

**Inflation Reduction Act Section 60506
Low-Carbon Transportation Materials Program
Request for Applications**

Amendment #1. List of changes.

- The time-of-day deadline on June 10, 2024, to submit applications was updated to 11:59PM EST in the Program Details table, Section 7, and Section 10.
- Section 5 and Section 7 were clarified that States must receive approval of the IPR(s) before FHWA will issue the authorization to proceed or obligate LCTM funding for use on a construction project.
- A sentence was added in Section 7 after the program email inbox that clarifies where to submit the Application Materials and the URL in Section 7 for the Standard Form 424 Family was updated.
- The anticipated time of announcement in Section 10 was updated to September 2024.
- An appendix was added for additional detail on the minimum required contents within an Implementation Process Report. A corresponding note for the appendix was added in Section 9 and the ‘preliminary’ adjective for the list of construction projects to identify in bullet D was removed.

Program Details	
Available Funds	\$1.2 billion
Anticipated Award	At least \$22 million per State department of transportation submitting responsive application
Request for Application Period Opens	March 12, 2024
Request for Application Period Closes	11:59 p.m. EST on June 10, 2024
Questions	Can be submitted to: FHWALowCarbonMaterials@dot.gov

SUMMARY

The Inflation Reduction Act (IRA, Pub. L. 117-169, August 16, 2022) established the Low Carbon Transportation Materials (LCTM) Program Title 23, United States Code (U.S.C.), Section 179), which provides funding for the use of construction materials that have substantially lower levels of greenhouse gas emissions (GHG). The Federal Highway Administration (FHWA) is requesting applications from State DOT as part of the LCTM Program. This RFA will result in the distribution of up to \$1.2 billion, subject to the availability of funds. Funds made available for the LCTM Program will be awarded for the use of substantially lower carbon materials and products on construction projects funded under 23 U.S.C. and necessary work to identify appropriateness for use of these materials on eligible projects. This RFA describes the application requirements, selection, and evaluation factors.

1. INTRODUCTION

The purpose of the LCTM Program is to reimburse or provide incentives to eligible recipients for the use, in projects, of construction materials and products that have substantially lower levels of embodied GHG emissions associated with all relevant stages of production, use, and disposal as compared to estimated industry averages of similar materials or products, hereafter referred to as low carbon transportation materials. The program will also serve to help eligible transportation agencies update or develop specification language and conduct identification activities needed to demonstrate materials are appropriate for use on Federal-aid construction projects. Program goals include, but are not limited to:

- Increasing the use of lower carbon materials and products that are used in projects funded under 23 U.S.C.;
- Facilitating the use of low carbon transportation materials while ensuring appropriateness for use in projects eligible under 23 U.S.C.;
- Promoting technology transfer and enhancing workforce development to increase the adoption of environmental quantification techniques used in decision-making by transportation agencies; and
- Encouraging State DOTs to begin LCTM activities and building successful low carbon transportation material identification frameworks that eventually may be replicated by non-State recipients eligible to apply for LCTM funding.

2. FUNDING METHODS

Under 23 U.S.C. 179(b), eligible recipients that use low carbon construction materials and products on Title 23 projects may either be reimbursed or receive an incentive, as detailed below.

Term	Definition
Incentive amount	Eligible recipients that use low carbon construction materials and products on a project funded under 23 U.S.C. may receive an incentive equal to 2 percent of the cost of using low carbon construction materials and products on the project.
Incremental amount	Eligible recipients that use low carbon construction materials and products on a project funded under 23 U.S.C. may receive an amount of reimbursement equal to the incrementally higher cost of using such materials relative to the cost of using traditional materials, as determined by the eligible recipient and verified by FHWA. See Section 6 Eligibility Information of this RFA for further information on the incremental amount.

3. ADMINISTRATION PRIORITIES

i. Safety

The U.S. Department of Transportation (DOT) is committed to advancing safe, efficient transportation, including in the LCTM Program. The National Roadway Safety Strategy (NRSS), issued January 27, 2022, commits DOT to respond to the current crisis in roadway fatalities by “taking substantial, comprehensive action to significantly reduce serious and fatal injuries on the Nation’s roadways,” in pursuit of the goal of achieving zero roadway deaths through a Safe System Approach. The outcomes that are anticipated from the projects funded by the LCTM Program should align with the NRSS and the Fiscal Years 2022-2026 DOT Strategic Plan.

ii. Climate Change and Sustainability

As part of the Biden-Harris Administration’s whole-of-government [Federal Buy Clean Initiative](#), and consistent with Executive Order (E.O.) 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability (86 FR 70935), the U.S. Environmental Protection Agency (EPA), U.S. General Services Administration (GSA), and FHWA are closely collaborating to implement related efforts as part of IRA Sections 60112, 60116, 60503, and 60506. As FHWA and GSA implement programs to use and incentivize low carbon materials, EPA is working to encourage increased Environmental Product Declaration (EPD) harmonization and availability through grant, technical assistance and carbon labeling programs for construction materials.

