

116TH CONGRESS
2D SESSION

H. R. 6898

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 HOUSE OF REPRESENTATIVES

MAY 15, 2020

Mr. CICILLINE (for himself, Mr. RODNEY DAVIS of Illinois, Mr. LARSEN of Washington, Mr. YOUNG, and Mr. POSEY) introduced the following bill; which was referred to the Committee on Transportation and Infrastructure, and in addition to the Committees on Science, Space, and Technology, and Energy and Commerce, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Innovative Materials
5 for America’s Growth and Infrastructure Newly Expanded
6 Act of 2020” or the “IMAGINE Act”.

1 **SEC. 2. PURPOSES.**

2 The purposes of this Act are—

3 (1) to encourage the research and use of inno-
4 vative materials, in concert with traditional mate-
5 rials, and associated techniques in the construction
6 and preservation of the domestic infrastructure net-
7 work;

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

11 (3) to improve the economy, resilience, main-
12 tainability, sustainability, and safety of the domestic
13 infrastructure network.

14 **SEC. 3. DEFINITION OF INNOVATIVE MATERIAL.**

15 In this Act, the term “innovative material”, with re-
16 spect to an infrastructure project, includes those materials
17 or combinations and processes for use of materials that
18 enhance the overall service life, sustainability, and resil-
19 iency of the project or provide ancillary benefits relative
20 to widely adopted state of practice technologies, as deter-
21 mined by the appropriate Secretary or agency head.

22 **SEC. 4. INTERAGENCY INNOVATIVE MATERIALS STAND-**
23 **ARDS TASK FORCE.**

24 (a) ESTABLISHMENT.—

25 (1) IN GENERAL.—Not later than 180 days
26 after the date of enactment of this Act, the Director

1 of the National Institute of Standards and Tech-
2 nology shall establish an Interagency Innovative Ma-
3 terials Standards Task Force (referred to in this
4 section as the “Task Force”) composed of the heads
5 of Federal agencies responsible for significant civil
6 infrastructure projects, including—

7 (A) the Administrator of the Federal High-
8 way Administration;

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

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

13 (D) the Administrator of the Environ-
14 mental Protection Agency.

15 (2) CHAIRPERSON.—The Director of the Na-
16 tional Institute of Standards and Technology shall
17 serve as Chairperson of the Task Force.

18 (b) PURPOSE.—The Task Force shall coordinate and
19 improve, with respect to infrastructure construction, retro-
20 fitting, rehabilitation, and other improvements—

21 (1) Federal testing standards;

22 (2) Federal design and use guidelines;

23 (3) Federal regulations; and

24 (4) other applicable standards.

25 (c) REPORT.—

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

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

8 (B) to identify any barriers, regulatory or
9 otherwise, relating to the standards described in
10 subparagraph (A) that preclude the use of cer-
11 tain products or associated techniques; and

12 (C) to identify opportunities for the devel-
13 opment of standardized designs that use inno-
14 vative materials to reduce costs, improve per-
15 formance, and extend the service life of infra-
16 structure assets.

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

19 (A) identify any non-Federal entities or
20 other organizations, including the American As-
21 sociation of State Highway and Transportation
22 Officials, that develop relevant standards; and

23 (B) outline a strategy to improve coordina-
24 tion and information sharing between the enti-

1 ties described in subparagraph (A) and any rel-
2 evant Federal agencies.

3 (d) IMPROVED COORDINATION.—Not later than 2
4 years after the date of enactment of this Act, the Task
5 Force shall collaborate with any non-Federal entity identi-
6 fied under subsection (c)(2)(A)—

7 (1) to identify and carry out appropriate re-
8 search, testing methods, and processes relating to
9 the development and use of innovative materials;

10 (2) to develop new methods and processes relat-
11 ing to the development and use of innovative mate-
12 rials, as the applicable agency head determines to be
13 necessary;

14 (3) to contribute to the development of stand-
15 ards and guidelines for the use of innovative mate-
16 rials and approaches in civil infrastructure projects;

17 (4) to develop a plan for addressing potential
18 barriers, regulatory or otherwise, identified in sub-
19 section (c)(1)(B); and

20 (5) to develop a plan for the development of
21 standardized designs that use innovative materials to
22 reduce costs, improve performance, and extend the
23 service life of infrastructure assets.

24 **SEC. 5. INNOVATIVE MATERIAL INNOVATION HUBS.**

25 (a) DEFINITIONS.—In this section:

1 (1) HUB.—The term “Hub” means an Innova-
2 tive Material Innovation Hub established under this
3 section.

