2021 C2SMART Center Request for Proposals

Program Objectives
C2SMART is soliciting proposals from its consortium faculty for research projects in 2021. In addition to the merit of the proposed research, projects will be selected based on their proposed outputs (i.e. products, tools), external partners/users of the generated products, and real-world implementations that will result. Received proposals will undergo a rigorous peer-review process to evaluate the merit of the proposed research, feasibility, and fit with the center’s themes.

Research Topic Areas
Proposals should fall into one of the two tracks listed below. Note that preference will be given for proposals that fall under Track 1:

Track 1: Implementation or Demonstration of a Prior C2SMART Research Effort
- Under this track, C2SMART seeks to build off of prior research conducted at the center towards real-world implementations or demonstrations of research outcomes. These could include field implementations, product releases, prototypes, or pilot demonstrations. All proposals should help C2SMART Center research better meet USDOT Technology Transfer goals.
- Agency or industry partner to be heavily involved in the real-world implementation/demonstration of a research project. Partner commitment must be gained prior to authorization of the project.
- Technology products or other impacts will be generated as a result of the project. Examples may include mobile applications, field installation of equipment, web-tool to model or analyze data, prototype of a new sensor/device, or other.

Track 2: Advanced Research Project within Center Themes
- Under this track, proposals that fall under a center research area will be accepted if they advance center research under a multi-disciplinary perspective. This track is also targeted at new PIs and partnerships across different disciplines to diversify C2SMART research. Note that scopes must be limited to ensure completion within 1 year. No extensions will be given.
- Under Track 2, research should fall under any of the below center research themes:
  - **Topic Area 1: Big Data and Urban Analytics in Smart Cities.** Big data generated by field implementations and non-traditional sensing technologies can be used to develop secure and interoperable data sharing platforms and system-oriented solutions. There is a need to better take advantage of these sources to address a wide range of mobility needs involving people and goods to achieve efficiency, resiliency, accessibility, and sustainability.
  - **Topic Area 2: Connected and Autonomous Mobility.** Connected and autonomous vehicles, rail systems, and other modes will bring revolutionary changes to the way our transportation systems work, but many questions about how these systems will work in a real city remain unanswered. Research is needed to better deploy these systems throughout urban networks and pave the way for widespread real-world implementation.
  - **Topic Area 3: Microtransit, Micromobility, and Shared Mobility.** New modes and services are revolutionizing urban transportation and providing increased mobility options. As these new services are introduced, there is a need to ensure they are meeting city residents’ mobility needs in an efficient, safe, and equitable way.
o **Topic Area 4: Safety of Pedestrians and Mobility Systems.** New modes and services are revolutionizing urban transportation and providing increased mobility options. As these new services are introduced, there is a need to ensure they are meeting city residents’ mobility needs in an efficient, safe, and equitable way.

o **Topic Area 5: Resilient, Secure, and Smart Transportation Infrastructure.** Currently, most repair, maintenance, and replacement decisions for urban infrastructure are made in the absence of reliable data. There is a need to assess the vulnerabilities of urban infrastructure and work towards resilient systems that function when strained by difficult conditions.

o **Topic Area 6: Equity & Accessibility for Under-represented Groups in Transportation.** Despite the growing variety of transportation options available in cities, many face limited choices due to physical accessibility limitations, safety concerns, or other impediments to safe and efficient travel. Research is needed to improve accessibility for groups who are often underrepresented or overlooked in transportation policy development and research.

o **Topic Area 7: Adaptative Transportation Solutions in a Post-Pandemic World.** Under this special topic area, C2SMART seeks to fund projects specifically tackling research into the future of transportation systems in cities following the end of the COVID-19 pandemic. Specifically, research into solutions to the problems created by the changing nature of transportation demand and user preferences following the pandemic to support smarter and healthier cities.

**Guidelines for Submitting a Proposal**

Proposal submissions will follow the outlined 2-step process as follows. Please note the submission deadlines for each step.

**Step 1: Submit Proposal Abstract and Parameters in the below online form on or before November 24, 2020.**

*Direct Link to Online Form*

Based on the received information, subjects, and number of proposals received, Principal Investigators will be contacted by Center administration with next steps to submit full proposals. PIs will be notified soon after submission is received, so earlier submissions in advance of the deadline are encouraged.