DOT seeks to fund activities and projects under the LCTM Program that reduce GHG emissions from materials used in the transportation sector. DOT also seeks to incorporate evidence-based climate resilience measures and features, avoid adverse environmental impacts to air or water quality, wetlands, and endangered species, and address the disproportionate negative environmental impacts of transportation on communities with environmental justice concerns, consistent with E.O. 14096, Revitalizing Our Nation’s Commitment to Environmental Justice for All (88 FR 25251), and E.O. 14008, Tackling the Climate Crisis at Home and Abroad (86 FR 7619).

iii. Equity and Environmental Justice

DOT seeks to fund activities and projects under the LCTM Program that will create proportional impacts to all populations in a project area, remove transportation-related disparities to all populations in a project area, and increase equitable access to project benefits, consistent with E.O. 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (86 FR 7009). Recipients of awards under this program are encouraged to maximize benefits to disadvantaged communities and to use the [Climate and Economic Justice Screening Tool](#) created by the White House Council on Environmental Quality pursuant to E.O. 14008, or the DOT Equitable Transportation Community [Explorer](#) to understand how their community or project is experiencing disadvantages related to lack of transportation investment or opportunities when applicable.

iv. Workforce Development, Job Quality, and Wealth Creation

DOT intends to use the LCTM Program to support the creation of good-paying jobs with the free and fair choice to join a union and the incorporation of strong labor standards and training and placement programs, especially registered apprenticeships, in project planning stages, consistent with E.O. 14025, Worker Organizing and Empowerment (86 FR 22829), and E.O. 14052, Implementation of the Infrastructure Investment and Jobs Act (86 FR 64335). DOT also intends to use the LCTM Program to support wealth creation, consistent with the DOT Equity Action Plan through the inclusion of local inclusive economic development and entrepreneurship such as the use of Disadvantaged Business Enterprises, Minority-owned Businesses, Women-owned Businesses, or 8(a) firms. DOT also intends to use the LCTM Program to support Made in America goals consistent with E.O. 14005, Ensuring the Future Is Made in All of America by All of America's Workers (86 FR 7475).

4. OVERVIEW ON LCTM PROGRAM

Section 60506 of the IRA established the LCTM Grants Program, which is codified in Section 179 of Title 23 of the U.S.C. This program reimburses the incrementally higher costs of using, or provides an incentive amount¹ for the use of, materials and products that have substantially lower levels of embodied GHG emissions, as described by the EPA.

For the purposes of this RFA, materials/products available for reimbursement or incentives are those identified by the EPA Administrator² and identified as appropriate for use in projects eligible under 23 U.S.C. by FHWA Administrator. In alignment with the Administration's Federal Buy Clean Initiative, EPA released an Interim Determination (ID) in December 2022³ that outlined an approach to establish thresholds and data requirements for qualifying concrete (and cement), glass, asphalt mix, and steel materials/products that meet the substantially lower embodied carbon requirements. For purposes of this RFA, these are the only materials/products that are currently eligible.

An agency shall determine the substantially lower embodied carbon thresholds (i.e., best performing 20 percent, 40 percent, and industry averages) for materials/products eligible for reimbursement or incentive under this program through the following options:

Option (1): An agency may reference the established thresholds as published on FHWA Website.⁴ Stakeholders from concrete, glass, asphalt, and steel industries are working to provide industry-average data to support implementation of the LCTM Program.

Option (2): An agency may determine local or regional thresholds for concrete (and cement), glass, asphalt mix, and/or steel. In this option, the agency shall follow accepted

¹ 23 U.S.C. 179(b)(1).

² 23 U.S.C. 179(a).

³ Available from EPA. FHWA is closely monitoring updates to EPA ID. In the event of an update, EPA has acknowledged in the ID of December 22, 2022, "...that any revisions to this determination will apply only prospectively to contracts awarded...".

⁴ These thresholds are not yet available. FHWA is currently engaging with relevant industry stakeholders to obtain industry average information. FHWA anticipates referencing this information to establish acceptable thresholds for the LCTM Program when it is available in spring 2024.

International Organization for Standardization (ISO) standards to develop thresholds. Agencies shall disclose the Global Warming Potential (GWP), the methodology for determining the percentiles and averages, the source(s) used for each material/product, and the parameters (including performance specification) used to set the GWP.

Agencies may also use a combination of these two options for this program. Under this RFA, the LCTM Program will provide funds directly to States that will implement the provisions of the EPA's ID for eligible low carbon transportation materials/products. State DOTs may also be reimbursed for identification of eligible materials and work needed to determine their appropriateness for use on eligible projects, as discussed more in Section 6 Eligibility Information of this RFA.

5. FUNDING INFORMATION

Up to \$1.2 billion⁵ is available to State DOTs for LCTM awards under this RFA. All awards of LCTM funds are available for obligation through September 30, 2026, and available for expenditure before September 30, 2031. Funds will be available for obligation only after being allocated and loaded in FHWA's Fiscal Management Information System. FHWA encourages applicants to obligate funding within one year of when the funds become available for obligation.

