

CHICAGO LOW-CARBON TRANSPORTATION MATERIALS PROGRAM

Low Carbon
Transportation Materials
Grant Application
Submitted November 2024





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Project Website:

ChicagoLowCarbonTransportationMaterials.cnectchicago.com



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Introduction

This Budget Application has been prepared in accordance with the Federal Highway Administration (FHWA) Notice of Funding Opportunity (NOFO) for the Low Carbon Transportation Materials (LCTM) grant program. The activities defined in *Volume 1* and below are scalable and should additional funding be made available, can be increased to support further implementation. CDOT is fully committed to reducing its carbon footprint and improving durability by utilizing low carbon transportation materials when possible. Therefore, should offered funding be reduced, CDOT is prepared to cover cost shortfalls and/or scale down activities so that an implementable program is achieved.

Contingencies associated with unanticipated cost increases are included. The costs contained in this application are the best estimates that could be made at this time given the uncertainty in costing out a multi-task, multi-year project. Updated budget information, including estimated hours and labor rates, equipment costs, itemized travel costs, and other costs, will be provided as part of subsequent Implementation Process Reports (IPRs) to be prepared and submitted to FHWA for approval as discussed in *Volume 1*. CDOT will target submitting all IPRs within one year of when the funds become available for obligation, but no later than June 30, 2026. All LCTM funds will be expended prior to September 30, 2031, as shown in *Table 3*.

Costs in this budget application have not been broken down specifically for cement/concrete (PCC) and hot mix asphalt (HMA). CDOT anticipates the costs to implement an LCTM program will nominally be split 50/50 between PCC and HMA. Furthermore, it is CDOT's desire to split the program equally so that ample opportunities are available to compare the sustainability, durability, and life cycle costs implications of both material types. Given that CDOT's typical roadway pavement consists of a composite cross section including a concrete base course and asphalt wearing surface overlay, this strategy allows for both materials to be given priority. Until CDOT learns more in pursuit of Tasks 1 through 6, it is impossible to accurately predict a more specific cost breakdown per material type. In addition, CDOT is ready and able to move costs per Task breakdown in the event we discover any given Task has been under or overestimated. The attached cost spreadsheet is organized per Task and sub-Task, encompassing the combined cost of PCC and HMA. In addition to support provided by agency personnel, CDOT will utilize LCTM grant funding to support the involvement of consultant personnel in accomplishing the identified activities.

As noted above, the costs provided reflect the best understanding of project activities at this time. Many later activities are estimated and may necessarily be adjusted based on initial findings and results. To account for unexpected costs (e.g., inflation, extreme weather events, material supply issues), a contingency of 15% has been included. For ease of consideration, the contingency is only applied to the overall requested amount.

In total, as shown in *Table 1 and 2* below, CDOT requests \$20 million from the LCTM Grant Program to conduct the activities described in *Volume 1* and achieve the objectives of the Program within the detailed program schedule, included in *Table 3*.



Budget Justification

The budget table in *Attachment A* presents the cost estimate for each Task identified in *Volume I*. For convenience, the tasks are divided into several “activities” for each of the eligible materials being pursued, as described in *Volume I* of this application. Expected costs have been grouped into the following general budget items:

- Consultant labor
- Direct costs
- Construction-related costs

Each of these general budget items are discussed in the following sections.

CDOT Personnel

CDOT does not intend to charge labor costs to available LCTM funding. CDOT anticipates staffing costs will be minimal since consultant staff will be used to implement most of the program objectives. CDOT’s focus is to maximize available funding to dedicate to the LCTM program.

Consultants

The consultant labor costs have been estimated based on using a single loaded labor rate of \$300/hour, representing a best estimate of a weighted rate for all classes of consultant personnel expected to work on the LCTM program, incorporating annual increases in the labor rate over the duration of the program. This rate is multiplied by estimated consultant hours for each LCTM program activity.

