



Center for Connected Multimodal Mobility (C²M²)

USDOT Tier 1 University Transportation Center

Request for Proposals 2020

CENTER FOR CONNECTED MULTIMODAL MOBILITY (C²M²)

Overview

C²M² is a Tier 1 University Transportation Center consisting of five higher education and research institutions from South Carolina: Clemson University, Benedict College, The Citadel, South Carolina State University, and the University of South Carolina. Our mission is to bring together complementary research expertise to solve challenges related to connected multimodal transportation services and to trial-test the developed innovative technologies in South Carolina. In our second round of funded projects, we focused on research that aimed to impact the current and future practices of transportation with an emphasis on projects with technology transfer plans that will create lasting change within the transportation field. This year, based on the recommendations from our advisory board members, we are looking to fund a handful of larger, multi-university projects that fit under the four “Big Ideas” outlined in the following section for our third round of funded projects.

C²M² Research Focus for Proposals for This 2020-21 Cycle

Research proposals should focus on our core mission statement to build our Center as “an innovation center for transforming multimodal transportation through connectivity, data analytics, automation, and cybersecurity.” Each proposal should focus on how the proposed project will transform multimodal transportation systems. In this proposal cycle, each proposal must fall into at least one of the following four categories:

- Safety, security and operational analysis of connected and automated vehicles
- Public infrastructure investment and risk analyses of multimodal connected and autonomous transportation systems
- Future transportation technologies for disadvantaged and disabled travelers in the context of social justice and health care/public health
- Freight mobility and safety enhancement through connectivity and automation technologies

This year emphasis will be placed on collaborative projects between researchers at our five participating institutions. We would like to see proposals on a larger scale than previous rounds, which feature collaboration between at least two of our partner institutions, if not more. Our goal with this round of funded projects is to look at the “Big Picture” challenges facing transportation advancement and to promote collaborative solutions across our Center and a lasting impact on the future of transportation. We are also asking that all proposed projects contain a technology

transfer plan, with the intention that funded projects in this cycle focus on the creation of tangible results and sustainable output.

C²M² Leadership Team

C²M² Director

Clemson University

Dr. Mashrur “Ronnie” Chowdhury

mac@clemson.edu

C²M² Assistant Director

Clemson University

Dr. Mizanur Rahman

mdr@clemson.edu

C²M² Program Coordinator

Clemson University

Ms. Charlotte Ryggs

cryggs@clemson.edu

C²M² Associate Directors:

Benedict College

Dr. Gurcan Comert

comertg@beneditct.edu

The Citadel

Dr. Dimitra Michalaka

dimitra.michalaka@citadel.edu

South Carolina State University

Dr. Judith Mwakalonge

jmwakalo@scsu.edu

University of South Carolina

Dr. Nathan Huynh

nathan.huynh@sc.edu

C²M² Proposal Guidelines

Collaboration Requirements:

- Lead PI must be a member at one of the five universities in the C²M² consortium.
- Lead PI may only submit one proposal on which he/she is the lead investigator.
- Conforming to the Center’s underlying philosophy that true collaboration will lead to projects with greater impact, collaborative proposals with two or more C²M² institutions are required.

Budget Requirements:

- All projects require a 50% non-federal match. However, more than a 50% match is encouraged. Proposers are required to clearly communicate this match in the proposal budget.
- Matching funds from public and/or private research partners are highly encouraged as this will contribute to technology transfer.
- The maximum requested USDOT funding from each university for a proposed project (without a match) cannot exceed \$50,000. However, the minimum awarded amount is subject to the number of proposals selected for funding and available funds (awarded amount may be less than \$50,000).

Schedule Requirements:

- All Research **MUST BE COMPLETED** no later than one year (365 days) from the project start date.
- Projects have an expected start date of **June 15th, 2020**.

Reporting Requirements:

Investigators must keep the C²M² leadership abreast of project changes and activities. The reporting requirements are as follows:

- Revised project description, work plan, and schedule based on external reviews (due two weeks after project award).
- A quarterly progress report for C²M² funded activities (every three months) in C²M² format (to be provided)
- One quarterly SF270, corresponding to the quarterly progress report, from each institution on C²M² funded activities (Do not provide a separate invoice from each PI at an institution)
- Justification for each expenditure item both that come from USDOT and shown as a match in the quarterly invoice (match must be at least 50% of the USDOT fund) for each quarter.
- Final project report in C²M² format (due by **May 31st, 2021**). The final report should include lists of papers and presentations, media mentions, technology transfers, as well as a deployment plan (if applicable).

