



Objectives:

The following document is the 2019 Request for Proposal (RFP) by the Center for Transportation Equity, Decisions and Dollars (CTEDD). CTEDD is a consortium of five universities leading transportation policy research that improves economic development through more efficient, cost-effective use of the existing transportation system, and offers better access to jobs and opportunities.

CTEDD aims to address these needs through innovative use of cutting-edge technology and policies that harness private resources for public infrastructure. CTEDD and its consortium members aim to serve their fast-growing regions and the nation through various programs that expand economic prosperity, provide outreach to policy makers, address infrastructure needs through innovative methods, and educate future leaders of the transportation field.

One of the many ways CTEDD hopes to achieve the above objective is through an annual RFP. This request is for consortium member researchers to submit a proposal that is relevant to CTEDD's goals, focus areas and relevant national transportation issues, all of which are outlined in this document.

Focus Areas:

CTEDD will be a leader in transitioning our antiquated transportation system towards the future through innovative policy making and the latest technology. C-TEDD research focus areas are as follows:

FOCUS AREA 1: Creative use of Existing Infrastructures for Future Transportation Needs:

- Using existing infrastructure for alternative shared mobility options, such as van pools, high speed rail, etc.
- Integration of new technology (such as big data collection technologies, information and communication technologies, automated vehicles, microtransit, LiDar) in Transportation.
- Smart land use, and transportation designs and policies.
- Enhancing shared-use mobility options for broadening access to jobs and services.

FOCUS AREA 2: Innovative Funding Strategies for Future Transportation Infrastructure, and Better Maintenance of Existing Infrastructure:

- Understanding and resolving political and financial obstacles, as well as systemic inefficiencies to meet infrastructure needs.
- Smart transportation investment strategies and use of new revenue concepts.
- Challenges and opportunities of leveraging private investment to support transportation infrastructure.
- Impact of funding stream challenges for maintaining transit operations.

FOCUS AREA 3: Transportation Systems, Economic Competitiveness, and Equal Access:

- Transportation, access to opportunities, and upward mobility.
- Economic development and supportive transportation concepts.
- Creative adaption of transportation networks to connect competitive megaregions.
- Ensuring sufficient mobility and opportunity access for transit dependent population.

FOCUS AREA 4: Employing Big Data and Innovative Techniques to Improve System Efficiency:

- Implementation of performance-based data collection and monitoring in decision making.
- Measuring efficiency and equality of transportation service.



- Online media, social marketing and transportation user's experience.

FOCUS AREA 5: Ensuring Transportation System Vitality through Performance Management and Monitoring Systems:

- Evaluating efficiency and effectiveness of internal policies such as procurement, contracting, and asset management.
- Reliable transportation infrastructure asset management framework development based on sensing/instrumentation, performance data and available financial resources.
- Integrating mixed modes with existing transportation infrastructure.

FOCUS AREA 6: Transportation Policy and Decision Making:

- Understanding the challenges of sub-state, local transportation policy and decision making, such as infrastructure rights of way, and political or financial obstacles.
- Challenges of building cross-state transportation infrastructure.
- Community role vs. lobbyist/legislature in shaping transportation policy.
- Return on investment based on interest groups, taxpayers and geography.

Technology Transfer:

The USDOT requires technology transfer (T2) as one of the main components of research. The process involves the following:

- Each PI is required to scale their project on the **Technology Readiness Level (TRL)** based on the following USDOT¹ [guidelines](#). While some of the TRL descriptions may seem to fit engineering-oriented projects better, the same level of detail is expected of planning and policy-oriented projects.
- The **T2 Assistant Director** for each consortium university can assist PIs in their technology transfer at all stages of the project. The PIs are encouraged to set their technology transfer goals specific to their proposed research and perhaps consult with their peers and executive committee member. The T2 assistant director's role will be more substantial once the projects have been selected.
- With regards to the Technology Transfer component of the project, each proposal will be considered based on the following two parameters:
 - a. Technology Readiness Level (TRL; see above guidelines and question 8 on this RFP). Preference will be given to those proposals with higher starting and ending TRLs, although projects at all TRLs will be considered.
 - b. Participation of stakeholders who can eventually adopt and implement the proposed research. Preference will be given to those proposals for which at least 1 relevant, non-academic stakeholder has been contacted before the proposal submission and agreed to participate as a collaborator on the project in terms of supporting research, dissemination, implementation, and/or providing match funding as documented in a letter of support included in the proposal package.

