
Program Progress Performance Report for University Transportation Center at
University of Texas at Arlington

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University, Georgia Institute of Technology, University of
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1. ACCOMPLISHMENTS:

What are the major goals and objectives of the program?

MISSION:

The Center for Transportation Equity, Decisions and Dollars (CTEDD) is a University of Texas at Arlington (UTA)-led partnership with the California Polytechnic State University (Cal Poly), Georgia Institute of Technology (GIT), University of Wisconsin-Madison (UWM) and University of South Florida (USF). CTEDD aims to lead transportation policy research that improves economic development through more efficient, cost-effective use of existing transportation systems, and offer better access to jobs and opportunities. CTEDD hopes 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 as a whole 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.

VISION:

CTEDD aims to be a leader in transitioning our antiquated transportation system towards the future through innovative policy making and the latest technology.

The major goals for CTEDD, as described in our application, fall into four categories:

CATEGORY #1: Research

GOAL 1: CTEDD PROPOSES MULTIDISCIPLINARY RESEARCH IN SIX BROAD AREAS:

- Focus Area 1: Creative Use of Existing Infrastructure for Future Transportation Needs: Optimizing and upgrading the existing infrastructure to accommodate different mobility options, infrastructure preservation, innovative land use planning, and enhancing ridership.
- Focus Area 2: Innovative Funding Strategies for Future Transportation Infrastructure, and Better Maintenance of Existing Infrastructure: Understanding the nature of policy making, its challenges and obstacles for future transportation infrastructure, and providing the knowledge to overcome them.
- Focus Area 3: Transportation Systems, Economic Competitiveness, and Equal Access: Understanding different transportation demands due to the multi-scalar nature of economic developments, and designing transportation systems that serve users equally and enable them to access opportunities.
- Focus Area 4: Employing Big Data and Innovative Techniques to Improve System Efficiency: Updating infrastructure maintenance management and public participation practices through the utilization of innovative and data driven strategies.
- Focus Area 5: Ensuring Transportation System Vitality through Performance Management and Monitoring Systems: Upgrading monitoring systems for infrastructure maintenance and performance management of transportation systems.
- Focus Area 6: Transportation Policy and Decision Making: Understating the obstacles to decision making due to jurisdictional fragmentation, and seeking solutions to the multi-scalar nature of transportation systems.

GOAL 2: COMPETITIVE, PEER REVIEW PROJECT SELECTION PROCESS

- CTEDD projects are selected through an open Request for Proposals (RFP) process.
- RFPs are open to faculty at member institutions. All faculty members, postdocs and research associates are eligible to submit research, education and technology transfer project proposals responding to CTEDD's themes.
- Proposal evaluation and selection processes are based on external peer review and rely on the expertise of practitioners and researchers nationally.

GOAL 3: DIVERSE RESEARCH GRANT CATEGORIES

- *General RFP:* CTEDD distributes grants among affiliated faculty members through the CTEDD General RFP.

- *SEED Grants*: The SEED Grant aims to encourage postdocs and junior faculty to participate in research projects. Compared to the CTEDD General RFP, SEED Grants have a larger financial cap and wider scope.
- *Emerging Scholar Research Fellowship RFP*: CTEDD supports research activities of young, emerging scholars through thesis and fellowships.

GOAL 4: ENHANCE COLLABORATIVE RESEARCH AND PARTNERSHIP OPPORTUNITIES

- *External Advisory Board*: The Advisory Board helps CTEDD identify significant research topics, the Center's annual plan and connect with appropriate partners.
- *Industry-University grant*: This initiative assists local transportation-related organizations, entities, industries and communities seeking partnerships with our expert research team. CTEDD aims to link these opportunities to its affiliated research faculty.
- *Diverse Internal Collaboration*: CTEDD encourages Multi-modal, multi-disciplinary collaborations across disciplines. The areas of research covers expertise from engineering, planning, public policy, business, social science, and big data.

CATEGORY #2: Education and Workforce Development

CTEDD's education and workforce development goals will be accomplished through the creation of pre-college, undergraduate and graduate programs and professional development learning opportunities. These initiatives target traditional educational venues and alternatives provided in short-term formats or via virtual technologies.

GOAL 1: ATTRACT AND EDUCATE PRE-COLLEGE STUDENTS

- *Leveraging and Supporting the Existing Initiatives*: CTEDD's members will use existing programs to expose K–12 students to transportation as a career choice.
- *Joint educational initiatives with K-12 schools*: CTEDD will facilitate partnerships with K–12 and secondary schools, along with community colleges, and technical schools, to align education and industry, and to support career pathways for current and future transportation workers.