FHWA anticipates at least \$22 million will be made available to each State DOT that addresses the eligible application factors and subfactors in Section 8 Application Review Information of this RFA. Any award under this RFA will be subject to the availability of funding, and FHWA reserves the right to make no awards under this RFA. State DOTs are encouraged to identify sufficient eligible activities to make use of potential remaining funds. Remaining funds available from the pool of \$1.2 billion may be distributed equally among State DOTs that submit acceptable applications, not to exceed the amount requested in the State DOT's application. FHWA does not have a limit on maximum award size. Advanced Construction in accordance with 23 U.S.C. 115, is allowed for State DOT administered projects under this RFA.

An Implementation Process Report(s) (IPR) shall be developed to document a process(es) for how the State DOT plans to implement LCTM activities and increase the adoption of low carbon transportation materials. States must receive approval of the IPR(s) before FHWA will issue the authorization to proceed or obligate LCTM funding for use on a construction project. Section 9 Reporting of this RFA includes the minimum contents of an IPR.

The State may choose to develop multiple IPRs to meet the requirements above for different processes or activities undertaken with LCTM funds.

Funding provided under the LCTM Program shall not be used for additional through travel lanes for single-occupant passenger vehicles.⁶

⁵ Funding split based on ownership of lane miles of Federal-aid highways.

⁶ 23 U.S.C. 179(b)(4)(C).

Please note that any materials funded under this program would need to meet other applicable requirements, including Buy America (23 U.S.C. 313) and the Build America, Buy America Act (Sections 70901-52, Bipartisan Infrastructure Law, (BIL, November 15, 2021).

6. ELIGIBILITY INFORMATION

Only State DOTs (including the District of Columbia and Puerto Rico) are eligible to apply under this RFA⁷, and each State DOT shall submit only one application.

Under this program, funds are available to use on construction projects funded under 23 U.S.C., including projects on:

- Federal-aid highways;
- Tribal transportation facilities;
- Federal lands transportation facilities; and
- Federal lands access transportation facilities.

Funds are also available to use for activities required to develop a process to demonstrate materials meet the standard of “substantially lower embodied carbon” and are appropriate for use. For purposes of this program, eligible materials categories⁸ are concrete (and cement), glass, asphalt mix, and steel.

As discussed in EPA’s ID “substantially lower” is interpreted as meaning a GWP that is in the best performing 20 percent (top 20 percent or lowest 20 percent in embodied GHG emissions), when compared to similar materials/products. If no materials/products in the top 20 percent are available in a project’s location, a material/product qualifies for funding under IRA Section 60506 per this ID if its GWP is in the top 40 percent (lowest 40 percent in embodied GHG emissions). If materials/products in the top 40 percent are not available in a project’s location, a material/product qualifies for funding under IRA section 60503 or 60506 per this ID if its GWP is better than the estimated industry average. Applicants may choose to use national thresholds or develop local/regional thresholds to identify qualified materials for the program. In addition, providers of qualifying materials/products are required to report the supplying plant’s Energy Star Performance Score where an Energy Performance Indicator is available.

⁷ A separate Notice of Funding Opportunity (NOFO) is anticipated for release by FHWA in spring 2024. Eligible recipients for funding under that NOFO include:

- A unit of local government,
- A political subdivision of a State,
- A Territory of the United States,
- An entity described in 23 U.S.C. 207(m)(1)(E) (federally recognized Indian Tribe),
- A recipient of funds under 23 U.S.C. 203 (Federal Land Management Agency),
- A metropolitan planning organization as defined in 23 U.S.C. 134(b)(2), or
- A special purpose district or public authority with a transportation function.

⁸ Please note that any materials funded under this program would need to meet other applicable requirements, including Buy America (23 U.S.C. 313) and Build America, Buy America Act (BIL Sections 70901-52).

While LCTM funds are eligible for up to 100 percent Federal share, LCTM funds may only be applied to eligible activities associated with the use of the low carbon transportation material. The program is not intended to fund entire construction projects. This program may reimburse an amount equal to the incrementally higher cost of using eligible materials and products or an incentive amount equal to 2 percent of the cost of using low embodied carbon materials.⁹

If a reimbursement is provided under this LCTM Program, the total Federal share payable for the incremental costs or incentive amount shall be 100 percent. Identification of eligible materials and work needed to determine their appropriateness for use on eligible projects can be considered as wholly incremental, i.e., the work would not have been done except for the availability of this program, and an application could request reimbursement for 100 percent of these costs.

For the use of eligible low carbon transportation materials on eligible construction projects, the reimbursement shall not exceed either the incremental cost of using the material or the incentive amount. The recipient must demonstrate how the corresponding reimbursement amount is calculated as part of the reimbursement request.

The applicant could achieve LCTM goals outlined in Section 1 Introduction of this RFA and seek reimbursement under the LCTM Program for costs incurred in a variety of ways. This could include, but is not limited to, the series of activities outlined in Table 1. Example LCTM Eligible Activities and Funding Method.