¹ Details on USDOT technology readiness can be found here:
<https://www.fhwa.dot.gov/publications/research/ear/17047/index.cfm>



Potential stakeholders and collaborators can include the following and contribute in many ways including match funding, in-kind support, data, mentoring, collaborative research, etc. It is preferred to include at least 1 stakeholder who can adopt and implement the proposed results of the project.

- I. Private industry firms and organizations
- II. State government, federal government, local government (match funds may not come from federal sources)
- III. Metropolitan planning organizations/commissions
- IV. Transit agencies
- V. Foundations and nonprofit organizations
- VI. Nongovernmental/civic organizations

An initial T2 Plan will be included in the project proposal (see section 8 in the RFP) and due by the deadline of the proposal package. Once the project has been approved, PIs are required to revise the T2 based on reviewer comments and submit revisions in December before the beginning of the project start date. PIs will work with their campus T2 Assistant Directors on the required revisions

Project Eligibility:

Full-time faculty members, research faculty and post-docs at the University of Texas at Arlington, the Georgia Institute of Technology, the University of South Florida, California Polytechnic State University, or the University of Wisconsin-Madison are eligible to serve as PIs and may submit proposals.

CTEDD highly encourages collaboration among consortium members as well as other partners. Proposals including multiple investigators must identify one lead PI contact responsible for reporting and associated administrative tasks. Lead PIs may submit more than one proposal; however only one project per lead PI will be selected. Researchers can be Co PIs for as many projects as they choose. CTEDD Executive Committee members may submit proposals, but are not allowed to be involved during deliberations and decisions related to their proposals.

Individual and collaborative projects will be awarded in the amount of \$65,000 – \$200,000 maximum and require a 50% match in the form of cash or in-kind² services from project partners such as universities, transportation or other public agencies, private firms, and non-profit organizations. The levels of funding will be as follows:

- Lower - Single PI, single institute
- Middle - Multiple PIs, single institute
- Higher – Multiple PIs, multiple institutes

² Cash match is considered any direct financial contribution by a partner to directly support the project in the form of salaries, benefits, tuition, expendable property, supplies and services; etc. Third party in-kind non-federal match may include: unrecovered indirect costs, values for recipient contributions of services, volunteer services furnished by professional and technical personnel, consultants or other skilled or unskilled labor if service is integral or necessary part of the project, or donated supplies.



Projects will be awarded, in part, on impacts and other returns on investment. Hence, proposals should clearly describe the short-term and long-term impacts of the project related to the goals of CTEDD. In addition, funding priority will be given to projects that:

- Involve junior/ untenured faculty
- Involve interdisciplinary and/or external collaboration
- Include student training
- **Have at least level 3 of technology readiness (TRL 3) prior to proposal submission**
- **Include a letter of support from at least 1 relevant, non-academic stakeholder stating their agreement to be a collaborator and interest in adopting and implementing the proposed results**
- Involve members of underrepresented populations
- Budget a majority of their staff expenses for students rather than faculty/staff (a 9:1 ratio is ideal; projects below a 1:1 ratio will not receive priority consideration)

As a prerequisite, all PIs and contributors to the projects are required to obtain an Open Researcher and Contributor ID number, ([ORCID](#)), which should be included in the project proposal form.

Project Evaluation Criteria:

All proposals will be reviewed externally by 2-3 peer reviewers, including at least one practitioner from the public or private sector. Proposals are also scored by CTEDD staff using the internal criteria. The external peer-review and internal numerical scores are then used in the proposal selection process. The Executive Committee selects the final slate of proposals via consensus. The different criteria for selection are as follows.

Internal Criteria:

An initial internal criteria review of the proposal will be conducted by CTEDD staff using the following guidelines:

1. Does the proposal fit the CTEDD and RFP objectives?
2. Does the proposal address CTEDD focus areas and suggested areas of topics?
3. To what extent is transportation the focus?
4. To what extent does the proposal support and mentor students?
5. How is student involvement prioritized in the project budget?
6. Does the proposal support untenured, tenure-track (junior) faculty?
7. To what extent does the proposal leverage matching funds and have external stakeholder involvement?
8. To what extent does this project support substantive and meaningful collaboration?
9. To what extent does the project support multi-disciplinary and/or multi-campus collaboration?
10. Is the research relevant nationally?
11. Does the project support equity and diversity?
12. To what extent does the proposal advance the technology readiness level of the research and is the proposed technology transfer plan viable?
13. What is the PI's past performance on other UTC projects (on-time reporting, etc.), likelihood of successful completion, and potential for technology transfer?