General Submission Guidelines

Project Proposal Form

- Include a **cover page** on your proposal. Do **not** include **names** on any other page of the proposal. (1) page
- After the cover page, no longer than four (4) pages, single-spaced with 1” margins; additional page limitations are provided in the template.
- Minimum font size shall be 11pt in Cambria, Calibri, Arial, Helvetica or Times New Roman.
- All proposals shall be written in English.
- A Research Project Proposal template has been provided that includes the information required for the proposal to be reviewed.
- Applicable Associate Director must be notified when the proposal is submitted.

Technical Information

- No longer than four (4) pages, including all graphics and references.
- The technical description should include Overview, How your project will fit with the C²M² Research Focus Areas, Method/Work Plan, Expected Impacts/Benefits, and a **Technology Transfer Plan**.
- The expected contributions of different investigators and different universities should be clearly stated.
- Proposers should refer to the Center for Connected Multimodal Mobility Supplemental Information Document and tie your responses to this document.
- The intended project period is **June 15th, 2020** through **June 14th, 2021**.
- The external reviewers will be asked to evaluate whether the schedule is appropriate for the described work plan.

Budget

- No longer than two (2) pages.
- Require a 50% non-federal match.
- Please coordinate this submission with your institution’s research office for review of appropriate fringe benefit rates, overhead rates, and cost-share.
- The external reviewers will be asked to evaluate whether the budget is appropriate for the described work plan.
- The maximum amount of funding used for research shall not exceed the total amount available for research for each institution.

Letters of Support

Letters of support from transportation agencies or other related organizations are encouraged, but not required.

Proposal Evaluation

External Reviews

Submissions will be evaluated through a blind review process, removing all investigators' names, in order to aid in an unbiased process. The review panel for each proposal shall consist of at least three (3) external reviewers with expertise in multimodal transportation and intelligent transportation systems. The evaluators will consider relevance to the call, originality, potential impact, implementation feasibility, budget, and schedule.

Proposals may receive a maximum of 100 points.

(Up to 10 points) How well does the proposed research fit C²M² “Research Focus for Proposals in this Cycle” as identified on the first page of the RFP?

(Up to 25 points) Is this a collaborative proposal (with meaningful contributions from multiple universities)?

(Up to 10 points) Have they adequately described the need for the research, their goals and objectives, and potential future research?

(Up to 20 points) Technical Transfer/Implementation—Is this adequately described? Do you believe that their plan is realistic? Have the researchers identified potential implementations of their work? Do they have a realistic technology transfer plan?

(Up to 25 points) Technical Description including Overview, Method (detailed description of tasks), Expected Impacts and Benefits. How excited are you by this topic and the potential contributions of the researchers? Do the highlight bullets reflect the merits of the proposal?

(Up to 10 points) Schedule and Budget—Do the schedule and budget seem reasonable for the described tasks? Is there good use of match money and funds distribution among universities and collaborators?

Key Dates

Electronic submission of proposals:

Proposals should be submitted no later than 5 PM EDT on April 15th, 2020 to the C²M² Program Coordinator at C2M2@clemsn.edu.



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Proposal Notification

Please complete this Pre-Proposal Notification and Approval form and submit to the C²M² Program Coordinator at C2M2@clermson.edu no later than **5 PM EDT on April 15th, 2020**. This page will serve as the cover sheet for the proposal submission.

Lead PI: [Click here to enter text.](#)
Email: [Click here to enter text.](#)
Institution: [Click here to enter text.](#)
Project Title: [Click here to enter text.](#)

Research Area: Please select which of the C²M² research areas this project applies to (select all that apply)

- Safety, security and operational analysis of connected and automated vehicles
- Public infrastructure investment and risk analysis of multimodal connected and autonomous transportation systems
- Future transportation technologies for disadvantaged and disabled travelers in the context of social justice and health care/public health
- Freight mobility and safety enhancement through connectivity and automation technologies

Investigators and their Contact Information

Lead PI: [Click here to enter text.](#)
Title: [Click here to enter text.](#)
Department: [Click here to enter text.](#)
Institution: [Click here to enter text.](#)
Address: [Click here to enter text.](#)

Email: [Click here to enter text.](#)
Phone: [Click here to enter text.](#)