⁹ 23 U.S.C. 179(b)(2)

Table 1. Example LCTM Eligible Activities and Funding Method

Low Carbon Transportation Materials Identification Process Development		
Categories of Activities	Example Eligible Activities	Funding Method¹⁰
Process for Substantially Lower Embodied Carbon	<ul style="list-style-type: none"> • Development of Implementation Process Report(s) <i>Example: Agency contracts with entity to assist in development of IPR(s) on selected materials or processes.</i> • Academia or Consultant support to identify eligible materials, training needs, additional data, and special provision development. <i>Example: Agency enters into a contract with a consulting firm to identify materials (concrete (and cement), asphalt, cements, steels, glass) that are eligible and available in the region.</i> • Stakeholder Outreach and Coordination. <i>Example: Agency conducts listening session(s) or partnering meetings with industry, labor, environmental, and community stakeholders.</i> • Development of process to collect and store EPDs. <i>Example: Agency contracts with entity to create and host an EPD database.</i> • Identification of local or regional “substantially lower” embodied carbon thresholds that meet ISO acceptable practices.¹¹ <i>Example: Agency contracts with consultant to identify thresholds from relevant industry reports containing region-specific information.</i> <i>Example: Agency contracts with consultant to conduct an ISO-conformant analysis to identify their agency-specific regional thresholds.</i> • LCTM Training. <i>Example: Agency conducts or hires an entity to conduct training for staff, consultants, and contractor personnel on identifying and/or</i> 	Incremental amount

¹⁰ “Incentive amount” and “Incremental amount” and are defined specifically for this RFA in Section 2 Definitions of this RFA.

¹¹ The published industry thresholds may be used, or the agency may develop their own local or regional thresholds as defined by EPA.

	<p><i>using low carbon transportation materials, using EPDs, and any new agency-specific processes.</i></p>	
<p>LCTM Quality Assurance (QA) and LCTM Specifications</p>	<ul style="list-style-type: none"> • Development of Implementation Process Report(s). <i>Example: Agency contracts with entity to develop IPRs detailing new QA processes and/or implementation steps for new material special provisions or specification updates.</i> • Development of QA Plans and/or Performance Monitoring Plan for the material <i>Example: Agency develops QA plan or a Performance Monitoring Plan for projects constructed with low carbon transportation materials.</i> • Stakeholder Outreach and Coordination <i>Example: Agency hosts listening sessions with industry, labor, environmental, and community stakeholders on new QA processes or new special provisions</i> • Update of existing material specifications or development of new special provision to facilitate use on projects. <i>Example: Agency contracts with a university to test asphalt mixture combinations that meet the requirements of “substantially lower embodied carbon” and meet Agency engineering performance criteria. The university then develops a new special provision for appropriate mixtures.</i> • Preliminary mixture design and testing to evaluate materials. <i>Example: Agency enters into a contract with a consulting firm to identify data gaps or conduct additional testing needed to ensure satisfactory performance on an eligible Federal-aid project</i> <i>Example: Agency contracts with university to conduct testing and evaluation on a wide combination of mixtures of materials likely to meet low carbon definition to ensure they are</i> 	<p>Incremental amount</p>

	<p><i>appropriate for use on eligible Federal-aid projects.</i></p> <ul style="list-style-type: none"> • Testing Equipment to properly accept and verify LCTM. <i>Example: Agency purchases test equipment they do not currently have but is needed to properly assess engineering performance and accept low carbon materials, such as a new asphalt cracking performance test device.</i> • LCTM Test Strips. <i>Example: Agency places short sections of a concrete pavement with an eligible mixture to ensure the mixture is placeable and appropriate for use on eligible Federal-aid projects.</i> • Development of a verification process for LCTM and EPDs. <i>Example: Agency contracts with consultant to develop a process to collect EPDs and other required information on a project and determine if the materials meet eligibility requirements.</i> • Training. <i>Example: Agency contracts with university to conduct training on their low carbon related QA processes and new special provisions targeted at agency staff and consultants.</i> 	
<p>Construction Project Identification</p>	<ul style="list-style-type: none"> • Development of IPR. <i>Example: Agency contracts with consultant to develop an IPR detailing how eligible materials will be implemented on eligible construction projects.</i> • Identify Construction Projects. <i>Example: Agency identifies eligible projects that would be appropriate for inclusion of eligible materials (most likely included in the State's Statewide Transportation Improvement Program).</i> • Develop a plan for incorporation of LCTM on construction projects. 	<p>Incremental amount</p>

	<p><i>Example: Agency develops a plan to incorporate eligible materials on eligible construction projects.</i></p> <ul style="list-style-type: none"> • Development of project-specific construction contract language. <i>Example: Agency modify its special provision for project specific criteria.</i> • Industry Outreach and Coordination. <i>Example: Agency conducts outreach to industry and construction contracts and material suppliers to communicate activities, requirements, and special provisions.</i> • Training. <i>Example: Agency contracts with a university to conduct agencywide training for agency staff and consultants on the low carbon QA process and material special provision.</i> 	
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Use of Eligible Materials on Construction Projects