**External Peer Review Criteria:**

After the internal review, an external review will also take place. Peer reviews are single-blind, and reviewers will remain anonymous. Reviewers are selected from universities, local, regional, and national agencies, private sector practitioners, and other university transportation centers. The specific peer-review criteria include:

1. Alignment to CTEDD's Objective: How well does the project align with the objective indicated in the proposal?
2. Fitness for CTEDD focus area(s): How well suited is the project for the focus area(s) indicated in the proposal? How relevant are the proposed activities to the designated focus area(s)? Do you find strong relevancy between project outlines and activities and the indicated focus area(s)? Is this project a good fit for several focus areas?
3. Applicability of Outcome(s): To what extent does this project provide useful outcomes, results and findings? Will the project results be useful for diverse user groups? Do you expect the results to be influential on transportation planning and decision making? Are practitioners, policy makers, etc. directly benefitting from the outcomes? Does the project show the intention to be useful for non-researcher/academic users?
4. Methodology: Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed? Are potential problems, alternative strategies, and benchmarks for success presented?
5. Resources and Collaboration: Will the scientific environment in which the work will be conducted contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the proposed project? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?
6. Intellectual Merit: Does the project address an important problem or a critical barrier to progress in the field? Is there a strong scientific premise for the project? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or technical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive the field of transportation?
7. Innovation: Does the application challenge and seek to shift current research or technical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?
8. Viability of Proposed Tech Transfer Activities: What are the starting and ending technology readiness levels of the proposed technology or project results? Is the proposed T2 plan viable? Does the proposal identify enough relevant stakeholders that are both academic and practitioners? In what ways is the collaboration with these stakeholders taking place during the project? What is the probability of success of the proposed activities? Are other potential dissemination grounds being covered besides policy briefs, webinars and final reports? Are the researchers and stakeholders qualified and experienced to conduct the outlined technology transfer activities?
9. Broader Impact: How well does the activity advance discovery and understanding while promoting teaching, training, learning, outreach and technology transfer strategies? How well



does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding?

10. **Qualifications:** Are the PIs, co-investigators, collaborators, and other researchers well suited to the project? For Early Stage Investigators or New Investigators, or in the early stages of independent careers, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? If the project is collaborative or multi-PI, do the investigators have complementary and integrated expertise; are their leadership approach, governance and organizational structure appropriate for the project?

Budget:

Applicants must use the CTEDD Budget Form. Proposal budgets should be cost-effective and should be primarily directed at new and original work. Funds should be spent in a manner that provides publishable results. In general, faculty salary (summer or academic year), student support, and tuition/fee reimbursement are allowable expenses. An appropriate amount of funding for travel for data collection and stakeholder engagement purposes may be included, if they are a direct expense related to completing the work.

Projects should be budgeted to **begin on or after January 16, 2020 and completed by August 31, 2021**. Please plan to submit the final deliverable package no later than the project end date.

New awards to prior investigators will depend on successful completion of previously-funded projects and timeliness of research progress and reporting. CTEDD reserves the right to request reductions or other changes to budgets of submitted proposals. Budgets should be justified, cost-effective, and follow all budget guidelines for indirect cost rates, allowable expenditures, etc. Awards are cost-reimbursable.

Other Considerations:

Please note that all project proposals should consider the following:

- The completed proposal package should be submitted prior to the deadline. Incomplete packages and late proposals will not be considered for funding.
- All proposal packages should include match commitment letter(s).
- All proposal packages should be submitted by the office of grants and contracts of the associated university (including UTA PIs).
- PIs are required to develop and submit a Data Management Plan ([DMP](#)) once the project has been approved to clearly outline the rights and obligations of all parties as to their roles and responsibilities in the management and retention of research data, as well as the plans for any unexpected changes like the PIs or Co-PIs leaving their current institutions.
- PIs are required to submit a Technology Transfer (T2) Plan once the project has been approved (and before the official notice of award) to clearly outline the engagement with and role of stakeholders throughout the project. PIs will work with their campus T2 Assistant Directors in the completion of this plan.



