Elements of Smart Surfaces included in the Infrastructure Investment and Jobs Act

Mitigating Urban Heat


The PROTECT program provides grants for resilience improvements distributed to states to enable communities to assess vulnerabilities to current and future weather events as well as protect surface transportation assets from natural disasters such as severe storms, flooding, sea level rise, extreme temperatures, earthquakes, and droughts. The use of funds for coastal infrastructure and natural infrastructure that enhances the life of surface transportation assets while improving ecosystem conditions are prioritized as well as urbanized areas in general.

Total Funding: $8.7 billion between 2022 and 2026 ($7.3 billion formula/ $1.4 billion competitive)

2. Sec. 11406. Healthy Streets Program.

The Healthy Streets Program provides grants to deploy reflective and porous pavements and expand tree cover to mitigate urban heat islands, improve air quality, reduce extent of impervious surfaces, control stormwater runoff and flood risks, and alleviate heat impacts to infrastructure and road users. The program also includes measures for equity assessments and mapping. Counties with a disproportionate number of communities of color, defined in the legislation as a Census block where the total percentage of residents who identify as nonwhite is more than 50 percent, or USDOT determines it to be eligible for funding under this program.

Total Funding: $500 million between 2022 and 2026

Managing Flood and Rain Runoff

1. Sec. 11105 National Highway Performance Program

The National Highway Performance Program is an amendment to title 23 of the U.S code that provides additional support for activities to increase the resiliency of the National Highway System to mitigate cost of damages from sea level rise, extreme weather events, flooding, and other natural disasters via protective features, protections against cybersecurity
threats, and undergrounding public utility infrastructure. Resiliency improvements include protective features, which reduce the cost of recurring damage from extreme weather events, includes drainage measures and small upgrades to alleviate flood risk. The use of natural infrastructure to mitigate risk of future repair from extreme weather is also included.

Of the $273 billion apportioned for the authorization of the Highway Trust Fund (HTF) contract authority for highways, roads, and bridges, the National Highway Performance Program makes up the majority of the proposed budget despite 8 other programs included in funding. Among these are the Surface Transportation Grant Program, the Carbon Reduction Program, and PROTECT Program, included on this list.

Total Funding: $148 billion between 2022 and 2026

2. **Sec. 11109 Surface Transportation Block Grant Program.**

The Surface Transportation Block Grant Program will be amended to title 23 of the U.S code to include new grant eligibilities for wildlife-vehicle collision mitigation projects, installation of vehicle charging infrastructure, deployment of emerging intelligent transportation technologies, projects that enhance travel and tourism, measures to add protective features to transportation facilities, and projects to improve overall resiliency. Protective features include natural infrastructure to address air pollution and sea level rise. This block grant program prioritizes low-income communities and waterfront infrastructure.

Total Funding: $72 billion between 2022 and 2026


4. **Sec. 11406. Healthy Streets program. (In Heat Mitigation Section)**

5. **Sec. 40551 Weatherization Assistance Program**

The Weatherization Assistance Program provides funds to states and local governments for eligible projects that reduce energy costs and improve energy efficiency.

Total Funding: $3.5 billion starting in 2022 to remain until expended

6. **Sec. 25005 Strengthening Mobility and Revolutionizing Transportation (SMART) Grant Program**

States, local governments, and eligible entities can apply for this grant program to carry out demonstration projects that focus on community technologies that modernize infrastructure. Eligible projects include planning activities, environmental reviews, pre-engineering, design
work, procurement of real property, and construction activities. Applicants will also be required to submit to USDOE two years after date of award a cost-benefit analysis of deploying the project.

Total Funding: $3 billion between 2022 and 2026

7. *The Safeguarding Tomorrow Through Ongoing Risk Mitigation (STORM) Act*¹

Local governments and states will be able to create a resilience revolving loan fund for infrastructure projects.

Total Funding: $500 million between 2022 and 2026

8. *Building Resilient Infrastructure and Communities (BRIC) Program*²

Funds states and local governments to strengthen resilience of infrastructure such as projects for upgrading transportation, energy systems, water supply, and communications.