Categories of Activities	Example Eligible Activities	Funding Method
Use of LCTM on Projects	<ul style="list-style-type: none"> • Identification of eligible Federal-aid projects. <i>Example: Agency contracts with a consultant to identify construction projects that would make the most sense on which to incorporate low carbon transportation materials (most likely included in the State’s Statewide Transportation Improvement Program).</i> • Estimation of costs of LCTM. <i>Example: Agency contracts with a consultant to estimate costs of eligible materials.</i> • Comparison of LCTM costs and traditional material cost. <i>Example: Agency contracts with a consultant to compare costs of low carbon transportation materials with conventional materials.</i> • LCTM Bid Items (added solely to facilitate use of LCTM). <i>Example: Agency pays for additional line items that are needed to implement low carbon</i> 	Incremental amount or incentive amount

	<p><i>transportation materials effectively and appropriately on construction projects.</i></p>	
Substantially Lower Embodied Carbon	<ul style="list-style-type: none"> • EPD Bid Item. <i>Example: Agency adds a pay item for a line item for EPDs collection in order to determine if a material meets low carbon material definition.</i> • Collection of Energy Star Performance Score. <i>Example: Agency request reporting of Energy Star performance scores by material suppliers, as required by EPA’s ID.</i> • Quality Incentives for environmental performance. <i>Example: Agency offers quality incentives for eligible low carbon materials to contractors as part of the special provision(s).</i> • Other costs for the use of substantially lower carbon materials. <i>Example: Agency incurs additional costs to implement low carbon transportation materials and requests reimbursement in accordance with all Federal regulations and cost control provisions (e.g., costs are not included as part of overhead expenses).</i> 	Incremental amount or incentive amount
Quality Assurance and Acceptance	<ul style="list-style-type: none"> • LCTM test strip. <i>Example: Agency places short sections of low carbon transportation materials to ensure they can be produced at production scale, are placeable, and meet engineering requirements in a production environment.</i> • Additional testing equipment and/or testing required to accept low carbon materials. <i>Example: Agency purchases resistivity test equipment to assess low carbon concrete in accordance with their special provision.</i> <i>Example: Agency contracts with consultants to conduct additional testing necessary to accept low carbon transportation materials (as outlined in the special provision).</i> 	Incremental amount or incentive amount

	<ul style="list-style-type: none"> • Verification that material placed meets thresholds for substantially lower carbon. <i>Example: Agency contracts with consultants to conduct analysis to ensure materials meet criteria for low carbon transportation materials.</i> • Verification of engineering properties of the LCTM. <i>Example: Agency contracts with consultants to conduct additional testing necessary to assess if in-place low carbon materials meet design criteria.</i> • Quality incentives for engineering performance. <i>Example: Agency offers quality incentives to facilitate low carbon transportation material usage.</i> 	
Use of Materials and Products on Construction Projects	<ul style="list-style-type: none"> • Development of Project-specific Performance Monitoring Plan. <i>Example: Agency contracts with university to develop a project-specific plan to monitor and assess long term performance of low carbon transportation materials.</i> • Construction and placement costs of using eligible materials on eligible projects. <i>Example: Agency implements the use of concrete maturity testing to minimize traffic opening delays when using eligible materials</i> • Reporting of results from Long Term Performance Monitoring Plan. <i>Example: Agency contracts with university to develop a project-specific long term reporting mechanisms on low carbon transportation materials</i> 	Incremental amount or incentive amount

7. APPLICATION AND SUBMISSION INFORMATION

Starting on March 12, 2024, until 11:59 p.m. EST on June 10, 2024, State DOTs can directly apply to this RFA by submitting their Application Materials, outlined in Table 2, to the program inbox at FHWALowCarbonMaterials@dot.gov; do not use the Grants.gov ‘Workspace’ to prepare and submit the Application Materials. Late applications will not be reviewed or

considered unless determined to be in the LCTM Program’s best interest. The Standard Forms (SF) of the 424¹² family are available for download at <https://grants.gov/forms/forms-repository/sf-424-family>. Should applicants have questions about applying or encounter technical issues, they may reach out to the program inbox at FHWALowCarbonMaterials@dot.gov.

Table 2. Application Materials Overview

Part	Comments	Page Limit
SF-424, Application for Federal Assistance	Applicants may leave fields 5a, 5b, 6, 7, and 13 blank	None
SF-424C, Budget Information for Construction Programs		None
SF-424D, Assurances for Construction Programs		None
Volume 1: Technical Application	<i>Attach to SF-424, Item 15</i>	15 pages
Volume 2: Budget Application	<i>Attach to SF-424, Item 15</i>	None
Additional Supporting Documentation	<i>Attach to SF-424, Item 15, As needed</i>	10 pages

- **Volume 1 Technical Application**

The Technical Application should provide necessary information for FHWA to determine whether the application satisfies the factors in Section 8 Application Review Information of this RFA. Applicants are encouraged to describe how the planned activities included in their application support Section 3 Administration Priorities of this RFA in the Technical Application narrative.

