SEC. 3. DEFINITION OF INNOVATIVE MATERIAL.

In this Act, the term ''innovative material'', with respect to an infrastructure project, includes high performance asphalt mixtures and concrete formulations, geosynthetic materials, advanced alloys and metals, reinforced polymer composites, including any coating or other corrosion prevention method used in conjunction with those materials, advanced polymers, and any other material or aggregate materials, as determined by the appropriate agency or department head.

SEC. 4. INTERAGENCY INNOVATIVE MATERIALS STANDARDS TASK FORCE.

(a) ESTABLISHMENT.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Director of the National Institute of Standards and Technology shall establish an Interagency Innovative Materials Standards Task Force (referred to in this section as the ''Task Force'') composed of the heads of Federal agencies responsible for significant civil infrastructure projects, including—

(A) the Administrator of the Federal Highway Administration;

(B) the Commanding General and Chief of Engineers of the Corps of Engineers;

(C) the Assistant Secretary of the Army for Civil Works; and

(D) the Administrator of the Environmental Protection Agency.

(2) CHAIRPERSON.—The Director of the National Institute of Standards and Technology shall serve as Chairperson of the Task Force.

(b) PURPOSE.—The Task Force shall coordinate and improve, with respect to infrastructure construction, retrofitting, rehabilitation, and other improvements—

(1) Federal testing standards;

(2) Federal design and use guidelines; and

(3) other applicable standards.

(c) REPORT.—

(1) IN GENERAL.—Not later than 18 months after the date of enactment of this Act, the Task Force shall conduct, and submit to the appropriate committees of Congress a report that describes the results of, a study—

(A) to assess the standards for the use of innovative materials in infrastructure projects; and

(B) to identify any barriers relating to the standards described in subparagraph (A) that preclude the use of certain products or associated techniques.

(2) REPORT.—The report under paragraph (1) shall—

(A) identify any non-Federal entities or other organizations, including the American Association of State Highway and Transportation Officials, that develop relevant standards; and

(B) outline a strategy to improve coordination and information sharing between the entities described in subparagraph (A) and any relevant Federal agencies.

(d) IMPROVED COORDINATION.—Not later than 2 years after the date of enactment of this Act, the Task

Force shall collaborate with any non-Federal entity identified under subsection (c)(2)(A)—

(1) to identify and carry out appropriate research, testing methods, and processes relating to the development and use of innovative materials;

(2) to develop new methods and processes relating to the development and use of innovative materials, as the applicable agency head determines to be necessary; and

(3) to contribute to the development of standards and guidelines for the use of innovative materials and approaches in civil infrastructure projects.

SEC. 5. INNOVATIVE MATERIAL INNOVATION HUBS.

(a) DEFINITIONS.—In this section:

(1) HUB.—The term ''Hub'' means an Innovative Material Innovation Hub established under this section.

(2) QUALIFYING ENTITY.—The term ''qualifying entity'' means—

(A) an institution of higher education (as defined in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)));

(B) an appropriate Federal or State entity, including a federally funded research and devel-

opment center of the Department of Transportation;

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

(D) an Innovative Material Innovation Hub in existence on the date of enactment of this Act; and

(E) any other relevant entity the Secretary determines to be appropriate.

(3) SECRETARY.—The term ''Secretary'' means the Secretary of Transportation.

(b) AUTHORIZATION OF PROGRAM.—

(1) IN GENERAL.—The Secretary shall carry out a program to enhance the development of innovative materials in the United States by making awards to consortia for establishing and operating new Hubs, to be known as ''Innovative Material Innovation Hubs'', to conduct and support multidisciplinary, collaborative research, development, demonstration, and commercial application of innovative materials.

(2) LOCATION OF HUBS.—To the extent practicable, each Hub shall be located at 1 centralized location.

(3) TECHNOLOGY DEVELOPMENT FOCUS.—The Secretary shall designate for each new Hub a unique innovative material focus, such as material development, infrastructure applications, and other focus areas identified by the Secretary.

(4) COORDINATION.—The Secretary shall ensure the coordination of, and avoid unnecessary duplication of, the activities of each Hub with the activities of—

(A) other research entities of the Department of Transportation, including the Federal Highway Administration;

(B) the National Laboratories (as defined in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801));

(C) the Corps of Engineers;

(D) the Environmental Protection Agency;

(E) the Federal Emergency Management Agency;

(F) the National Institute of Standards and Technology;

(G) the Department of Defense;

(H) an industry consortium meeting the requirements under subsection (c)(1); and

(I) any other Federal agencies or industry consortia conducting substantially similar work.