Important Dates:

October 18, 2019	Complete Proposal and Budget Submission Deadline
October-November 2019	Proposal Review, Feedback, and Task Orders Drafted
December, 2019	Projects Selected; DMP's and T2 Revised Plans Due; Office of Grants Review; Notice of Award Materials Completed
January, 2020	Projects Begin

The completed proposal packages **should be submitted by your institutions' Office of Grants and Contracts to C-TEDD@uta.edu** by midnight central time on **October 18, 2019**. The package should include:

- 1- **The proposal documents**
 - a. **The length of the proposal should not exceed 20 pages (not including CVs, budget, and match letters)**
 - b. **Pages 1-7 of this informational document should be deleted from the final proposal packet, so that the proposal itself begins with the items on page 8 of this document.**
- 2- **A two-page CV for each PI and co-PI listed on the proposal**
- 3- **The proposed budget, reviewed by your institution**
- 4- **The match commitment letter(s) for both cash and in-kind match amounts proposed in your budget**

If a submitted proposal is missing any of the above items, and they are not forwarded to CTEDD by the RFP deadline, the proposal will not be considered for funding.

Please contact CTEDD by email at C-TEDD@uta.edu or the Program Manager, Dr. James Wood, at james.wood@uta.edu for any questions or assistance in completing the RFP form.



I. PROJECT TITLE

Project Title:

II. PRINCIPAL INVESTIGATOR

Name:	Title:
Address:	University:
Phone:	Email:
ORCID*:	

III. CO-INVESTIGATORS (Add more rows for each additional Co-Investigator)

Name:		Name:	
University:		University:	
Address:		Address:	
Phone:	Email:	Phone:	Email:
ORCID:		ORCID:	

*Open Researcher and Contributor ID <http://ntl.bts.gov/publicaccess/ORCID.html>

IV. PROPOSAL INFORMATION

Project Cost (total dollars requested from C-TEDD):				
How many students are expected to be involved in this research?				Will this proposal involve untenured, tenure-track faculty?
Undergraduate students:	Masters students:	PhD students:	Underrepresented members:	

V. MATCH SOURCES (Add more rows for each additional source)

Contact Name:	Contact Name:
Organization:	Organization:
Phone:	Email:
Is the match cash or in-kind?	Is the match cash or in-kind?
How is match related to the project (choose one)?	How is match related to the project (choose one)?
<input type="checkbox"/> Extension/part of, related or joint project	<input type="checkbox"/> Extension/part of, related or joint project
<input type="checkbox"/> Earlier related transportation projects	<input type="checkbox"/> Earlier related transportation projects



<input type="checkbox"/> Other unrelated transportation project	<input type="checkbox"/> Other unrelated transportation project
Dates of match (cannot start before 11/30/16):	Dates of match (cannot start before 11/30/16):

VI. CORE CLIENTS/STAKEHOLDERS OF THE PROJECT FOR TECHNOLOGY TRANSFER
 (Provide at least 2 contacts; add more rows for each additional source)

Contact Name:	Contact Name:
Organization:	Organization:
Location:	Location:
Phone:	Email:
When and how was the stakeholder contacted?	When and how was the stakeholder contacted?
What is the stakeholder's contribution to the project? <i>(Financial, data, facilities, collaborative research etc.)</i>	What is the stakeholder's contribution to the project? <i>(Financial, data, facilities, collaborative research etc.)</i>

Contact Name:	Contact Name:
Organization:	Organization:
Location:	Location:
Phone:	Email:
When and how was the stakeholder contacted?	When and how was the stakeholder contacted?
What is the stakeholder's contribution to the project? <i>(Financial, data, facilities, collaborative research etc.)</i>	What is the stakeholder's contribution to the project? <i>(Financial, data, facilities, collaborative research etc.)</i>

1. Abstract (limit 300 words):

(Provide a brief summary of the proposal which, if funded will be used on the CTEDD website)



2. Key Words (*limit 5 words*):

(Provide 3 to 5 key words that will be used on the CTEDD website to assist in searching)

3. Research Focus Area:

(Please select from C-TEDD research focus areas listed below)

- FOCUS AREA 1: Creative Use of Existing Infrastructures for Future Needs**
- FOCUS AREA 2: Innovative Funding Strategies for Future Transportation Infrastructure, and Better Maintenance of the Existing Infrastructure**
- FOCUS AREA 3: Transportation Systems, Economic Competitiveness, and Equal Access**
- FOCUS AREA 4: Employing Big Data and Innovative Techniques to Improve System Efficiency**
- FOCUS AREA 5: Ensuring Transportation System Vitality through Performance Management and Monitoring Systems**
- FOCUS AREA 6: Transportation Policy and Decision Making**

4. Research objectives and relevance to CTEDD's objective (*suggested limit 0.5 pages*):

(What are this project's goals and objectives? How do they fit the CTEDD objective described earlier in the RFP?)