Total Funding $5 billion between 2022 and 2026


The permeable pavements study is carried out by the Secretary, no later than 1 year after the date of enactment, to gather existing information on the effects of permeable pavements on flood control in different contexts in urban areas over the lifetime of the pavement, perform research to fill gaps in the existing information, and develop models for performance and best practices for designing permeable pavement to meet flood control requirements. The study will result in a report displaying the results publicly.

No Additional Funding Added


The Stormwater Best Management Practices study is carried out by the Secretary, no later than 180 days after enactment, to estimate pollutant loads from stormwater runoff and from highways and pedestrian facilities and total maximum daily load compliance strategies within a watershed, provide recommendations regarding the evaluation and selection of state

DoTs of potential stormwater management within a watershed, and to examine the potential for state DoTs to carry out stormwater management practices. The Secretary will also solicit input from educational and technical stormwater management groups to develop a publicly available report.

No Additional Funding Added


The Stormwater Best Management Practices report will be released no later than 1 year after enactment and every 5 years after that summarizing best practices in stormwater management that reduce stormwater runoff, control total daily load compliance, and model water impacts on vulnerable communities.

No Additional Funding Added

12. Sec. 50107. Midsize and Large Drinking Water System Infrastructure Resilience and Sustainability Program.

The Midsize and Large Drinking Water System Infrastructure Resilience and Sustainability Program is an amendment to the Safe Drinking Water Act that includes measures to assist in the planning, design, construction, implementation, operation, or maintenance of a program or project that increases resilience to natural hazards and extreme weather events or reduces cybersecurity vulnerabilities. These measures include the conservation of water or enhancement of water-use efficiency, modification of location of drinking water infrastructure to avoid natural hazards, design desalination facilities to serve existing communities, enhance water supply through watershed protection, improve energy efficiency or use of renewable energy in treatment of drinking water, decrease the risk of natural hazards, and form regional water partnerships.

Total Funding: $250 million between 2022 and 2026

13. Sec. 50204. Sewer Overflow and Stormwater Reuse Municipal Grants.

The Sewer Overflow and Stormwater Reuse Municipal Grant is an amendment to the Federal Water Pollution Control Act that allocates grant money to states and distressed rural communities to design, plan, and construct treatment works to intercept, transport, control, treat, or reuse municipal sewer overflows, sanitary sewer overflows, or stormwater. This also includes any measure to manage, reduce, treat, or recapture stormwater or subsurface drainage water.
Total Funding: Grant amounts will be released with a study on wastewater practices no later than 2 years from enactment

14. Sec. 50205. Clean Water Infrastructure Resiliency and Sustainability Program

The Clean Water Infrastructure Resiliency and Sustainability Program is an amendment to the Federal Water Pollution Control Act that includes grants for planning, designing, or constructing projects (on a system-wide or area-wide basis) that increase the resilience of a publicly owned treatment works to a natural hazard or cybersecurity vulnerabilities. These measures include the conservation of water, enhancement of water use efficiency, enhancement of wastewater and stormwater management by increasing watershed preservation and protection, including using natural and engineered green infrastructure, stormwater reclamation, and energy efficiency or renewable energy production in management of wastewater or stormwater.

Total Funding: $125 million between 2022 and 2026


The water infrastructure financing reauthorization provision is an amendment to the Water Infrastructure Finance and Innovation Act that includes new funding for investments in water infrastructure that prevents runoff, controls wastewater, and overall improves efficiency of water systems.

Total Funding: $250 million between 2022 and 2026


The stormwater infrastructure technology grants provide funding for Centers of Excellence for Stormwater Control Infrastructure Technologies to conduct research on emerging stormwater control infrastructure technologies that have environmental, cost-saving, and social benefits. These centers would also model the needs of vulnerable communities and assist governments in implementing best practices. Of the centers created, one shall be the National Electronic Clearinghouse Center, which will develop and maintain a website and public data base on emerging, but proven, stormwater control infrastructure technologies.

Total Funding: $25 million between 2022 and 2026
**Resilience Planning/ Energy Efficiency in Buildings**

1. **Sec. 11403 Carbon Reduction Program**

The Carbon Reduction Program requires states to suballocate 65% of funds for counties and local governments to carry out projects that reduce carbon emissions such as projects for public transit, encouraging non-motorized transport, zero-emissions construction equipment, and others similar to the way the surface transportation block grant funds are distributed.