GOAL 2: ATTRACT AND EDUCATE UNDERGRADUATE AND GRADUATE STUDENTS

- Offering degrees, courses, curricula, certificates and E-Modules
- *Providing Experiential Training Opportunities through Students' Involvement in Research Projects*: CTEDD requires research projects to involve undergraduate and graduate students. We also aim to broaden these students' exposure to the range of transportation professions available, particularly through the lens of equity and upward social mobility. Our intent is to expand the workforce pool and diversity of new professionals.
- *CTEDD Student Chapter-Led Activities*: *CTEDD leadership structure includes the elected student leadership council. The council members are elected leaders of the CTEDD student chapter and represent students through decision making processes.*
- *Student Competitions, Fellowship and Scholarship Programs*: To demonstrate our commitment to the ongoing education of graduate students, CTEDD offers competitive scholarships, fellowships, assistantships and awards to attract graduate students, especially those from underrepresented populations.
- *Hosting Seminars, Workshops and Online Training Initiatives*: CTEDD creates and maintains a calendar of seminars, workshops, professional courses and other training opportunities targeted at our audiences.

GOAL 3: PROFESSIONAL DEVELOPMENT OPPORTUNITIES

- *Hosting Transportation Oriented Annual Career Fairs*
- *Developing Joint Industry-University Educational Programs*, housed by private companies and agencies.
- *Citizens and Transportation Policymakers and Leaders*: In order to improve the information available to the public on issues related to CTEDD research priorities, our researchers will be required to submit a 1–2 page policy brief along with their research findings. These policy briefs will be written in a layperson style and disseminated through appropriate media channels.

CATEGORY #3: Engagement and Technology Transfer

CTEDD aims to ensure that research moves routinely into practice and consistently equips decision makers, researchers and communities with data and information for transportation decision-making, funding sources, and mechanisms to achieve efficiency, equity and upward social mobility. To achieve this, CTEDD's goals and programs are as follows:

GOAL 1: REGULAR DISSEMINATION OF INFORMATION FOR CTEDD PROGRAMS, EVENTS AND NEWS

- *CTEDD Social Media:* The center seek to develop an extensive social media and electronic presence so that information are shared in the way that is accessible to all, efficient and consistent.
- *CTEDD Website* is also be a principal communication channel to both disseminate research news, and act as an online host for news outlets to share CTEDD news with a broader audience. CTEDD's website will house a blog platform through which researchers and subject matter experts can exchange their knowledge, ideas and expertise.
- *CTEDD Subscription and Email Pipeline:* CTEDD research, news, events and updates are publicly accessible through a subscription. CTEDD will send a quarterly e-newsletter to a list of recipients to drive interest and awareness in center's programs
- *YouTube and Periscope Channels:* CTEDD YouTube and Periscope channels also make CTEDD's recorded events, webinars, and other educational programs publicly accessible.

GOAL 2: INNOVATIVE USE OF TECHNOLOGY FOR DISSEMINATION:

- *Multimedia Collaboration with Established Outlets:* CTEDD seeks to collaborate with TEDx Talk and radio podcast programs for joint events such as CTEDDx Talks and Webinar Series.
- *Livestream of Events:* CTEDD social media and website pages will host live broadcasts of events.
- *CTEDD Testimonies:* CTEDD established a new tradition of outreach; regular and free-of-charge presentations to inform decision makers.

GOAL 3: EFFECTIVE DISSEMINATION AND IMPLEMENTATION OF EACH RESEARCH PROJECT

- *Two Page Policy Briefs:* Each project is required to produce a plain-language research brief written for decision-and policy makers.
- *Journal Publications and Conference Presentations:* The CTEDD project budget includes expenses for conference travel to present results, PIs are also encouraged to publish their research results in top peer-reviewed journals.
- *Three to five local implementation contacts:* CTEDD PIs must identify three practitioners at local nonprofits or governmental agencies who may directly implement the research outcomes.
- *Implementation plan:* CTEDD research proposals will identify a strategy for implementing their outcomes and/or research findings.
- *Bridging the gap between research and technology transfer through local consultancy and advising.*
- *Webinar Series:* CTEDD projects are required to present a webinar session upon completion of the projects.

What was accomplished under these goals?**Administrative**

CTEDD has completed the following administrative tasks and related research and engagement activities during the reporting period of April 1 to September 30, 2018:

- A third Post-Doctoral Research Associate whose research focuses on freight was hired.
- Administrative support was provided from the Institute of Urban Studies at UTA for cost share and budgeting requirements through a Coordinator of Special Programs.
- Monthly meetings have continued to take place between the Office of Accounting, the Director of the Office of Grants and Contracts at UTA, and CTEDD pertaining to any financial planning, budgeting, different grant processed and technology transfer plans.

- Several conference calls were conducted with the Executive Committee from the consortium universities to discuss new requests for proposals, technology transfer plans, and collaborative event opportunities.
- The CTEDD Student Council elected its new Executive Core Committee consisting of the President, Coordination Lead, Research Lead and an Event Lead. The total student membership of CSC is at 56 students from different departments such as the College of Architecture Planning and Public Affairs, College of Business, School of Social Science and College of Engineering. In addition, the committee has 5 Ambassadors, who are the presidents of Women in Transportation Seminar (WTS), Student Planning Organization (SPA), and Institute of Transportation Engineer (ITE) student chapters at UT-Arlington, University of South Florida, Cal Poly San Louis Obispo and Georgia Institute of technology, all competitively selected for their positions. The Advisory Board Council of CSC consists of the CTEDD director, program manager, a research associate and two other faculty members.

Research

DIVERSE RESEARCH GRANT CATEGORIES

Creation, solicitation and dissemination of a variety of research grants.