4 (2) QUALIFYING ENTITY.—The term “quali-
5 fying entity” means—

6 (A) an institution of higher education (as
7 defined in section 101(a) of the Higher Edu-
8 cation Act of 1965 (20 U.S.C. 1001(a)));

9 (B) an appropriate Federal or State entity,
10 including a federally funded research and devel-
11 opment center of the Department of Transpor-
12 tation;

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

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

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

21 (3) SECRETARY.—The term “Secretary” means
22 the Secretary of Transportation.

23 (b) AUTHORIZATION OF PROGRAM.—

24 (1) IN GENERAL.—The Secretary shall carry
25 out a program to enhance the development of inno-

1 vative materials in the United States by making
2 awards to consortia for establishing and operating
3 new Hubs, to be known as “Innovative Material In-
4 novation Hubs”, to conduct and support multidisci-
5 plinary, collaborative research, development, dem-
6 onstration, standardized design development, and
7 commercial application of innovative materials.

8 (2) LOCATION OF HUBS.—To the extent prac-
9 ticable, each Hub shall be located at 1 centralized lo-
10 cation.

11 (3) TECHNOLOGY DEVELOPMENT FOCUS.—The
12 Secretary shall designate for each new Hub a unique
13 innovative material focus, such as material develop-
14 ment, infrastructure applications, and other focus
15 areas identified by the Secretary.

16 (4) COORDINATION.—The Secretary shall en-
17 sure the coordination of, and avoid unnecessary du-
18 plication of, the activities of each Hub with the ac-
19 tivities of—

20 (A) other research entities of the Depart-
21 ment of Transportation, including the Federal
22 Highway Administration;

23 (B) the National Laboratories (as defined
24 in section 2 of the Energy Policy Act of 2005
25 (42 U.S.C. 15801));

1 (C) the Corps of Engineers;

2 (D) the Environmental Protection Agency;

3 (E) the Federal Emergency Management
4 Agency;

5 (F) the National Institute of Standards
6 and Technology;

7 (G) the Department of Defense;

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

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

12 (c) APPLICATION PROCESS.—

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

16 (A) be composed of not fewer than 2 quali-
17 fying entities;

18 (B) operate subject to a binding agree-
19 ment, entered into by each member of the con-
20 sortium, that documents—

21 (i) the proposed partnership agree-
22 ment, including the governance and man-
23 agement structure of the Hub;

24 (ii) measures the consortium will un-
25 dertake to enable cost-effective implemen-

tation 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 subsection (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.

1 (3) SELECTION.—

2 (A) IN GENERAL.—The Secretary shall se-
3 lect consortia for awards for the establishment
4 and operation of Hubs through a competitive
5 selection process.

6 (B) CONSIDERATIONS.—In selecting con-
7 sortia under subparagraph (A), the Secretary
8 shall consider—

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

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

13 (iii) maintaining regional variety in lo-
14 cations of selected Hubs.

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

19 (e) HUB OPERATIONS.—

20 (1) IN GENERAL.—Each Hub shall conduct or
21 provide for multidisciplinary, collaborative research,
22 development, demonstration, and commercial appli-
23 cation of innovative materials within the technology
24 development focus designated under subsection
25 (b)(3).

1 (2) ACTIVITIES.—Each Hub shall—

2 (A) encourage collaboration and commu-
3 nication among the member qualifying entities
4 of the consortium as described in subsection
5 (c)(1) and awardees;

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

8 (C) submit to the Department of Trans-
9 portation an annual report summarizing the ac-
10 tivities of the Hub, including information—

11 (i) detailing organizational expendi-
12 tures; and

13 (ii) describing each project under-
14 taken by the Hub; and

15 (D) monitor project implementation and
16 coordination.

17 (3) CONFLICTS OF INTEREST.—Each Hub shall
18 maintain conflict of interest procedures, consistent
19 with the conflict of interest procedures of the De-
20 partment of Transportation.

21 (4) PROHIBITION ON CONSTRUCTION.—

22 (A) IN GENERAL.—Except as provided in
23 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’, with respect to an infrastructure project, includes high performance asphalt mixtures and concrete formu-

1 lations, geosynthetic materials, advanced
2 insulating materials, advanced alloys and
3 metals, reinforced polymer composites, ad-
4 vanced polymers, nanocellulose and wood-
5 based composites, coatings, highly func-
6 tional adhesives, or other corrosion preven-
7 tion methods used in conjunction with
8 those materials, and any other material or
9 aggregate materials, as determined by the
10 appropriate agency or department head.

