

2022 Virginia Concrete Conference

Concrete is Sustainable



U.S. Department
of Transportation

**Federal Highway
Administration**

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Federal Highway Administration
Division Administrator - Virginia Division
March 17, 2022

AGENDA

- Highlights the Highway Provisions of BIL
- Programs in Climate and Resiliency
- Advancing the Sustainability of Cement and Concrete Mixtures

High Points of BIL Highway Provisions

- **Funds highway programs for five years** (FY 22-26)
- **\$350.8 B (FY 22-26) for highway programs**
 - \$303.5 B in Contract Authority (CA) from the Highway Trust Fund (HTF)
 - +\$47.3 B in advance appropriations from the General Fund (GF)
- **More than a dozen new highway programs**, including—
 - **Formula:** resilience, carbon reduction, bridges and electric vehicle (EV) charging infrastructure
 - **Discretionary:** bridges, EV charging infrastructure, rural projects, resilience, wildlife crossings, and reconnecting communities
- Focus on safety, bridges, climate change, resilience, and project delivery
- **More opportunities for local governments and other non-traditional entities** to access new funding
- \$90 B transfer (GF->HTF) to **keep the HTF Highway Account solvent for years**

Nine Categories of HIP Funding Under BIL (from the GF)

Total, FY 22-26	Program
\$27.5 B	Bridge Formula Program
\$9.2 B*	Bridge Investment Program (discretionary)
\$5.0 B	National Electric Vehicle Formula Program
\$3.2 B*	INFRA Program
\$1.3 B	Appalachian Development Highway System (ADHS)
\$0.5 B*	Reconnecting Communities Pilot Program
\$0.3 B*	Ferry Boat Program
\$0.2 B*	Reduction of Truck Emissions at Port Facilities
\$0.1 B*	University Transportation Centers (UTCs)

* Supplements CA separately provided by BIL for this program

Funding Available to a Range of Recipients

Program Examples	State	MPO	Local	Tribe	PA*	Territory	FLMA*
Apportioned programs (formula)	✓						
Bridge Program (formula)	✓			✓			
National Electric Vehicle Formula Program	✓		✓				
Safe Streets and Roads for All program		✓	✓	✓			
PROTECT Grants (discretionary)	✓	✓	✓	✓	✓		✓
Charging and Fueling Infrastructure Program	✓	✓	✓	✓	✓	✓	
Congestion Relief Program	✓	✓	✓				
Bridge Investment Program (discretionary)	✓	✓	✓	✓	✓		✓
Reconnecting Communities Pilot Program	✓	✓	✓	✓			
Rural Surface Transportation Grants	✓		✓	✓			
INFRA	✓	✓	✓	✓	✓		✓
Nat'l Infra. Project Assistance	✓	✓	✓	✓	✓		
Local and Regional Project Assistance	✓	✓	✓	✓	✓	✓	

Note: This table does not include all BIL programs or eligible entities, and there are additional nuances not represented in this table. Additional programmatic information is provided in later slides. FHWA will administer most, but not all, programs listed.

* "PA" means a special purpose district or public authority with a transportation function; FLMA means Federal Land Management Agency

BIL - INVESTMENT IN VIRGINIA

Virginia would expect over five years:

- \$7 billion for federal-aid highway apportioned programs
 - \$537 million for bridge replacement and repairs
- \$1.2 billion to improve public transportation options statewide
- \$106 million to support the expansion of an EV charging network
- Minimum allocation of \$100 million for broadband coverage
- \$15 million to protect against wildfires
- \$21 million to protect against cyberattacks
- \$738 million to improve water infrastructure
- \$386 million for airports

Virginia will have an opportunity to apply for several of the new grant funding for bridge investment, major projects, and EV charging stations.

CLIMATE AND RESILIENCE

- Carbon Reduction Program
- PROTECT Grants (formula and discretionary)
- Charging and Fueling Infrastructure
- National Electric Vehicle Formula Program
- Congestion Relief Program
- Other Climate and Resilience Provisions

[NEW] Carbon Reduction Program (formula)

Purpose	Provide funding for projects to reduce transportation emissions or the development of carbon reduction strategies.
Funding	\$6.4 B (FY 22-26) in Contract Authority from the HTF
Recipients	<ul style="list-style-type: none">• States (including DC)
Distribution formula	<ul style="list-style-type: none">• Apportioned to States by formula• 65% of funds are suballocated (reserved for use in certain areas of the State, based on population)
Other key provisions	<ul style="list-style-type: none">• Requires State, in consultation with MPOs, to develop (and update at least every 4 years) a carbon reduction strategy and submit it to DOT for approval.• DOT must certify that a State's strategy meets the statutory requirements.