General RFPs:

- The second round of request for proposals for the General grant were distributed among CTEDD member universities in April 2018.
- This round was divided into two rounds – the abstract submission and the proposal submission. This was to allow for the Center to shortlist external reviewers based on the abstract topics.
- The Center received 29 abstract submissions followed by 21 proposals for this round with many multi-disciplinary and inter-university projects, all of which covered a wide variety of transportation issues based on the topics selected under the theme outlined in the last reporting period.
- The proposals were then sent out to 3 external reviewers each. Each proposal had at least one academic and one practitioner review it.
- With the aim of awarding \$650,000 for this round, 14 projects were selected for funding, 3 of which are inter-university and were given higher funding up to \$100,000 (Table 1.1).
- These 12 projects have been set up and required an initial research summary, data management plan, budget expenditure projections and a technology transfer plan as part of the set up process.
- Four of the first round of General grant projects have been completed and submitted their final deliverables which includes a final report, a policy brief, performance indicators, a final progress report, copies of publications, a layman narrative for the general public, and any databases and technologies related to the project. The rest of the projects have asked for a no-cost extension owing to the initial set-up time taken by the consortium universities' office of grants and contracts and are set to be completed by the end of 2018.
- The completed projects are as follows:
 - *A Multi-asset Transportation Infrastructure Asset Management Framework and Modeling for Local Governments – Georgia Tech*
 - *Integrating Transportation Management Companies (TMCs) and Public Transportation – Georgia Tech*
 - *Overcoming Local Barriers to Regional Transportation: Understanding Transit System Fragmentation from an Institutional Framework – UTA*
 - *Fast Reference-free Crack Measurement (RACM) System in Transportation Infrastructures using Noncontact Ultrasound - UTA*

SEED Grants:

- CTEDD's second round of SEED request for proposals were written up and modified from the previous round to request and reflect substantial technology transfer activity, as well as external stakeholder collaboration.
- Quarterly reports were submitted by the first round SEED grants for PIs to ensure viable utilization of funding in accordance with CTEDD's stated goals.

Table 1.1 – Funded Projects Within the Last Reporting Period

Project ID	Focus Area	Project Name	Consortium Member
CTEDD 018-01	3 and 6	Making Tolling Transparent: Analyzing Processes Used to Allocate & Distribute Toll Highway Revenue in Multiple States	UTA
CTEDD 018-02	4 and 6	An Empirical Bayes Approach to Quantifying the Impact of Transportation Network Companies (TNCs) on VMT	GIT Cal Poly
CTEDD 018-03	3 and 6	Integrating Equity into MPO Project Prioritization	USF
CTEDD 018-04	2 and 6	Strategic Investment Decision Making on Highway Improvement Projects	USF Cal Poly
CTEDD 018-06	1, 2, 4 and 5	Development of a Real-Time Roadway Debris Hazard Spotting Tool Using Connected Vehicle Data to Enhance Roadway Safety and System Efficiency	USF
CTEDD 018-07	2	Smart Funding Strategies for Maintaining Interdependent Transportation Infrastructure Assets	GIT
CTEDD 018-08	1, 3 and 4	Social Media Analysis for Transit Assessment	UTA GIT
CTEDD 018-09	1, 2, 3, 4, 5 and 6	Supporting Research Dissemination through the Journal of Public Transportation	USF
CTEDD 018-10	1, 3 and 6	Transit in Flex: Examining Service Fragmentation of New App-Based, On-Demand Transit Services	UTA
CTEDD 018-11	2 and 5	Multi-Criteria Decision-Making Approach for Building Resilient and Sustainable Transportation Infrastructure	UTA
CTEDD 018-12	1	Autonomous Vehicles and their Potential to Shift Transit Ridership in Urban Areas	UWM
CTEDD 018-14	1	Union Rides: Harnessing the Shared Value of Commute Travel	UWM
CTEDD 018-07 SG	3 and 6	A Way Forward: Designing a Flexible Transportation Network that Advances Opportunities and Connectivity for Arlington and Grand Prairie, Texas	UTA
CTEDD 018-08 SG	3 and 6	Regulating the Ride: Lessons on the Evolution of Dock-less Bikeshare Policy in American Cities	UTA

COMPETITIVE, PEER REVIEW PROJECT SELECTION PROCESS

Ensuring a thorough internal and external review of projects.

- The Executive Committee reviewed and finalized the second General RFP before solicitation.
- On April 10, 2018, CTEDD released the second General RFP for consortium member researchers to submit abstracts and proposals.
- After abstract submission, the Director and Program Manager finalized a list of relevant external reviews in accordance with the submitted topics.
- The Director, Program Manager and Executive Directors worked with the PIs and their consortium member staff during the proposal submission process to provide assistance with the requirements, matching sources, documentation and budgeting for their projects.
- After receiving the full proposals, the Program Manager reviewed proposals in terms of the required items and documents through an internal review, before sending them out for peer review.