A variety of consultants will be required to complete the work required to execute the Tasks in the proposed LCTM project. Consultants will be integral for all tasks identified in the proposal. It is expected consultants will be immediately engaged to assist in preparing the IPRs and will be retained immediately after the grant award is finalized. CDOT assumes initial grant funding will be made available to cover the initial IPR development. Consultants are expected play key roles in all tasks, including developing a system to track and analyze EPDs for benchmarking, identifying viable LCTM technologies, assisting with life-cycle accounting (LCA) needs, stakeholder outreach, training, assessment of LCTM technologies (e.g., laboratory testing), and other activities as discussed under each Task.

CDOT’s Quality Program Management Consultant, which will be tasked with performing most of the technical activities in Tasks 1–7, is comprised of a consultant team selected from a City of Chicago Request for Qualifications solicitation, which follows FHWA Quality Based Selection Procurement Procedures. The current CDOT QPMC contract includes two consultant engineering firms that will be critical in the implementation of the Chicago LCTM Initiative (Gannett Fleming/Transystems Inc & STATE Testing LLC).

The Municipal Purchasing Act for Cities of 500,000 or More Population, 65 ILCS 5/8-10-1 et seq. (the “Act”), is the state statute that governs the City’s procurement practices. The principal requirement of the Act is that all contracts for amounts greater than \$10,000 are to be let by free and open competitive bidding. Section 8-10-4 of the Act also identifies the exceptions to this requirement, which include contracts “which by their nature are not adapted to award by competitive bidding,” such as contracts for professional services, contracts for goods or services that are only available from a single source, utility contracts, publications, and specified printing and binding contracts. Requests for Qualifications (RFQs) are a form of competitive procurement.



The City of Chicago issues RFQs for requirements that are not adaptable to competitive bidding. In some instances, RFQs are used rather than Requests for Proposals (RFPs) because the City’s interest in the capabilities of the vendor is far more important than the price of the service. For instance, federal law requires that architects and engineers for federally funded projects be selected solely on the basis of qualifications.

Other Direct Costs

Other direct costs listed in Attachment A include project-related travel, equipment, training materials, and testing, as examples. The specific needs will be documented in the appropriate IPRs. Equipment is not expected to be a component of these costs. However, material durability tests currently in use in CDOT’s routine testing regimen will be used extensively to attain data to support the use of LCTMs, for specification modification, facilitate quality assurance testing, and in general, obtain the necessary data to identify unique attributes of LCTMs for use by CDOT.

Construction Costs

Construction will be a major cost, but until specific projects have been identified for LCTM use, it is not possible to provide exact estimates. At this point it is only possible to estimate construction costs based on bid item costs for existing projects and extrapolating to account for new materials and methods required for construction using LCTMs. In the attached budget, these estimated costs are largely limited to Task 7 and have been identified as either incentive-based costs or incremental costs. This distribution will be re-established as part of the IPR process.

Contingency

A contingency is included in the attached budgets to capture the reality that even with accurate estimates, as will be provided in the IPRs, unforeseen costs will arise given the experimental nature of some of these materials. A contingency of 15% has been used for this budget.

Task Highlights

Table 1 below shows the Chicago LCTM Program budget breakdown by Task. A more detailed budget is included in **Attachment A**.

Table 1. Chicago LCTM Program Budget by Task

Task	Description	Cost
1	Process for Substantially Lower Embodied Carbon	\$1,200,000
2	LCTM Quality Assurance (QA) and LCTM Specifications	\$3,400,000
3	Construction Project Identification	\$641,300
4	Use of LCTM on Projects	\$1,050,000
5	Substantially Lower Embodied Carbon	\$1,850,000
6	Quality Assurance and Acceptance	\$1,000,000
7	Use of LCTM on Construction Projects	\$8,250,000
	Task Total	17,391,300
	Contingency	\$2,608,695
	Grand Total	\$19,999,995