(c) APPLICATION PROCESS.—

(1) ELIGIBILITY.—To be eligible to receive an award for the establishment and operation of a Hub under subsection (b)(1), a consortium shall—

(A) be composed of not fewer than 2 qualifying entities;

(B) operate subject to a binding agreement, entered into by each member of the consortium, that documents—

(i) the proposed partnership agreement, including the governance and management structure of the Hub;

(ii) measures the consortium will undertake to enable cost-effective implementation of activities under the program described in subsection (b)(1); and

(iii) a proposed budget, including financial contributions from non-Federal sources; and

(C) operate as a nonprofit organization.

(2) APPLICATION.—

(A) IN GENERAL.—A consortium seeking to establish and operate a Hub under sub-

section (b)(1) shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require, including a detailed description of—

(i) each element of the consortium agreement required under paragraph (1)(B); and

(ii) any existing facilities the consortium intends to provide for Hub activities.

(B) REQUIREMENT.—If the consortium members will not be located at 1 centralized location, the application under subparagraph (A) shall include a communications plan that ensures close coordination and integration of Hub activities.

(3) SELECTION.—

(A) IN GENERAL.—The Secretary shall select consortia for awards for the establishment and operation of Hubs through a competitive selection process.

(B) CONSIDERATIONS.—In selecting consortia under subparagraph (A), the Secretary shall consider—

(i) the information disclosed by the consortium under this subsection;

(ii) any existing facilities a consortium will provide for Hub activities; and

(iii) maintaining regional variety in locations of selected Hubs.

(d) TERM.—An award made to a Hub under this section shall be for a period of not more than 5 years, subject to the availability of appropriations, after which the award may be renewed, subject to a rigorous merit review.

(e) HUB OPERATIONS.—

(1) IN GENERAL.—Each Hub shall conduct or provide for multidisciplinary, collaborative research, development, demonstration, and commercial application of innovative materials within the technology development focus designated under subsection (b)(3).

(2) ACTIVITIES.—Each Hub shall—

(A) encourage collaboration and communication among the member qualifying entities of the consortium as described in subsection (c)(1) and awardees;

(B) develop and publish proposed plans and programs on a publicly accessible website;

(C) submit to the Department of Transportation an annual report summarizing the activities of the Hub, including information—

(i) detailing organizational expenditures; and

(ii) describing each project undertaken by the Hub; and

(D) monitor project implementation and coordination.

(3) CONFLICTS OF INTEREST.—Each Hub shall maintain conflict of interest procedures, consistent with the conflict of interest procedures of the Department of Transportation.

(4) PROHIBITION ON CONSTRUCTION.—

(A) IN GENERAL.—Except as provided in subparagraph (B)—

(i) no funds provided under this section may be used for construction of new buildings or facilities for Hubs; and

(ii) construction of new buildings or facilities shall not be considered as part of the non-Federal share of a Hub cost-sharing agreement.

(B) TEST BED AND RENOVATION EXCEPTION.—Nothing in this paragraph prohibits the

use of funds provided under this section or non-Federal cost share funds for the construction of a test bed or renovations to existing buildings or facilities for the purposes of research if the Secretary determines that the test bed or renovations are limited to a scope and scale necessary for the research to be conducted.

SEC. 6. TURNER-FAIRBANK HIGHWAY RESEARCH CENTER.

Section 503(b)(7) of title 23, United States Code, is amended by adding at the end the following:

''(C) INNOVATIVE MATERIALS.—

''(i) DEFINITION OF INNOVATIVE MATERIAL.—In this subparagraph, the term 'innovative material' includes high performance asphalt mixtures and concrete formulations, geosynthetic materials, advanced alloys and metals, reinforced polymer composites, including any coating or other corrosion prevention method used in conjunction with those materials, advanced polymers, and any other material or aggregate materials, as determined by the appropriate agency or department head.

''(ii) COLLABORATION WITH STATES AND TRIBES.—The Secretary shall expand

the capacity of the Turner-Fairbank Highway Research Center to collaborate with relevant State and Tribal agencies—

"(I) with respect to the use of innovative materials in construction projects carried out by the State and Tribal agencies; and

"(II) to understand and identify—

"(aa) the needs of the State and Tribal agencies; and

"(bb) innovative materials that may be further researched, developed, and used to meet those needs.

"(iii) ACTIVITIES.—The collaboration described in clause (ii) may include—

"(I) the development of new training for State and Tribal agencies; and

"(II) the expansion of technical training that involves State or Tribal departments of transportation in the development of new construction designs for innovative materials at the

Turner-Fairbank Highway Research Center.

''(iv) PRIORITY RESEARCH.—The Turner-Fairbank Highway Research Center shall prioritize research relating to—

''(I) the use of innovative materials in—

''(aa) bridges with a span equal to or greater than 50 feet;

''(bb) highway reconstruction and rehabilitation; and

''(cc) rural road infrastructure; and

''(II) coastal resiliency.