- Each proposal was reviewed by at least two external reviewers from the Peer Review Committee, including one academic researcher and one practitioner based on the following evaluation criteria:
 - Intellectual Merit
 - Applicability of Outcomes
 - Qualifications
 - Innovation
 - Methodology
 - Resources and Collaboration
 - Broader Impact
 - Fitness for CTEDD Focus area(s)
 - Contribution to CTEDD objectives
- Each proposal was also reviewed and scored by the Program Manager for the following programmatic criteria:
 - Fit with the CTEDD and RFP objectives, and focus areas
 - Focus on transportation
 - Student support/mentoring
 - Support for untenured tenure-track (junior) faculty
 - Leveraging of matching funds
 - Substantive and meaningful external collaboration; multi-disciplinary and/or multi-campus collaboration.
 - National relevance and support for equity/diversity
 - Synthesized results from external and programmatic review, and ranked proposals accordingly.
- The final selection of the awardees was made, after which the Office of Grants created their Notice of Awards. (Table 1.1) The projects are currently in progress.

ENHANCE COLLABORATIVE RESEARCH AND PARTNERSHIP OPPORTUNITIES

Ensuring opportunity for multi-disciplinary and multi-university collaboration

- CTEDD promotes collaboration between disciplines and universities to create more impactful projects. Therefore, the selected projects for the second round of General grants have many inter-disciplinary, multi-university collaborations. Some of these collaborations are as follows:

<ul style="list-style-type: none"> • Department of Civil and Environmental Engineering at Cal Poly • Department of Spatial Planning Analytics and Visualization at GIT • Department of Civil Engineering at UTA 	<ul style="list-style-type: none"> • Center of Urban Transportation Research at USF • Department of Computer Science and Engineering at UTA • Department of City and Regional Planning at GIT
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Ensuring opportunity for collaboration with external stakeholders

- CTEDD promotes collaboration between researchers and external stakeholders that have an invested interest in the topic and outcomes of the research. Such collaborations deem more impactful in the long-term. Some of these collaborations are as follows:
 - Between the State of Texas and UTA
 - Between the San Luis Obispo Council of Governments, Cal Poly and GIT.
 - Between the Florida Dept. of Transportation, the Florida Metropolitan Planning Organization Advisory Council and USF
 - Between the Tampa-Hillsborough Expressway Authority and USF
 - Between Texas department of Transportation and UTA.
 - Between Union Cab of Madison Cooperative and Wisc-Mad.

Education and Workforce

ATTRACT AND EDUCATE PRE-COLLEGE STUDENTS

- *Pathways to College Access and Career Readiness*: CTEDD has funded an educational program in collaboration with the College of Education at UTA, which supports traditionally under-served students as they graduate from high school and pursue a postsecondary education. To achieve this goal, Pathways prepares college students to act as mentors to high school (HS) students and places them in GO Centers located across eight local school districts. GO Centers are dedicated offices in HS campuses where college students provide the needed scaffolds for these students, at no cost to the school districts as well as students and their parents/families. At these GO Centers, college/near-peer mentors describe their own college experiences as well as show them how to prepare for college and how college shapes careers, all while providing them much needed information to make the transition from HS to college. The mentors also engage in question and answer sessions to help students think and talk about college. For many of these students, Pathways begins the critical development of a college going culture and familiarizes students with the GO Center model and the resources available for both students and their families. Moreover, Pathways forms the much needed support that traditionally underrepresented students in our most underserved schools simply do not often receive.

C-TEDD funding is being sought to expand the program's services to ensure that mentors hired will have direct experience with programs of studies and careers that will benefit the transportation industry, such as those enrolled in civil, industrial, and aerospace engineering, business administration, and environmental science programs, among others. HS students who demonstrate an interest in these careers will have the opportunity to visit UTA to experience a college campus firsthand for the first 'Career Day Showcase.' Furthermore, a scholarship will be made available to 20 students who enroll at UTA in a transportation-related program of study, and upon admission, they will have the opportunity to be considered for hiring as a mentor for the program, thus ensuring they will be on track to graduation. C-TEDD funding will be used to implement these services in up to 20 high schools in several independent school districts in two counties in the DFW area.

- *DART Leadership Academy*: The Academy has expanded from its first round in Spring 2018 and become an annual opportunity for undergraduate students to achieve real world experience by working as a paid DART intern, develop leadership skills by interacting with DART executives, and the potential to be interviewed for employment at DART at the conclusion of the Transportation Leadership Academy. Successful applicants who complete all requirements and who are selected will receive a monetary fellowship.