Table 2. Chicago LCTM Program Total Budget

Program Total Budget	
Task 1--Process for Substantially Lower Embodied Carbon	
<i>Activity</i>	<i>LCTM Grant Funds</i>
1.1 Develop Task 1 Implementation Process Reports	\$50,000
1.2 Identify eligible LCTMs, training needs, data needs, and specification review	\$300,000
1.3 Stakeholder outreach	\$300,000
1.4 Development of a process to collect and store EPDs	\$50,000
1.5 Identification of local or regional embodied carbon thresholds	\$50,000
1.6 Conduct Task 1 LCTM training	\$450,000
Task 1 Total	\$1,200,000
Task 2--LCTM Quality Assurance (QA) and LCTM Specifications	
<i>Activity</i>	<i>LCTM Grant Funds</i>
2.1 Development of Task 2 Implementation Process Reports	\$50,000
2.2 Development of QA plans and/or performance monitoring plan for the LCTM	\$100,000
2.3 Task 2 Stakeholder Outreach	\$300,000
2.4 Update of existing material specifications or development of new special provision to facilitate use on projects	\$100,000
2.5 Preliminary mixture design and testing to evaluate materials	\$500,000
2.7 Construction of Task 2 LCTM test strips	\$2,000,000
2.8 Development of a verification process for LCTM using EPDs, including electronic ticketing/documentation	\$300,000
2.9 Task 2 Training	\$50,000
Task 2 Total	\$3,400,000
Task 3--Construction Project Information	
<i>Activity</i>	<i>LCTM Grant Funds</i>
3.1 Development of Task 3 Implementation Process Reports	\$50,000
3.2 Identify construction projects	\$50,000
3.3 Develop a plan for incorporation of LCTM on construction projects	\$100,000
3.4 Development of project-specific construction contract language	\$100,000
3.5 Task 3 industry outreach and coordination	\$300,000
3.6 Task 3 training	\$41,300
Task 3 Total	\$641,300
Task 4--Use of LCTM on Projects	
<i>Activity</i>	<i>LCTM Grant Funds</i>
4.1 Development of Task 4 Implementation Process Reports	\$50,000
4.2 Identification of eligible Federal-aid projects	\$50,000
4.3 Estimation of costs and schedule impacts of LCTM	\$100,000
4.4 Comparison of LCTM costs and traditional material cost	\$50,000
4.5 LCTM bid items (added solely to facilitate use of LCTM)	\$750,000



Program Total Budget		
4.5 Evaluate potential incentive specifications		\$50,000
Task 4 Total		\$1,050,000
Task 5--Substantially Lower Embodied Carbon		
<i>Activity</i>		<i>LCTM Grant Funds</i>
5.1 Development of Task 5 Implementation Process Reports		\$50,000
5.2 EPD bid item		\$1,000,000
5.3 Collection of Energy Star Performance score		\$50,000
5.4 Quality incentives for environmental performance		\$500,000
5.5 Other costs for the use of substantially lower carbon materials		\$250,000
Task 5 Total		\$1,850,000
Task 6--Quality Assurance and Acceptance		
<i>Activity</i>		<i>LCTM Grant Funds</i>
6.1 Development of Task 6 Implementation Process Reports		\$50,000
6.2 Construction of Task 6 LCTM test strip		\$500,000
6.3 Additional testing equipment and/or testing required to accept low carbon materials		\$100,000
6.4 Verification that material placed meets thresholds for substantially lower carbon		\$50,000
6.5 Verification of engineering properties of the LCTM		\$150,000
6.6 Quality incentives for engineering performance		\$150,000
Task 6 Total		\$1,000,000
Task 7--Use of LCTM on Construction Projects		
<i>Activity</i>		<i>LCTM Grant Funds</i>
7.1 Development of Task 7 Implementation Process Reports		\$50,000
7.2 Develop project-specific performance monitoring plan		\$50,000
7.3 Construction & placement costs of using eligible materials		\$8,000,000
7.4 Reporting results from long-term performance monitoring plan		\$50,000
7.5 Incentives		\$100,000
Task 7 Total		\$8,250,000
Task Totals		\$17,391,300
Enter contingency percentage	15%	Contingency \$2,608,695
Grand Total		\$19,999,995

Table 3. Chicago LTCM Program Detailed Schedule