11 “(ii) COLLABORATION WITH STATES
12 AND TRIBES.—The Secretary shall expand
13 the capacity of the Turner-Fairbank High-
14 way Research Center to collaborate with
15 relevant State and Tribal agencies—

16 “(I) with respect to the use of in-
17 novative materials in construction
18 projects carried out by the State and
19 Tribal agencies; and

20 “(II) to understand and iden-
21 tify—

22 “(aa) the needs of the State
23 and Tribal agencies; and

24 “(bb) innovative materials
25 that may be further researched,

1 developed, and used to meet
2 those needs.

3 “(iii) ACTIVITIES.—The collaboration
4 described in clause (ii) may include—

5 “(I) the development of new
6 training for State and Tribal agencies;
7 and

8 “(II) the expansion of technical
9 training that involves State or Tribal
10 departments of transportation in the
11 development of new construction de-
12 signs for innovative materials at the
13 Turner-Fairbank Highway Research
14 Center.

15 “(iv) PRIORITY RESEARCH.—The Tur-
16 ner-Fairbank Highway Research Center
17 shall prioritize research relating to—

18 “(I) the use of innovative mate-
19 rials in—

20 “(aa) bridges with a span
21 equal to or greater than 50 feet;

22 “(bb) highway reconstruc-
23 tion and rehabilitation; and

24 “(cc) rural road infrastruc-
25 ture;

1 “(II) the development of stand-
2 ardized designs using innovative mate-
3 rials; and

4 “(III) coastal resiliency.

5 “(v) AUTHORIZATION OF APPROPRIA-
6 TIONS.—There is authorized to be appro-
7 priated to carry out this subparagraph
8 \$8,000,000 for each of fiscal years 2020
9 through 2024.”.

10 **SEC. 7. INNOVATIVE BRIDGE PROGRAM.**

11 (a) DEFINITION OF ADMINISTRATOR.—In this sec-
12 tion, the term “Administrator” means the Administrator
13 of the Federal Highway Administration.

14 (b) ESTABLISHMENT.—The Administrator shall es-
15 tablish a grant program, to be known as the “Innovative
16 Bridge Program”, to provide grants to State departments
17 of transportation, Tribal governments, or units of local
18 government for coastal and rural infrastructure bridge
19 projects.

20 (c) APPLICATIONS.—To be eligible to receive a grant
21 under subsection (b), a State department of transpor-
22 tation or unit of Tribal or local government shall submit
23 to the Administrator an application at such time, in such
24 manner, and containing such information as the Adminis-
25 trator may require.

1 (d) ELIGIBLE PROJECTS.—To be eligible to receive
2 a grant under subsection (b) or (g), a coastal or rural in-
3 frastructure bridge project or a value engineering project
4 shall—

5 (1) be for the purpose of construction, preserva-
6 tion, rehabilitation, or reconstruction of a bridge
7 with a span equal to or greater than 50 feet;

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

10 (3) use innovative materials that—

11 (A) are resistant to corrosion; and

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

13 and

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

16 (e) PREFERENCES.—In providing grants under this
17 section, the Administrator shall give preference to pro-
18 posed projects that—

19 (1) use materials that are domestically pro-
20 duced and sourced;

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

23 (3) retrofit a bridge.

24 (f) SPECIAL CONSIDERATION FOR AT-RISK AREAS.—

25 In providing grants under this section, the Administrator

1 shall give special consideration to projects located in rural
2 areas or areas prone to coastal or inland flooding due to
3 severe storms (such as hurricanes or rain bursts), storm
4 surges, or projected sea level rise during the projected life-
5 time of the project.

6 (g) VALUE ENGINEERING USING INNOVATIVE MATE-
7 RIALS.—Of the amounts made available to carry out this
8 section, the Administrator shall set aside \$10,000,000 for
9 each of fiscal years 2020 through 2024 to provide funding
10 to 1 or more State departments of transportation or units
11 of Tribal or local government that submit to the Adminis-
12 trator an application to carry out value engineering of a
13 standard bridge design to enhance the performance of the
14 bridge (including extending the service life of the bridge,
15 increasing resistance to corrosion, and reducing construc-
16 tion and preservation costs) through the use of innovative
17 materials.

18 (h) RECORDKEEPING; REPORTS.—

19 (1) RECORDKEEPING.—Not later than 1 year
20 after the date of enactment of this Act, the Adminis-
21 trator shall develop a project recordkeeping system
22 that maintains comprehensive, current, and accurate
23 information on each grant provided under this sec-
24 tion.