Investigator 1: [Click here to enter text.](#)
Title: [Click here to enter text.](#)
Department: [Click here to enter text.](#)
Institution: [Click here to enter text.](#)
Address: [Click here to enter text.](#)

Email: [Click here to enter text.](#)
Phone: [Click here to enter text.](#)

Investigator 2: [Click here to enter text.](#)
Title: [Click here to enter text.](#)
Department: [Click here to enter text.](#)
Institution: [Click here to enter text.](#)
Address: [Click here to enter text.](#)

Email: [Click here to enter text.](#)
Phone: [Click here to enter text.](#)

Investigator 3: [Click here to enter text.](#)
Title: [Click here to enter text.](#)
Department: [Click here to enter text.](#)
Institution: [Click here to enter text.](#)
Address: [Click here to enter text.](#)

Email: [Click here to enter text.](#)
Phone: [Click here to enter text.](#)

Acknowledgments

Principal Investigator

Date

Associate Director

Date



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Proposal Form

The following requirements shall not exceed four (4) pages.

Project Highlights and Impacts

Please include 3-5 bullets of highlights of each project. Make the case for (a) regional need, (b) potential for implementation, and (c) the expected impacts of this project. Succinctly explain why this work should be funded. Please tie this information to the supplemental information document provided.

Need for Research

Describe why this research is necessary, the problem/issue you propose to address, and/or the need statement put forth by the customer.

Research Goals and Objectives

Describe the anticipated or desired outcome of the research.

Future Research and Technology Transfer

Please describe how this research can lead to larger research projects with diverse research partners and any proposed technology transfer plans. Include who you envision being part of that research team.

Research Description and Approach *One (2)-page maximum of the four (4) allotted pages*

Enter a clear, succinct project description, including the approach/process planned. Describe how the objectives will be accomplished through a logical, innovative and rational plan. This is the description that will be submitted to USDOT immediately following project selection.

Expected Technical Transfer Outcomes: Please select all that apply, then describe how these will be executed in the next item.

- I anticipate this project will result in a traditional or online training program for professionals
- I anticipate this project will result in a guidebook or similar publication in addition to an academic report
- I anticipate this project will result in a potential patent or otherwise marketable product
- I anticipate this project will be a viable subject for a webinar
- Other: _____

Technical Description *Four (4)-page maximum, inclusive of all graphics and references*

MUST include:

- Overview,
- How your project will fit with the C²M² research focus areas,
- Method,
- Work Plan with a detailed description of the tasks to be conducted including a schedule for phases and tasks,
- Expected impacts and benefits, and
- Your technology transfer plan.

The contributions of different universities should be evident and complementary for collaborative projects.

Budget, and Budget Justification *Two (2)-page maximum*

The following tables match what we need for UTC reporting. Please coordinate this submission with your institution’s research office for review of appropriate fringe benefit rates, overhead rates, and cost-share. The budget justification (one-page maximum) should include a description of all proposed UTC costs and Non-Federal cost share.

UTC Budget Category	University 1 Name	University 2 Name	Total
Salaries, Faculty			
Salaries, Staff			
Salaries, Student			
Fringe Benefits, Faculty			
Fringe Benefits, Staff			
Fringe Benefits, Student			
Subtotal Personnel			
Student Support, Tuition			
Student Support, Health Insurance			
Equipment (over \$5,000)			
Materials & Supplies			
Computer Software/Peripherals			
Travel, Domestic			
Other Direct Costs (explain)			
Total Direct Costs			
F&A - Modified Total Direct			
Total Budget			

Non-Federal Cost-Share Budget Category	University 1 Name	University 2 Name	Total
Salaries, Faculty			
Salaries, Staff			
Salaries, Student			
Fringe Benefits, Faculty			
Fringe Benefits, Staff			
Fringe Benefits, Student			
Subtotal Personnel			
Student Support, Tuition			
Student Support, Health Insurance			
Equipment (over \$5,000)			
Materials & Supplies			
Computer Software/Peripherals			
Travel, Domestic			
Other Direct Costs (explain)			
Total Direct Costs			
F&A - Modified Total Direct			
Total Budget			

Non-Federal Cost-Share Sources:

University 1 Sources:

University 2 Sources:

(for example SCDOT, Private Industry Organization Name, Internal University Support)

Note for Clemson University PIs: Your budget should not include overhead or Facilities and Administrative (F&A) cost. C²M² will pay for the F&A for each funded project. Clemson PIs will not receive any incentive return for their funded project through C²M².