ATTRACT AND EDUCATE UNDERGRADUATE AND GRADUATE STUDENTS

- *Research Assistantships*: Through the second cycle of CTEDD general RFP grants, a total of 29 undergraduate and graduate students are participating in the research programs and through research assistantship, can obtain experiential training opportunities. Notably, 12 of these students are from underrepresented populations.
- *Casual Employee Opportunities*: A part-time computer science student was hired to take care of back-end website mapping and updates in order to revamp it and make it more user-friendly.
- *Pathways to College Access and Career Readiness*: In addition to targeting high school students, the program provides mentorship opportunities to college students. The 10 mentors hired for this component are in charge of relaying their college experiences to prospective students and their families, creating presentations that can be shared at the HS campus they are assigned to, to expose students to these careers when doing career exploration activities, and provide any answers to questions that HS students and their families might have about opportunities in the transportation industry.
- *CTEDD Student Council*: With the start of the new academic year, the Council carried out recruitment activities to hold elections and identify the core Executive Committee consisting of a President, Research Lead, Event Lead and a Coordination Lead from diverse academic backgrounds. The Council has strong engagement in CTEDD organizational tasks, outreach and research activities. The Council core Executive Committee and the UT-Arlington Ambassadors have been meeting biweekly for organizing monthly events. The Council has its own page on the CTEDD website through which they provide updates and collect members. From the last reporting period, the Council has hosted 10 events which all have been published on the website's page. These events include the following:
 - Research Round Tables
 - ACSP Conference Practice Sessions – 2 sessions were held to ensure maximum participation and feedback from students.

- Social Media and Travel Competition to encourage use of active transportation.
- Collaborative social and networking events with other student organizations within the consortium universities.
- Workshops and Professional Development
- **Student Organizations:** The presidents of WTS and ITE student chapters are also members of the CTEDD Student Council Executive Board. Through this, they have been involved in event planning and other CTEDD activities.
- **Fellowships:** The selected student from Georgia Tech is currently working on her thesis and will be awarded the fellowship amount after the completion and successful defense of her project in December 2018.
- **Educational RFP:** Based on the submissions of proposals for the first educational RFP, one project was selected, namely the *Pathways to College Access and Career Readiness*. Three other projects were internally reviewed by the Program Manager and Director. Thorough feedback has been provided to the PIs for them to revise and resubmit for funding consideration.

PROFESSIONAL DEVELOPMENT OPPORTUNITIES

- CTEDD hosted an online and in-person workshop to train Tarrant County Executives in an online tool that aids in decision-making called the CTEDD's Access to Opportunities Index.
- CTEDD presented at the "Trending Planning Research" session at the Building Professional Institute to North Texas Experts with research findings useful for their profession.
- University of Central Florida's Civil, Environmental, and Construction Engineering Distinguished Alumnus Honor for Professional and Volunteer Achievement – Dr. Anurag Pande from Cal Poly.
- CTEDD held several meetings with the Tarrant Transit Alliance to collaborate on panel discussions, trainings and lectures in the transportation field for civic groups.
- Transit Center, which focuses on training for transit agency board members has approached CTEDD to open a Texas chapter that can provide such trainings on a local level. Collaborative have been underway.
- CTEDD has partnered with the Texas Innovation Alliance for this year's Texas Mobility Summit which takes places in October, 2018. It is a summit focused on forming partnerships between industries, the public sector and academic institutions in order to tackle key transportation issues in Texas.

Engagement and Technology Transfer

REGULAR DISSEMINATION OF INFORMATION FOR CTEDD PROGRAMS, EVENTS AND NEWS:

- CTEDD has conducted and partnered on a wide variety of technology transfer activities including presentations, book launches, lectures and student-led events. Table 1.2 shows all the different activities conducted in the last reporting period.

Table 1.2 – Technology Transfer Activities Conducted Within the Last Reporting Period

Title	Platform	Date	Stakeholders
CTEDD Scoop	Online Newsletter	09/18	UTA; USF; UWM; Cal Poly; GIT; TxDOT; DFW city, state and county officials.
Kick off Semester Social	Networking Event and Gathering	09/18	Student Organizations such as WTS, ITE and SPA
GRA Welcome and Orientation	Networking Event and Gathering	09/18	UTA
CTEDD Student Council Recruitment	Outreach	08/18	UTA; USF; Cal Poly; GIT

High-tech Business Location Decisions and Transportation: Empirical Evidence from DFW & Bay Area Specialized High-Tech Zones	Lecture Presentation	08/18	Texas District ITE Greater Fort Worth Section
Evaluation of Initial Applications of UAVs for Monitoring Infrastructure Assets	Invited Lecture and panel discussion	08/18	Southern Associate of State Highway and Transportation Officials
Smart Policies for a Changing Climate	Panel Discussion and Report	07/18	American Society of Landscape Architects Blue Ribbon Panel
Celebration of Accomplishments	Celebrating multiple journal publications, conference presentations and transportation research.	07/18	UTA; USF; Cal Poly; UWM; GIT
Gathering of Tarrant County Executives	Lecture and Workshop	06/18	Tarrant County
Arlington Commuter Workshop	Presentation and workshop	06/18	Center for Urban Transportation Research; USF; UTA; ACHD Commuteride; City of Raleigh; Best Workplaces for Commuters; South East Association for Commuter Transportation
City Lab High School Summit	Interactive Break Out Session with High School Students	05/18	City Lab High School
Trending Planning Research	Presentation	05/18	Building Professional Institute of North Texas

INNOVATIVE USE OF TECHNOLOGY FOR DISSEMINATION TO REACH OUT TO A BROADER AUDIENCE:

- CTEDD hired a part-time Computer Science student to assist in revamping the mapping of the website and make it more user-friendly. This process has allowed the website to be updated on a regular basis, and allow researchers, students and layperson users to access the website with ease and keep up-to-date with CTEDD opportunities and events. CTEDD has had the following engagements on its website in the past 3 months:
 - 1,450 sessions
 - 1,042 users
 - 3,634 views
 - 3,031 page hits from the United States
 - 1,735 organic hits
 - 1,190 direct hits
 - 659 referral hits
 - 50 hits through social media
 - 3,409 desktop users
 - 192 mobile users
 - 33 tablet users
- CTEDD has continued to successfully make use of social media platforms to disseminate CTEDD updates, events, projects and publications. The main social media platform has become Twitter where students and researchers feel most comfortable to share their events, initiatives and transportation research. Based on these platforms, the analytic results for the past 6 months is as follows:

- The CTEDD Twitter page has made 24,200 impressions.
- The CTEDD Facebook page has had more than 100 engagements.
- CTEDD has been in the process of organizing and coordinating its first research webinar session with a PI from Georgia Tech who completed a project under the first round of General grant funding.

DISSEMINATION AND IMPLEMENTATION OF EACH RESEARCH PROJECT:

How have the results been disseminated? If so, in what way/s?

CTEDD has been in the process of collecting final deliverables from PIs who were funded on the first General grant. These final deliverables include:

- Final Quarterly Report
- Program Performance Progress Report
- Performance Indicators
- Project Closure Form
- Research Project Highlights
- Layperson Summary
- Copies of Publications and Presentations
- Outcome Databases
- Webinar Presentation
- Final Report
- Policy Brief

The quarterly report, progress report and project closure form is for CTEDD to keep for their records and finalize the closure of the project. The project highlights, layperson summary, outcome databases and final report have been submitted to be uploaded on each individual project page. This will allow the users to gain a wholesome insight into the project. The webinar presentation is the recorded presentation that each PI conducts electronically. The presentations are promoted and broadcasted to a wide variety of audiences interested in the topic. The recording is then uploaded to our social media channels and website. The policy briefs are specifically created to cater to policy makers and provide policy implications of the research. This brief is also uploaded on the website and distributed to different relevant policy makers at the local, state and national level.

What do you plan to do during the next reporting period to accomplish the goals and objectives?

Research

- *General RFP Round 1:*
CTEDD will collect all the final deliverables of the finished projects and upload them on the website. The PIs will be provided consultation on their intended technology transfer activities for the respective projects and will implement these activities in the upcoming reporting period.
- *General RFP Round 2:*
The second round of General grant projects will be half way through during the next reporting period and should have significant updates on their research processes.
- *SEED Grant Round 1:*
The first round of SEED grants be completed in January 2019 with PIs submitting their final deliverables and planning their technology transfer activities including webinars, presentations and workshops.
- *SEED Grant Round 2:*
The second round of SEED grant projects will be selected and funded to begin at the end of January 2019. The review process will involve both and internal and external review consisting of academics and practitioners.

Education and Workforce

- CTEDD will be distributing another round of request for proposals for the Educational Programs in the Spring.
- CTEDD will be holding multiple meetings with the Conference of Minority Transportation Officials to collaborate on attracting pre-college students to transportation fields, offering internship and scholarship opportunities to undergraduate and graduate students, and hold career fairs and firm visits for these students.
- CTEDD will be collaborating with civic groups and foundations such as the Tarrant Transit Alliance for workforce development workshops and opportunities for practitioners in the transportation field.
- CTEDD is in the process of submitting a proposal to Transit Center to assist them in providing training to transit agency board members in Texas to help them make informed decisions and not be influenced by other board member's decisions. This collaboration will allow Transit Center to delegate its training programs to CTEDD and hire a staff member responsible for arranging these trainings and workshops for all transit agency board members in Texas.
- The CTEDD Student Council will be partnering with ambassadors from the University of South Florida to arrange a Transportation Day to promote the use of active transportation, and participate in a Leadership Summit aimed at leadership development of students in the transportation field.

Engagement and Technology Transfer

Based on the new requirements of USDOT to ensure successful technology transfer, CTEDD will be incorporating new processes, as mentioned in the latest technology transfer plan.

CTEDD's planned technology transfer and engagement activities for the upcoming reporting period are outlined in Table 1.3.

Table 1.3 – Planned Engagement and Technology Transfer Activities for Next Reporting Period

Title	Platform	Date	Stakeholders
CTEDD Scoop	Online Newsletter	Bi-weekly	All consortium members and stakeholders
Research Webinar Series	Presenting completed General grant projects to wide audiences	10/18 – 04/19	All consortium members and stakeholders
Rethinking America's Highways: A Book Talk with Roberte Poole	Luncheon and book talk.	10/18	North Central Texas Council of Governments
What's Your Travel Footprint Competition	Social Media and Active Transport Competition	10-11/18	UTA
Arlington Commuter Workshop	Professional Development Workshop	10/18	USF; CUTR; UTA
Texas Mobility Summit	Summit for Practitioners, Academics and Legislators to come together and discuss key policy issues	10/18	Texas Innovation Alliance; UT Austin; Texas A&M University
ACSP Practice Sessions	Training and feedback for presentations.	10/18	UTA
Associate of Collegiate Schools of Planning Conference	Prestigious conference for CTEDD researchers in planning.	10/18	UTA; GIT; UWM; USF; Cal Poly