1 (2) REPORTS.—Not later than 2 years after the
2 development of the recordkeeping system described
3 in paragraph (1), and every 2 years thereafter, the
4 Administrator shall submit to the appropriate com-
5 mittees of Congress, including the Committee on
6 Environment and Public Works of the Senate, and
7 make publicly available a report describing, with re-
8 spect to each project that receives a grant under this
9 section—

10 (A) the status of the project;

11 (B) the location of the project;

12 (C) for each bridge in the project, the in-
13 ventory number of the bridge in the National
14 Bridge Inventory pursuant to section 144 of
15 title 23, United States Code;

16 (D) a detailed description of the scope of
17 the project;

18 (E) the amount of project costs paid by
19 funds provided under this section and the total
20 project costs;

21 (F) for each bridge involved in the project,
22 the bridge condition, operations, and perform-
23 ance of the bridge; and

24 (G) in every third report submitted under
25 this paragraph, the results of the regular moni-

1 toring and evaluation of the maintenance de-
2 mands, projects, needs, and costs of each bridge
3 in the project during the previous 6 years.

4 (i) **AUTHORIZATION OF APPROPRIATIONS.**—There is
5 authorized to be appropriated to the Administrator to
6 carry out this section \$65,000,000 for each of fiscal years
7 2020 through 2024.

8 **SEC. 8. WATER INFRASTRUCTURE INNOVATION PROGRAM.**

9 (a) **ESTABLISHMENT.**—The Administrator of the En-
10 vironmental Protection Agency (referred to in this section
11 as the “Administrator”) shall establish a grant program,
12 to be known as the “Water Infrastructure Innovation Pro-
13 gram”, to provide grants for the design and installation
14 of water infrastructure projects, including wastewater
15 transport and treatment systems and drinking water
16 treatment and distribution systems, that use innovative
17 materials to reduce total costs, including operation and
18 preservation expenses, and extend the service life of in-
19 stalled structures.

20 (b) **APPLICATIONS.**—To be eligible to receive a grant
21 under this section, an applicant shall submit to the Admin-
22 istrator an application at such time, in such manner, and
23 containing such information as the Administrator may re-
24 quire.

1 (c) ELIGIBLE PROJECTS.—To be eligible to receive
2 a grant under this section, a water infrastructure project
3 shall—

4 (1) serve a community with a population be-
5 tween 3,301 and 99,999; and

6 (2) use innovative materials that—

7 (A) are resistant to degradation;

8 (B) extend service life; or

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

11 (d) PREFERENCE.—In providing grants under this
12 section, the Administrator shall give preference to pro-
13 posed projects that use materials that are domestically
14 produced and sourced.

15 (e) SPECIAL CONSIDERATION FOR AT-RISK
16 AREAS.—In providing grants under this section, the Ad-
17 ministrator shall give special consideration to projects lo-
18 cated in areas that are prone to saltwater intrusion or
19 flooding due to severe storms, rain bursts, storm surges,
20 or projected sea level rise during the projected lifetime of
21 the project.

22 (f) RECORDKEEPING; REPORTS.—

23 (1) RECORDKEEPING.—Not later than 1 year
24 after the date of enactment of this Act, the Adminis-
25 trator shall develop a project recordkeeping system

1 that maintains comprehensive, current, and accurate
2 information on each grant provided under this sec-
3 tion.

4 (2) REPORTS.—Not later than 2 years after the
5 development of the recordkeeping system described
6 in paragraph (1), and every 2 years thereafter, the
7 Administrator shall submit to the appropriate com-
8 mittees of Congress, including the Committee on
9 Environment and Public Works of the Senate, and
10 make publicly available a report describing, with re-
11 spect to each project that receives a grant under this
12 section—

13 (A) the status of the project;

14 (B) the location of the project;

15 (C) a detailed description of the scope of
16 the project;

17 (D) the amount of project costs paid by
18 funds provided under this section and the total
19 project costs;

20 (E) the condition, operations, and perform-
21 ance of the project; and

22 (F) in every third report submitted under
23 this paragraph, the results of the regular moni-
24 toring and evaluation of the maintenance de-

1 mands, projects, needs, and costs of the project
2 during the previous 6 years.

3 (g) AUTHORIZATION OF APPROPRIATIONS.—There is
4 authorized to be appropriated to the Administrator to
5 carry out this section \$65,000,000 for each of fiscal years
6 2020 through 2024.

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