[NEW] PROTECT* Formula Program

Purpose	Planning, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure
Funding	\$7.3 B (FY 22-26) in Contract Authority from the HTF
Recipients	<ul style="list-style-type: none">• States (including DC)
Distribution formula	<ul style="list-style-type: none">• Apportioned to States by formula
Other key provisions	<ul style="list-style-type: none">• Highway, transit, and certain port projects are eligible• Higher Federal share if the State develops a resilience improvement plan and incorporates it into its long-range transportation plan• Of the amounts apportioned to a State for a fiscal year, the State may use:<ul style="list-style-type: none">○ not more than 40% for construction of new capacity○ not more than 10% for development phase activities

** The full name of the program is Promoting, Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) program.*

[NEW] PROTECT Grants (discretionary)

Purpose	Planning, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure
Funding	\$1.4 B (FY 22-26) in Contract Authority from the HTF
Eligible entities	<ul style="list-style-type: none"> • State (or political subdivision of a State) • MPO • Local government • Special purpose district or public authority with a transportation function • Indian Tribe • Federal land management agency (applying jointly with State(s)) • <i>Different eligibilities apply for at-risk coastal infrastructure grants</i>
Eligible projects	<ul style="list-style-type: none"> • Highway, transit, intercity passenger rail, and port facilities • Resilience planning activities, including resilience improvement plans, evacuation planning and preparation, and capacity-building • Construction activities (oriented toward resilience) • Construction of (or improvement to) evacuation routes
Other key provisions	<ul style="list-style-type: none"> • Higher Federal share if the eligible entity develops a resilience improvement plan (or is in a State or area served by MPO that does) and the State or MPO incorporates it into its long-range transportation plan • May only use up to 40% of the grant for construction of new capacity

[NEW] Charging and Fueling Infrastructure (discretionary)

Purpose	Deploy electric vehicle (EV) charging and hydrogen/propane/natural gas fueling infrastructure along designated alternative fuel corridors and in communities
Funding	\$2.5 B (FY 22-26) in Contract Authority from the HTF
Eligible entities	<ul style="list-style-type: none"> • State or political subdivision of a State • MPO • Local government • Special purpose district or public authority with a transportation function • Indian Tribe • Territory
Eligible projects	<ul style="list-style-type: none"> • Acquisition and installation of publicly accessible EV charging or alternative fueling infrastructure • Operating assistance (for the first 5 years after installation) • Acquisition and installation of traffic control devices
Other key provisions	<ul style="list-style-type: none"> • Requirement to redesignate alternative fuel corridors and establish a process to regularly redesignate these corridors • Set-aside (50%) to install EV charging and alternative fueling infrastructure on public roads or in other publicly accessible locations, such as parking facilities at public buildings, schools, and parks

[NEW] National Electric Vehicle Formula Program (formula and discretionary*)

Purpose	Strategically deploy electric vehicle (EV) charging infrastructure and establish an interconnected network to facilitate data collection, access, and reliability
Funding	\$5 B (FY 22-26) in advance appropriations from the GF
Recipients	<ul style="list-style-type: none"> States (including DC and Puerto Rico)
Distribution formula	<ul style="list-style-type: none"> Same shares as Federal-aid highway apportionments
Other key provisions	<ul style="list-style-type: none"> Funded projects must be located along designated alt fuel corridors Sets aside 10% of funding for discretionary grants to State and local governments that require additional assistance to strategically deploy EV charging infrastructure State must submit plan to DOT describing planned use of funds If State doesn't submit plan (or carry it out), DOT may withhold or withdraw funds and redistribute within the State, or to other States Establishes DOT-DOE Joint Office of Energy and Transportation Requires DOT to designate national EV charging corridors to support freight and goods movement

* Program sets aside funds for discretionary technical assistance grants; also if DOT withholds or withdraws funding from a State, DOT may award funds to local governments in the same State.