FHWA recommends, but does not require, that the Technical Application include the following sections:

- i. **Technical Description:** The applicant should provide a concise description of the anticipated activities and scope of work of the application, including a discussion of any relevant agency history or broader context the applicant deems relevant. Describe how the applicant proposes to meet one or more of the program goals, outlined in Section 1 Introduction Section 1 of this RFA. This section should include a description and scope of work, including planned major activities, milestones, and deliverables. The application can provide a technical and management narrative describing how the applicant proposes to carry out the planned work.
- ii. **Team Information:** This section of the application should provide details about the State DOT and information about the agency’s staffing structure and anticipated partners

¹² FHWA and DOT use the SF-424 family of forms with attachments for this RFA under the Office of Management and Budget (OMB) Control Number 2105-0520.

or other entities that will be engaged to support the scope of work described in the application.

- iii. **Overall Readiness:** The application should include information that, when considered with the budget information, demonstrates the applicant's ability to substantially execute and complete the full scope of work in the application before expiration of funds. The applicant should demonstrate a sound, feasible, and achievable technical and management approach to successfully perform and complete the proposed scope of work. The application should articulate the likelihood of success for the project and include major activities and milestones. The application should include the basis for the cost estimate presented in the application, including the identification of contingency levels appropriate to any scope, schedule, and budget risk-mitigation measures.
 - o **Schedule:** The applicant should include a schedule that identifies major activities and associated milestones. The proposal should demonstrate that the work is ready to begin soon after award is announced and to be complete before expiration of funds. Examples of such milestones include approval of request for proposals; procurement authorization; and project partnership and implementation agreements. The project schedule should be sufficiently detailed to demonstrate that all necessary activities will be completed to allow LCTM Program funds to be obligated as indicated in the project schedule in the application, and all work tasks can be completed during the period of performance.
 - o **Project Risks and Mitigation Strategies:** The applicant should identify risks to the likelihood of successful initiation and completion of work (e.g., procurement delays or lack of legislative or administrative approval) and the strategies that the applicant and any project partners have undertaken or will undertake to mitigate those risks.
- iv. **Eligible Application Factors:** The applicant should describe how the proposal meets the application factors listed in [Section 8: Application Review Information](#) of this RFA.
 - **Volume 2 Budget Application**
 - i. **Budget Application:** The Budget Application should be detailed enough to demonstrate that the project satisfies the provisions of this RFA and that it is sufficient yet reasonable to cover the scope of work of the application. The application could include information showing that the applicant has budgeted sufficient contingency amounts to cover unanticipated cost increases. The Budget Application should clearly identify that the funds are allocated and expended by the corresponding expiration date. FHWA encourages applicants to submit the most relevant and complete information they can provide; historical bid data and/or an engineer's estimate can be used to support the requested budget.
 - ii. **Budget Table(s):** Provide a budget table that summarizes costs expected throughout the period of performance broken down by expected major component, deliverable, or stage. If the work will be completed in stages, e.g., process development and construction

stages, the application can include estimated quantities for later stages. The applicant can elect to break budget table information down into additional tables if so needed.

- **Additional Supporting Documentation**

Additional supporting documents (e.g., technical information, letters of endorsement) may be submitted as Supporting Documentation to the application and do not count toward the 15-page Technical Application page limit but must not exceed 10 pages. Applications should clearly reference within the Project Narrative the relevant supporting document.

- **Other Application Considerations**

Scalable Project Options: Applicants are encouraged to identify scaled funding options in the event funding is available to cover additional activities above the minimum award. If an applicant submits a scalable application, they should identify an appropriate minimum funding amount that will fund eligible activities to achieve the objectives of the program and meet all relevant program requirements. FHWA may award scalable project options.

Construction Projects: FHWA recognizes that, in some cases, significant material and product identification work might be needed before a State DOT can readily determine which construction projects can incorporate LCTM activities or materials. In these cases, the application is encouraged to identify a range of potential and eligible construction projects that could incorporate LCTM processes. IPR(s) shall be approved by FHWA before FHWA issues authorization to proceed or obligate funding for construction projects.

Sharing of Application Information: DOT may share application information within DOT or with other Federal Agencies if DOT determines that sharing is relevant to the respective program's objectives. If FHWA receives a Freedom of Information Act (FOIA) request for the information that the applicant has submitted, FHWA will follow the procedures described in its FOIA regulations at 49 CFR § 7.29.

8. APPLICATION REVIEW INFORMATION

FHWA will evaluate applications for eligible projects using the following eligible application factors. Applications must adequately address each factor and subfactor to receive funds.

Factor #1: Substantially Lower Embodied Carbon Identification

Application shall identify how the State DOT plans to investigate which materials it will assess for inclusion in construction projects funded under 23 U.S.C. and how those materials will be assessed for meeting the definition of “substantially lower embodied carbon” as defined by the EPA’s ID. Evaluation of this factor will include evaluation of the following subfactors:

- (1) Identification of eligible construction materials: Application describes the construction materials, within the eligible materials category as defined by the EPA ID (concrete (and cement), glass, asphalt mix, and steel), that will be investigated for potential inclusion onto construction projects as meeting the definition of Substantially Lower Embodied Carbon.

- (2) Energy Star Performance Score: Application describes how a process will be developed to collect Energy Star Performance Scores (if available) for upstream manufacturing facilities of eligible materials used on construction projects.
- (3) EPD Process: Application describes how a process will be developed to collect EPDs on eligible construction projects.
- (4) Substantially Lower Embodied Carbon Threshold: Application describes process to implement the EPA ID approach to establish thresholds.