**Step 2: Full Proposals must be submitted via the online submission system on or before December 22, 2020.**

*Link to Proposal Submission Form (Opens on November 30, 2020)*

PIs/PI teams that are selected for full proposal submission should submit full proposal packages on or before the deadline to be considered for funding. Once received, proposals will be reviewed by Center Administration for completeness and then be entered into the peer-review process. Details on the full submission requirements are provided below.
Full proposal submissions must contain the following (3) elements:

1. **Proposal Document**

   The following key characteristics should be addressed in each proposal:
   - Which agency or industry members will serve either as partners in the research or as users of the research output, and how the research will translate into implementable results
   - Products that will be created as outputs of the research (tools, software, hardware, etc.)
   - Compliance of the project with the center’s [Technology Transfer Plan](#), and how the project will support the stated performance metric goals in the plan
   - Datasets that will be generated as a result of the research, and how the data will be managed and made available as outlined in the center’s [Data Management Plan](#)
   - How the research findings will be disseminated through measurable outreach, education, or workforce development/training efforts
   - Where the minimum 50% non-federal cost share comes from and how it will support the proposed research

Proposals should be submitted using the provided [Research Project Description template (.docx format)](#) covering the following:

1. A 1-page cover in the prescribed USDOT format
2. A complete scope of work covering:
   a. Background and review of prior research, highlighting any previously conducted C2SMART Center research in the area
   b. Problem statement, research objectives, and proposed methodology
   c. Key project elements and milestones
   d. Deliverables or outputs that will come about as a result of this research
   e. Discussion of intellectual merit and broader impacts and benefits arising from implementing the proposed research
   f. How the research will be implemented and disseminated
   g. Plans for technology transfer and data management
   h. Outreach activities
   i. Key functions and modes of the research
3. A detailed list of tasks and their proposed timeline, along with when deliverables or outputs will be produced
4. A description of project personnel involved and commitment levels, including:
   a. Anticipated collaboration with consortium members, partners, public agencies, industry
   b. Research staff, students, and faculty time committed to this project
   c. A description of where the minimum 50% non-federal cost-sharing will come from
   d. A detailed breakdown of anticipated charged time and supplies, equipment, or travel associated with the project
5. Brief responses to additional evaluation questions in the template (max 2 sentences each)

In addition, appendices should be included that provide the following:

6. 2-page max CVs of the PI and all key personnel (NSF style) highlighting relationship with prior C2SMART research and outcomes
7. 2-page max budget justification detailing need
8. Cost share commitment letters and other letters of support from agency or industry partners
9. If the research requires IRB approval for human subjects research, documentation should be included to indicate the plan to seek IRB approval if the proposal is funded
2. **Proposal Budget**

The attached Proposal Budget Template (.xlsx format) should be completed detailing funding request and cost-sharing. There are no minimum or maximum amounts of funding requests for proposals, but as a guide, center funding for proposals has typically been limited to the following maximums:

- Single institution, single principal investigator (no co-principal investigator): $50,000
- Single institution, multiple co-principal investigators: $90,000
- Multi-institution, multiple co-principal investigators: $130,000

These numbers include indirect costs but exclude the minimum 50% non-federal cost share required for each project. **As a reminder all C2SMART-funded projects are required to have a minimum of 50% of the project budget matched from another non-federal cost-sharing source.**

3. **Data Management Plan**

The attached Data Management Plan Template (.docx format) should be completed detailing how data will be generated, managed, protected, and disseminated.

**Review Criteria**

Each proposal will be submitted to a Review Committee to ensure proposals meet the Center’s requirements. The Review Committee will seek a minimum of 2 peer reviews from outside of the Center, and will rank proposals in order of acceptance, after which funding will be allocated accordingly. Conditions to the scope of the project may be added in order for a project to be accepted.

The proposals will be judged along the following criteria:

1. Does the proposed topic have strong intellectual merit?
2. Does the proposed topic fit with the research tracks in this RFP?
3. Does the project take advantage of prior C2SMART or other research to expand the scope and value of the research without replicating previously answered questions?
4. Does the project provide implementable outcomes including knowledge transfer to public agencies and professionals?
5. Does the project provide training or workforce development?
6. Does the project take advantage of industry resources and partners?
7. Does the project scope, budget, data, and schedule appear feasible?
8. Do the principal investigators have a good track record of providing deliverables per requirements and completing projects on-time?

**Deadlines and Schedule**

- Abstract submissions to this RFP are due via the online form by **November 24, 2020**.
- Full proposal responses must be submitted via the online system by **December 22, 2020**.
- Review, follow-up, selection, and funding allocations will take place over December 2020 and January 2021, with notice of award occurring in February 2021.
- All projects will be expected to commence by **March 1, 2021** with a scheduled completion date of **February 28, 2022**. Please ensure that projects can be completed within 1 year. Note that due to USDOT grant rules **no extensions will be given to any projects past this date**.
- Please note that final report drafts are due to the Center 1-month prior to project completion.