[NEW] Congestion Relief Program (discretionary)

Purpose	Advance innovative, integrated, and multimodal solutions to reduce congestion and the related economic and environmental costs in the most congested metropolitan areas with an urbanized area population of 1M+.
Funding	\$250 M (FY 22-26) in Contract Authority from the HTF
Eligible entities	<ul style="list-style-type: none">• State• MPO• City or municipality
Eligible projects	<ul style="list-style-type: none">• Planning, design, implementation, and construction activities to achieve the program goals, including:<ul style="list-style-type: none">○ deployment and operation of integrated congestion management systems, systems that implement or enforce HOV toll lanes or pricing strategies, or mobility services; and○ incentive programs that encourage carpooling, nonhighway travel during peak periods, or travel during nonpeak periods.• Subject to certain requirements and approval by the Secretary, provides for tolling on the Interstate System as part of a project carried out with a grant under the program

Other Climate and Resilience Provisions

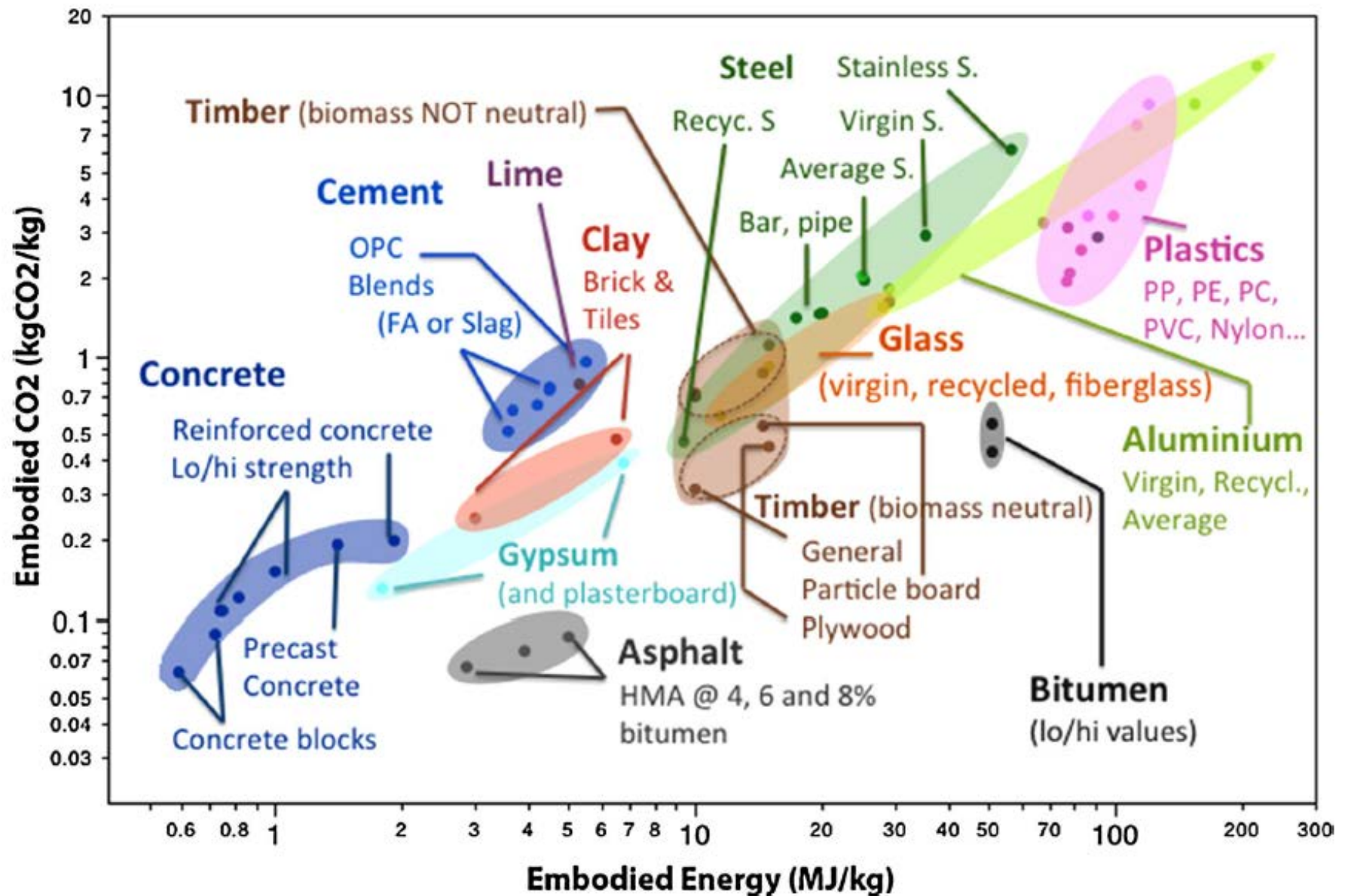
Program/topic	Provisions in the new law
Standards for EV charging stations (§11129)	<ul style="list-style-type: none">• Requires electric vehicle charging infrastructure installed using title 23 funds to provide for non-proprietary charging connectors that meet industry safety standards and payment methods available to all members of the public
Report on emerging alternative fuel vehicles and infrastructure (§11511)	<ul style="list-style-type: none">• Requires the Secretary to prepare a report on emerging alternative fuel vehicles and infrastructure which includes an evaluation of emerging alternative fuel vehicles, identification of areas where emerging alternative fuel infrastructure will be needed, estimates the future need for emerging alternative fueling infrastructure, and includes a tool for States to evaluate different adoption and use scenarios.
Conditions and performance (C&P) report (§13006)	<ul style="list-style-type: none">• Requires the C&P report to address resilience needs