Factor #2: Quality Assurance and Materials Acceptance

Applications shall identify how the State DOT intends to assess identified materials as appropriate for use on a Federal-aid project. Evaluation of this factor will include evaluation of the following subfactors:

- (1) Material Specification: The application describes how a process will be developed to specify materials and products. This could include development of new, or the use of existing, specifications and special provisions.
- (2) Verification Process: The application describes how a process will be developed to assess that materials placed on construction projects (i) conform with engineering specification requirements and (ii) are assessed for conformance/compliance with the definition of “substantially lower embodied carbon” as defined by EPA.
- (3) Monitoring: FHWA recognizes that materials placed under this program might benefit from additional engineering performance monitoring. The application can outline any additional engineering performance monitoring the agency plans to conduct.

Factor #3: Use of Materials and Products on Construction Projects

A key requirement of the LCTM Program is implementing Factor #1 and #2 on construction projects. The application shall outline how the recipient plans to facilitate the use of materials on eligible projects. Evaluation of this factor will include evaluation of the following subfactors:

- (1) General Approach: The application outlines a general approach of how LCTMs will be incorporated on construction projects.
- (2) Industry Outreach: The general approach to LCTM implementation recognizes the key role of industry in supplying low carbon transportation materials and providing the data that allows for proper assessment of a material’s embodied carbon content. The application outlines anticipated activities that are intended to increase the chance of successfully incorporating eligible materials on construction projects given that information will need to be supplied by industry.
- (3) Calculating Incentive or Reimbursement for Materials with “Substantially Lower GWP” on Construction Projects: The application recognizes and describes a process that will be developed to address, during the construction phase of eligible projects, reimbursement amounts will be calculated.

- (4) Specific Construction Projects: The application identifies a range of potential and eligible construction projects and eligible materials for placement. Multiple construction projects using the same low carbon strategy (e.g., use of Warm Mix Asphalt produced at low temperatures) could be bundled together in the proposal.

Factor #4: Schedule and Budget

FHWA will assess the Schedule and Budget factor on the following subfactors:

- (1) The application shall include a description of start and end dates and an estimated budget for each major activity, milestone, and deliverable.
- (2) The estimated budget appears commensurate with the application’s technical narrative and conforms to applicable cost principles.
- (3) The application clearly identifies eligible activities as being completed by the expiration of funds.

9. REPORTING

State DOTs shall report on the use of funds, at a minimum, on an annual basis using the SF-425.¹³

States must develop an IPR that documents a process for how the State DOT plans to implement the LCTM activities, and shall submit the report as an Attachment to an SF-425 when completed. Use of LCTM funds for development of IPR(s) is allowable. States must receive approval of the IPR(s) before FHWA will issue the authorization to proceed or obligate LCTM funding for construction. IPR (s) shall, at a minimum:

- A. Document how the State will meet conformance with EPA ID, including the use of EPDs described by EPA and the meeting of EPA-established process to determine thresholds for “substantially lower levels of embodied greenhouse-gas emissions”;
- B. Document material(s) that will be considered for inclusion on construction projects and describe how the engineering performance of eligible materials will be assessed;
- C. Document how the State will approve EPDs of materials eligible for use on construction projects,
- D. Identify list of eligible construction projects;
- E. Describe methodology for calculating the incremental or incentive amounts for construction projects.

Additional detail on the minimum required contents within an IPR is provided in the appendix A of this RFA.

The State may choose to develop multiple IPRs to meet the requirements above for different processes or activities undertaken with LCTM funds.

¹³ FHWA and DOT use SF-425 with attachments for reporting under the OMB Control Number 2105-0520.

On at least an annual basis, States shall submit an SF-425 that includes an Attachment that details progress on the outcomes listed in their application and IPR(s) and performance indicators that include measurable goals or targets. States shall report, in the Attachment to the SF-425, the following to FHWA:

- Major activities conducted, deliverables accomplished, and milestones achieved during the period of performance and how they address their IPR(s);
- Number of EPDs collected;
- Supplier information as provided from the EPD;
- Location of construction projects;
- Materials construction quantities (square yards, cubic yards, tons, etc.) meeting the definition of substantially lower embodied carbon; and
- How, and if, the recipient has addressed Administration priorities listed in Section 3: Administration Priorities.

State DOTs are encouraged to include reporting that can be used to inform future programs or policies that might include environmental performance in an open and transparent format, e.g., a public facing research report.

FHWA reserves the right to request additional information, if deemed needed, to better understand the status of the outcomes listed in their application and IPR(s). FHWA may use major deliverables developed by State DOTs as an opportunity to illustrate the impact of the LCTM Program and to determine whether program outcomes have been achieved. FHWA anticipates developing technical assistance resources and building on identified best practices to support program outcomes beyond the life of the LCTM Program. Examples of such technical assistance activities may include best practice case studies and videos, and hosting workshops, Webinars, and peer exchanges.