Total Funding: $6.42 billion between 2022 and 2026

2. **Sec. 25007. Risk and System Resilience.**

Under the risk and system resilience provision, the Secretary, in consultation with other agencies, is to develop a process to quantify annual risk to increase system resilience with respect to surface transportation assets by measuring resilience threat possibilities by type of hazard and geographic location, resilience to asset vulnerabilities, and anticipated consequences from each applicable threat to each asset. The Secretary shall identify and support the research to develop models to support risk-based analysis of transportation assets and increasing system resilience as well as build on existing resilience research conducted by the NIST and other existing bodies.

No Additional Funding Added

3. **Sec. 40511. Cost-Effective Codes Implementation for Efficiency and Resilience**

The cost-effective codes implementation for efficiency and resilience provision is an amendment to the Energy Conservation and Production Act that includes grants for state agencies for projects on prospective energy savings, long term sustainability of those measures, and assessments of prospective benefits relating to resilience and peak load reduction, occupant safety, and environmental performance. Grants can be used to create state or regional partnerships such as with contractors or architects to update building energy codes in a cost-effective manner, collect and disseminate quantitative data on construction including code pathways, performance metrics, and technologies used, develop a plan for code compliance, address needs of implementation in rural, suburban, and urban areas, and examine relationships between cost, performance, resilience, water savings, environmental impacts, health and safety, and economic impacts.

Total Funding: $225 million between 2022 and 2026
4. **Sec. 40542. Energy efficiency materials pilot program.**

The energy efficiency materials pilot program provides grants based on energy savings achieved, cost effectiveness of energy-efficiency materials, an effective plan for measurement of energy savings, and the financial need of the applicant. This includes materials for roofs, windows, doors, HVAC, and for a non-profit building.

Total Funding: $50 million between 2022 and 2026

**Accounting for Life-Cycle Costs/ Quantifications of External Impacts**

1. **Sec. 13005. Emerging technology research pilot program.**

The emerging technology research pilot program includes research and development of activities relating to leveraging advanced and additive manufacturing technologies to increase the structural integrity and cost-effectiveness of surface transportation infrastructure and other research and development activities, including laboratory and test track supported accelerated pavement testing research regarding the impacts of connected, autonomous, and platooned vehicles on pavement and infrastructure performance. Those activities were authorized under title 23 of the U.S code.

Total Funding: $25 million between 2022 and 2026

2. **Sec. 13009. Transportation Resilience and Adaptation Centers of Excellence**

The transportation resilience and adaptation centers of excellence provision is an amendment to title 23 of the U.S code that includes grants to advance research and development that improves the resilience of regions of the United States to natural disasters and extreme weather by promoting the resilience of surface transportation infrastructure, engaging regional stakeholders, supporting activities of the PROTECT program, and supporting climate vulnerability assessments informed by climate change science, including the national climate assessments produced by the USGCRP. There are 10 Regional Centers of Excellence and one National Center of Excellence.

Total Funding: $550 million between 2021 and 2031 ($5 million per year per Center of Excellence)

3. **Sec. 40502. Energy efficiency revolving loan fund capitalization grant program.**
The energy efficiency revolving loan fund capitalization grant program will be created no later than 1 year after enactment and grants will be allocated to states to identify and recommend lifecycle cost-effect opportunities for lighting, HVAC, appliances, and building envelopes to reduce the energy consumption of the facility of the eligible recipient, estimating energy costs and savings. This includes recommending management systems to reduce peak energy consumption.

Total Funding: $250 million in 2022 to be remain available until expended

4. **Sec. 40521. Future of industry program and industrial research and assessment centers.**

The future of industry program and industrial research and assessment centers provision is an amendment in the Energy and Security Act that includes funds for research centers to improve energy efficiency and material efficiency while reducing greenhouse gas emissions and runoff. These centers promote smart and sustainable manufacturing practices and identify opportunities to accelerate deployment of technologies for energy efficiency and wastewater management.

Total Funding: $150 million for small business loans and $400 million for implementation grants