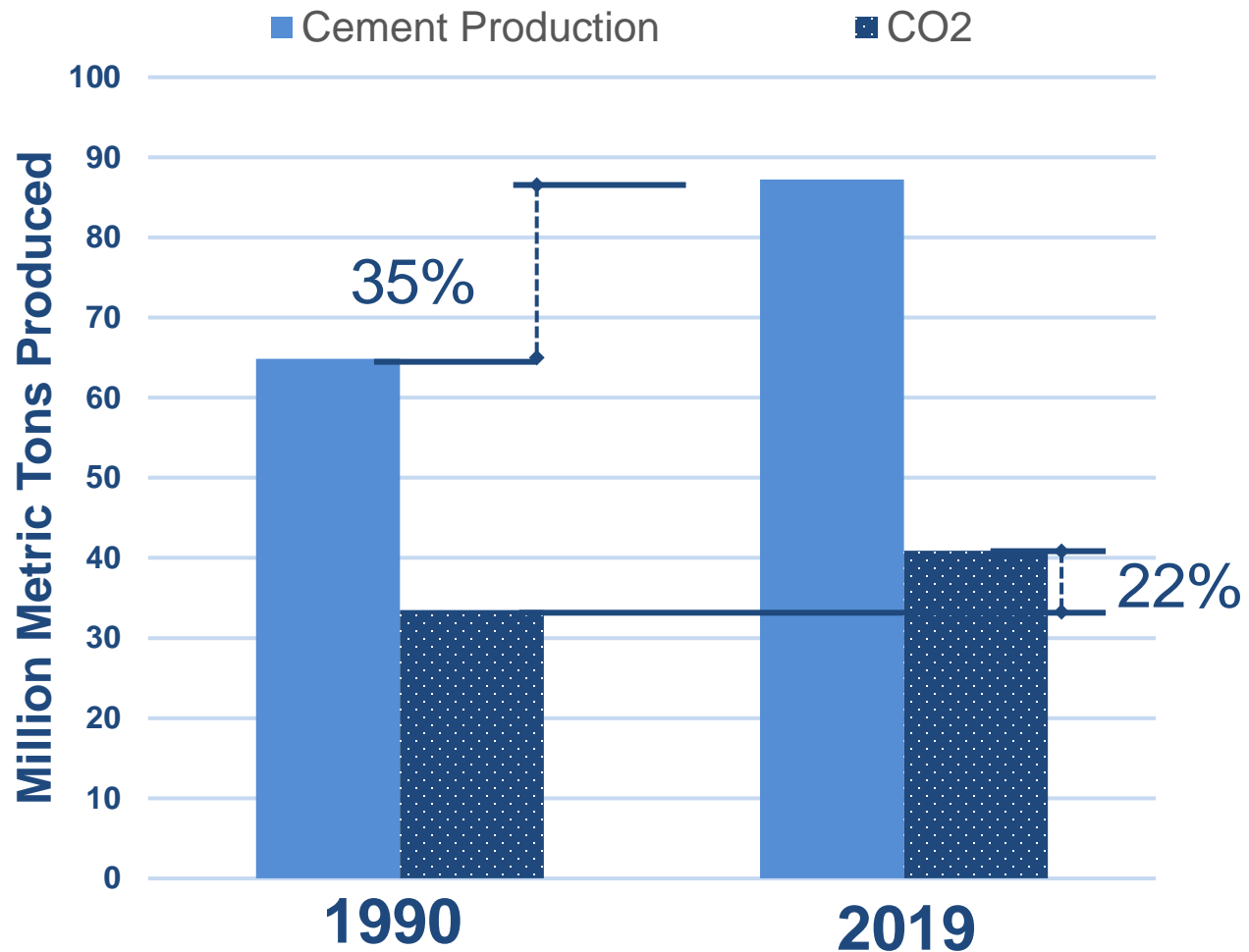
ADVANCING THE SUSTAINABILITY OF CEMENT AND CONCRETE MIXTURES



U.S. Department
of Transportation

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Cement statistics obtained from USGS at:

<https://www.usgs.gov/centers/nmic/cement-statistics-and-information>

CO₂ Emissions from National-Level U.S. Greenhouse Gas Inventory at:

<https://www.epa.gov/sites/default/files/2021-04/documents/fastfacts-1990-2019.pdf.pdf>

The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050

Goals

- 2030: 50% Reduction from 2005 levels in economy-wide net greenhouse gas pollution
- 2050: Net-zero emissions economy

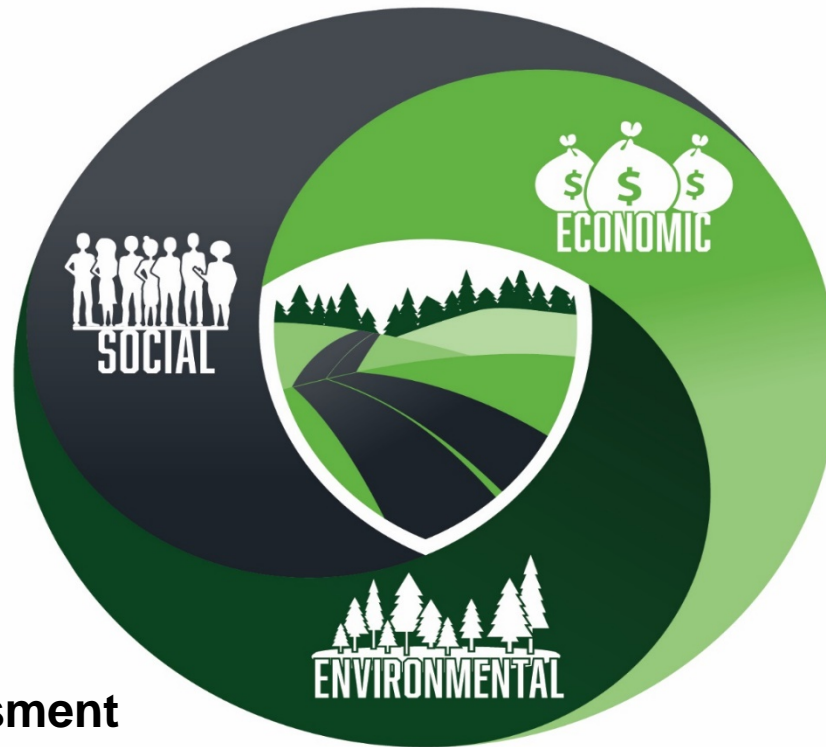
Strategies

- Reduce carbon pollution from the transportation sector
- Address carbon pollution from industrial processes
- Invest in innovation

Reference: <https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf>

Balance of the Triple Bottom Line

**Sustainability
Rating Systems
(e.g., INVEST)
Social LCA
(S-LCA)**



**Performance
Testing**



**Life-Cycle Assessment
(LCA)**

**Performance
Testing**



**Life-Cycle Cost Analysis
(LCCA)**

A Research Study on Paving Concrete

- Collaborative study of FHWA's Sustainable Pavements Program and Mobile Concrete Technology Center
- Study objectives:
 - Evaluate the state of practice for paving concrete
 - Identify the opportunities for improvement
 - Identify strategies for pavement agencies to achieve GHG savings for concrete pavements



Source: FHWA

QUESTIONS

BIL Information

- Please visit:
[fhwa.dot.gov/bipartisan-infrastructure-law](https://www.fhwa.dot.gov/bipartisan-infrastructure-law)