10. PROCESS

- **Application Phase**

Starting on March 12, 2024, until 11:59 p.m. EST on June 10, 2024, State DOTs can submit their respective applications as described above. FHWA is not obligated to make any award as a result of this notice.

- **Announce Participants**

FHWA intends to announce recipients in September 2024.

- **Project Phase**

Participants will develop and carry out LCTM Process Development activities and construction activities as outlined in submitted applications and IPRs.

- **Showcase Phase**

Throughout the program and continuing into 2031, FHWA may host peer exchanges and Webinars and develop case study reports to share Low Carbon Construction Materials lessons learned, outcomes, and next steps for further implementation.

11. FHWA SELECTION PROCESS

An application from a State DOT that addresses each and every subfactor outlined in Section 8 Application Review Information of this RFA will be rated as “Responsive” and be eligible to receive funds. A “Responsive” application substantively discusses each factor and associated subfactors and provides sufficient information to determine that the project meets statutory eligible application criteria. A “Not Responsive” application does not substantively discuss each factor and associated subfactors or does not provide sufficient information to determine that the project meets statutory eligible application criteria. FHWA reserves the right to contact applicants to obtain additional information concerning its application but expects applications to be complete upon submission.

FHWA anticipates that at least \$22 million will be available for each State DOT that submits a responsive application. Remaining funds available from the pool of \$1.2 billion may be distributed equally among State DOTs that submit a responsive LCTM application, not to exceed the amount requested in the State DOT’s application. Applications will be reviewed for eligibility under Section 6 Eligibility Information of this RFA. Then applications will be assessed to determine if they meet the eligible application factors in Section 8 Application Review Information of this RFA. Applications will be assigned a rating of “Responsive” or “Not Responsive” to the eligible application factors. Funding amount determinations will be made in accordance with this RFA after all applications are evaluated.

12. FEDERAL AWARD ADMINISTRATION

All awards will be administered pursuant to the Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards found in Title 2, Code of Federal Regulations (CFR), Part 200, as adopted by DOT at 2 CFR part 1201. Applicable Federal laws, rules, and regulations set forth in 23 U.S.C. and 23 CFR apply.

APPENDIX A. SUPPLEMENTARY INFORMATION FOR IPR CONTENT

Implementation Process Reports (IPRs) document processes necessary for identifying, selecting, specifying, and using low-carbon materials for construction projects receiving FHWA Low-Carbon Transportation Materials (LCTM) Program funding. Recipients must submit IPRs for FHWA approval before FHWA issues authorization to proceed or obligates LCTM funds for a construction project. Approval is based on a recipient's conformance with the LCTM Program requirements. FHWA approval of an IPR represents FHWA determination that the process conforms to program requirements but does not represent endorsement by FHWA of a particular process or procedure or reflect an evaluation of the quality or merit of a process or procedure.

The following list of information and processes constitutes the minimum requirements of the LCTM program.

1. Process to ensure conformance with [EPA Interim Determination](#).
 - Documented procedures for identifying benchmarks for each material/product using one of the following acceptable approaches:
 - Option 1: Reference threshold(s) as indicated on [FHWA Website](#).
 - Option 2: Agency determined local or regional thresholds following accepted International Organization for Standard (ISO) 21678. Procedures shall include the disclosure of the Global Warming Potential (GWP) as defined in the relevant PCR and methodology for determining percentiles and averages, the source(s) used for each material/product, and the parameters (including performance specification) used to set the GWP thresholds.
 - Documented procedures for qualifying materials/products for the LCTM program including:
 - Process for collecting and using environmental product declarations (EPDs).
 - Process for collecting Energy Star Performance Score, if applicable.
 - Process for selecting materials/products using the threshold values.
 - Process to document and approve the use of materials/products if using better than average threshold values to qualify materials/products, including defining the cover area for project's location (i.e., vicinity/region).
2. Documented process for evaluating engineering performance of materials including:
 - Process for assessing if existing engineering specifications allow the use of LCTM eligible materials/products.
 - If recipient will develop new materials specifications or special provisions to implement the LCTM program, description of additional activities such as, but not limited to: mixture design approval, laboratory testing, test equipment required, field test strips, and monitoring in-service performance.
3. Documented process for EPD acceptance including:
 - Process for requiring a supplier declaration of conformity that the EPD submitted corresponds to the materials to be supplied to the construction project.

- Process for verifying that EPDs are facility-and material/product-specific cradle-to-gate Type III (third-party verified), published in accordance with relevant PCR, and within its period of validity.
4. List of construction projects.
 - Recipient shall provide the project title and description of construction projects that will incorporate LCTM materials/products. If available, the Federal-Aid ID number should also be provided.
 5. Documented methodology for budget.
 - Recipient shall describe how the incremental or incentive amount will be determined for construction projects using LCTM funding.

Depending on factors such as the goals of LCTM implementation, organizational structure, and number and types of materials/products considered for eligibility, recipients may choose to develop more than one IPR to meet the minimum requirements. Individual IPRs can be submitted for approval as they are developed by the recipient. To demonstrate conformance with the LCTM Program requirements, recipients may submit final documents, such as technical specifications, directives, or standard operating procedures, OR detailed plans describing the processes.