5. Background and literature review (*suggested limit 1 page*):

6. Methodology (*suggested limit 2 pages*):

(What is the methodology/approach by which the described objectives will be accomplished?)

7. Tasks, schedules, and expected deliverables (*suggested limit 1.5 pages*):

(Describe the tasks, schedule (with estimated timeline) and expected deliverables e.g. report, software, product. Please include an estimation of task allocations for investigators and students. (Include the final report preparation in the schedule of tasks.)

8. Technology transfer and stakeholder collaboration plan (*suggested limit 1.5 pages; please cover all the following questions*)

(Technology transfer (T2) is the process by which the technology or research products are translated from the lab to society. The goal for T2 is to enable the technology or research products to be adopted by a stakeholder who will implement the developed tools, policy, process, etc. that will then lead to positively impacting a group in society. Examples of positive impact can include improved access to transportation resources or reduced cost to a government organization in providing a service.

In this section, clearly describe the activities that will be undertaken as part of this project to support the T2 of the proposed technology or research product. Two primary areas of consideration are stakeholder involvement and technology readiness. Items to address include:



- i. Identify the stakeholders who will be involved in the project by name and role. Letters detailing their support and involvement need to be included.
- ii. Describe why each stakeholder would be interested in adopting and implementing the results of this project and what potential barriers they could face in implementing it.
- iii. Describe the plan for engaging with each stakeholder throughout the period of performance. For instance: when and where will meetings take place? Who will be involved in each meeting? What resources are needed for this engagement? How will the resources be accounted for?
- iv. Describe the information needed from each stakeholder in support of the project. For instance: access to existing software programs in use by the stakeholder, real operational data, review and analysis of developed results, etc.
- v. Describe potential challenges that could be encountered in working with the stakeholders and provide alternative approaches that will be considered.
- vi. If successful, how will the results of this project be adopted by a stakeholder and implemented?
- vii. State the technology readiness level (TRL; per the FHWA manual) of the research at the time of proposal submission and provide an explanation for the assigned TRL.
- viii. State the expected TRL to be achieved during the proposed project period and provide explanation.

9. Outputs, Outcomes, and Impact (suggested limit 1 page; please cover all the following questions)

- I. Describe how this project is supporting multi-disciplinary/cross-institutional collaboration.
- II. What new research, technology or process will be produced? List any outputs resulting from the project. Examples of outputs include: Publications, conference papers, and presentations, policy papers, website(s), new methodologies, technologies or techniques, inventions, patents, and/or licenses, application software, educational aids, courses or curricula, instruments, equipment, or research material.
- III. What are the expected outcomes of the research project that might develop as a result of the outputs mentioned previously?
 - a. Example: If a PI creates a software package (an output), how many downloads or unique users do the authors anticipate observing in the first several months after launch (an outcome)?
 - b. Example: If a research team creates model legislation for autonomous vehicle integration (an output), how many states or local governments are reasonably likely to debate and/or enact the legislation after they receive it from the authors (an outcome)?
- IV. What long-lasting benefits would the project results have for future research or practice?
- V. What are the expected impacts of the research, both short-term and long-term?
 - a. Example: If a research team develops a new method for tracking pavement conditions on bridges (an output), and a state DOT adopts the method (an outcome), how much time and money might the new method save over a 5-year period (an impact)?
 - b. Example: If a researcher develops a transit route-planning software (an output), and works with a transit agency to reconfigure bus routes for greater efficiency (an outcome), how might headways or operating costs be reduced after the reconfiguration (an impact).



10. Please provide *minimum 1 paragraph* description for each following item in relation to your project:

- Intellectual merit
- Innovation
- Education and workforce development

11. Qualifications & team (*suggested limit 1 page*):

(What is the role of each team member and students in undertaking this research project? What qualifications and experience do the members have in terms of research and technology transfer?)

12. VITAE (*suggested limit 2 pages per person*):

(Provide bio for PIs, Co-PIs, and students who will be involved in this project, including their recent publications, scholarly activities, etc. Use NSF bio sketch guidelines.)

13. Match funding and Support Letters (*no limit*):

(Describe and provide documentation of match funding by inserting scanned commitment letter and/or other documents. Provide letters from stakeholders documenting their interest in the proposed project and their intent to participate in terms of Technology Transfer activities.)