The 2018 Transit Academy	Workforce development, lectures, workshops and panel discussions.	11/18	Tarrant Transit Alliance; UTA; AECOM; NCTCOG; Via; TEXRail
Research Round Tables	Workshops, research discussions, trending topics in transportation issues, research opportunities.	10/18 – 05/19	
Software Workshops	Workforce development, workshops and lectures	02/19 - 04/19	All consortium members.
Transportation Research Board Annual Meeting	Prestigious conference for academics in transportation to present their research.	01/19	All consortium members.
The Texas Building Better Blocks	Workforce development, informed decision making, empowerment, meeting community needs.	01/19	Transit Center; UTA
Lecture Series	Inviting external speakers to present on relevant local, regional and national transportation topics	11/18 – 05/19	City of Dallas; Dallas Bike-Ped; Bike DFW; UTA; Tarrant County; Trinity Metro; AECOM; Texas Central Partners; ENO; Brookings Institution; FHWA
Annual Event	Symposium and ceremony to highlight CTEDD's research, award best projects, researchers, industry partners and students. Inviting local policy officials.	03/19	All consortium members; DFW local and regional policymakers.
The Journal of Public Transportation (JPT)	International, peer-reviewed open access journal.	09/18 – 08/19	Center for Urban Transportation Research; UTA; USF

2. PRODUCTS: What has the program produced?

Publications, conference papers, and presentations

Table 2.1 shows the list of publications, conference papers and presentations produced by CTEDD in the last reporting period.

Table 2.1 – List of Products by CTEDD in last reporting period:

Title	Category	Date	Stakeholders
The Link Between Urban Sprawl and Life Expectancy	Wall Street Journal Article	09/18	UTA; Wall Street Journal
Impacts of Transit and Walking Amenities on Robust Local Knowledge Economy	Publication on Science Direct	09/18	Science Direct; UTA
High-tech Business Location Decisions and Transportation: Empirical Evidence from DFW & Bay Area Specialized High-Tech Zones	Invited Lecture Presentation	08/18	Texas District ITE Greater Fort Worth Section; UTA

Evaluation of Initial Applications of UAVs for Monitoring Infrastructure Assets	Invited Lecture and panel discussion	08/18	Southern Associate of State Highway and Transportation Officials ; UTA
Smart Policies for a Changing Climate	Panel Discussion and Report	07/18	American Society of Landscape Architects Blue Ribbon Panel'; UTA
When and where there should be dedicated lanes under mixed traffic of automated and human-driven vehicles for system-level benefits	Publication on Science Direct	08/18	GIT; World Conference on Transportation research
A Toolkit for Successful TOD Planning: Evidence from Five American Cities	Invited Lecture Presentation	06/21	North Texas Building Professional Institute (BPI); UTA
Does Location Matter? Performance Analysis of the Affordable Housing Programs in Dallas Fort Wayne Metropolis	Invited Lecture Presentation	06/21	North Texas-BPI; UTA
Does built environment matter for innovation? A quantitative study of the physical assets of innovation districts in the United States	Invited Lecture Presentation	06/21	North Texas-BPI; UTA

Website(s) or other Internet site(s)

CTEDD Website: <https://ctedd.uta.edu>

CTEDD Twitter Page: https://twitter.com/C_TEDD

CTEDD Facebook Page: <https://www.facebook.com/C-Tedd-1945985105622480/>

CTEDD YouTube Channel: <https://www.youtube.com/channel/UCqf2G50JsqMMC66kcUMKYJA/videos>

CTEDD LinkedIn Page: <https://www.linkedin.com/company/institute-of-urban-studies/>

Technologies or techniques

Nothing to report for this period

Inventions, patent applications, and/or licenses

Nothing to report for this period

Other products, such as data or databases, physical collections, audio or video products, software or NetWare, models, educational aids or curricula, instruments, or equipment

- CTEDD's webinars can be viewed here: https://www.youtube.com/playlist?list=PLFRxyeLXJlpkP_ZM3bUpYA5oKdSmoWutS
- All CTEDD news and media can be viewed here: https://twitter.com/C_TEDD/media
- CTEDD updated and scoops can be viewed here: <https://ctedd.uta.edu/in-the-news/>
- All CTEDD research projects can be viewed here: <https://ctedd.uta.edu/research-projects-list/>

3. PARTICIPANTS & COLLABORATING ORGANIZATIONS: Who has been involved?

What organizations have been involved as partners?

The members of the consortium include the University of Texas at Arlington, California Polytechnic State University, San Luis Obispo, Georgia Institute of Technology, University of Wisconsin–Madison and University of South Florida. Table 3.1 presents a list of current and future CTEDD external partners.