''(v) FUNDING.—Of the amounts made available to carry out this paragraph, the Secretary shall set aside $8,000,000 to carry out this subparagraph.

''(D) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this paragraph for each of fiscal years 2019 through 2023 an amount equal to the sum of—

''(i) the amount appropriated to carry out this paragraph for fiscal year 2018; and

''(ii) $8,000,000.''.

SEC. 7. INNOVATIVE BRIDGE PROGRAM.

(a) DEFINITION OF ADMINISTRATOR.—In this section, the term ''Administrator'' means the Administrator of the Federal Highway Administration.

(b) ESTABLISHMENT.—The Administrator shall establish a grant program, to be known as the ''Innovative Bridge Program'', to provide grants to State departments of transportation, Tribal governments, or units of local government for coastal and rural infrastructure bridge projects.

(c) APPLICATIONS.—To be eligible to receive a grant under subsection (b), a State department of transportation or unit of Tribal or local government shall submit to the Administrator an application at such time, in such manner, and containing such information as the Administrator may require.

(d) ELIGIBLE PROJECTS.—To be eligible to receive a grant under subsection (b) or (g), a coastal or rural infrastructure bridge project or a value engineering project shall—

(1) be for the purpose of construction, preservation, rehabilitation, or reconstruction of a bridge with a span equal to or greater than 50 feet;

(2) be carried out in a manner so as to reduce traffic impact;

(3) use innovative materials that—

(A) are resistant to corrosion; and

(B) extend the service life of the bridge; and

(4) reduce preservation costs, as compared to conventionally designed and constructed bridges.

(e) PREFERENCES.—In providing grants under this section, the Administrator shall give preference to proposed projects that—

(1) use materials that are domestically produced and sourced;

(2) use nontraditional production techniques, such as factory prefabrication; and

(3) retrofit a bridge.

(f) SPECIAL CONSIDERATION FOR AT-RISK AREAS.—In providing grants under this section, the Administrator shall give special consideration to projects located in rural areas or areas prone to coastal or inland flooding due to severe storms (such as hurricanes or rain bursts), storm

surges, or projected sea level rise during the projected lifetime of the project.

(g) VALUE ENGINEERING USING INNOVATIVE MATERIALS.—Of the amounts made available to carry out this section, the Administrator shall set aside $10,000,000 for each of fiscal years 2019 through 2023 to provide funding to 1 or more State departments of transportation or units of Tribal or local government that submit to the Administrator an application to carry out value engineering of a standard bridge design to enhance the performance of the bridge (including extending the service life of the bridge, increasing resistance to corrosion, and reducing construction and preservation costs) through the use of innovative materials.

(h) REPORTS.—Not later than 4 years after the date of enactment of this Act, and not less frequently than every 2 years thereafter, the Administrator shall submit to the appropriate committees of Congress and make publicly available a report describing the status of each project carried out using funds awarded under this section.

(i) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Administrator to carry out this section $65,000,000 for each of fiscal years 2019 through 2023.

SEC. 8. WATER INFRASTRUCTURE INNOVATION PROGRAM.

(a) ESTABLISHMENT.—The Administrator of the Environmental Protection Agency (referred to in this section as the ''Administrator'') shall establish a grant program, to be known as the ''Water Infrastructure Innovation Program'', to provide grants for the design and installation of water infrastructure projects, including wastewater transport and treatment systems and drinking water treatment and distribution systems, that use innovative materials to reduce total costs, including operation and preservation expenses, and extend the service life of installed structures.

(b) APPLICATIONS.—To be eligible to receive a grant under subsection (a), an applicant shall submit to the Administrator an application at such time, in such manner, and containing such information as the Administrator may require.

(c) ELIGIBLE PROJECTS.—To be eligible to receive a grant under subsection (a), a water infrastructure project shall—

(1) serve a community with a population between 3,301 and 99,999; and

(2) use innovative materials that—

(A) are resistant to degradation;

(B) extend service life; or

(C) provide long-term protection of water facilities and systems.

(d) PREFERENCE.—In providing grants under this section, the Administrator shall give preference to proposed projects that use materials that are domestically produced and sourced.

(e) SPECIAL CONSIDERATION FOR AT-RISK AREAS.—In providing grants under this section, the Administrator shall give special consideration to projects located in areas that are prone to saltwater intrusion or flooding due to severe storms, rain bursts, storm surges, or projected sea level rise during the projected lifetime of the project.

(f) REPORTS.—Not later than 4 years after the date of enactment of this Act, and not less frequently than every 2 years thereafter, the Administrator shall submit to the appropriate committees of Congress and make publicly available a report describing the status of each project carried out using funds awarded under this section.

(g) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Administrator to carry out this section $65,000,000 for each of fiscal years 2019 through 2023.

○