Table 3.1: Current and Future CTEDD External Partners

Partner	Type	Program	Collaboration Type	Status
CityLab high school	Regional	The Connected City course, summer transportation camp, annual symposium etc.	Education	3
Dallas Area Rapid Transit	Regional	DART Leadership Academy	Education	3
WTS International	International	Transportation Career Fair	Education	1
Fort Worth Transit Authority	Regional	“Tarrant Transit Alliance “ Citizens Advocacy Group	Education and Tech Transfer	1
North Texas Council of Government (NCTCOG)	Regional	Partnership on Research Projects	Research	3
Association of Metropolitan Planning Organization (AMPO)	National	CTEDD signature event on Smart Cities	Education and Tech Transfer	4
City of Dallas	Regional	Partnership on Research Projects	Research	4
Texas Department of Transportation	State-wide	Partnership on Research Projects	Research	3
Georgia Department of Transportation	State-wide	Partnership on Research Projects	Research	1
Metropolitan Transportation Commission	National	Partnership on Research Projects	Research	3
Conference of Minority Transportation Officials (COMTO)	Regional	Collaboration on symposiums, events, educational programs	Tech Transfer and Education	3
American Planning Association Texas Chapter	State-wide	Collaboration on Mobile Workshops	Education	2
Texas Municipal League	State-wide	Collaboration on Annual Meeting	Tech Transfer	2
UT Dallas – The Institute of Urban Policy Research	Regional	Partnership on Research Projects	Research	1
The Rockefeller Foundation: 100 Resilient Cities	International	Partnership on Research Projects, Education and Tech Transfer	Research, Education and Tech Transfer	2
Texas Innovation Alliance	State-wide	Partnership on Research Projects	Research	1
Eno Foundation	National	Collaboration on Symposiums, Events and Education	Tech Transfer and Education	2
University of Utah	International	Partnership on Research Projects	Research	3
Virginia Polytechnic Institute and State University	International	Partnership on Research Projects	Research	3
Transportation Radio	National	Partnership on Tech Transfer	Tech Transfer	3
ITE Learning Hub	National	Partnership on Tech Transfer	Tech Transfer	1
Building Professional Institute	State-wide	Partnership on Tech Transfer	Tech transfer	3
Tarrant Transit Alliance	Regional	Partnership on workforce development and tech transfer	Education and Tech Transfer	3

Transit Center	State-wide	Partnership on transit agency board member training	Education and Tech transfer	2
Union Cab	Local	Partnership on Research Projects	Research	3
City of Fort Worth	Local	Partnership on Research Projects	Research	1
American Public Works Association-North Central Texas	Regional	Partnership on Tech Transfer	Tech Transfer	2
Texas Innovation Alliance	State-wide	Partnership on Tech Transfer	Tech Transfer and Education	3
Status *** 1 Initial arrangement 2 Agreement made, will be implemented 3 Implementation phase 4 Completion				

Have other collaborators or contacts been involved? Please see Table 3.1.

4. IMPACT: What is the impact of the program? How has it contributed to transportation education, research and technology transfer?

There are four completed projects from CTEDD that are now in the process of dissemination and implementation of their research. These projects, as mentioned in the research section, are as follows:

Project 1: A Multi-asset Transportation Infrastructure Asset Management Framework and Modeling for Local Governments – Georgia Tech

Project 2: Integrating Transportation Management Companies (TMCs) and Public Transportation – Georgia Tech

Project 3: Overcoming Local Barriers to Regional Transportation: Understanding Transit System Fragmentation from an Institutional Framework – UTA

Project 4: Fast Reference-free Crack Measurement (RACM) System in Transportation Infrastructures using Noncontact Ultrasound – UTA

Based on these projects, the impacts are outlined under each question.

What is the impact on the development of the principal discipline(s) of the project?

Project 1: in the field of civil engineering, this research project explored a new framework for managing multiple interdependent transportation assets, e.g. pavements and bridges. Unlike the traditionally used Multi-Criteria-Decision-Making (MCDM) based models, the new framework enhanced the objectivity in cross-asset management for in infrastructure management.

Project 3: A one-of-its kind national governance index covering 200 metropolitan structural areas has been created as a resource to stakeholders in this discipline. This index is an indicator that incorporates local government impulse toward participation financially and functionally in metropolitan structural areas in comparison to the impulse to partially or totally opt out.

What is the impact on the other disciplines?

Project 1: The new cross-asset management framework from this project requires the integration of two disciplines, traffic engineering and pavement/bridge engineering.

Project 3: This project has provided background information for further follow-up studies on transportation outcomes and equity issues in the transit industry. The transit governance index has made it possible for other researchers to become aware of ways institutions shape transportation outcomes and how that affects accessibility and equity in these areas.

Project 4: This research has led to innovative new technology to provide advanced field measurement and monitor deterioration in transportation infrastructures. It can help transportation officials prioritize the work assignments by addressing the most critical repairs in infrastructure needed first (as assessed by the RACM field-based technology).

What is the impact on workforce development?

Project 1: Based on the online survey and analysis, transportation asset management is still very immature in local governments. The developed transportation asset management guideline will help local governments develop dedicated workforce to systematically manage the transportation assets.

Project 3: This project has trained graduate students who are interested in the transportation field on qualitative research methodologies and overall outlook on the transportation fragmentation issues in the country. The students have, through their assignments learnt about ways in which qualitative coding can be carried out, as well as the intricacies of how regional transportation systems work in different parts of the country. This allows for these students to potentially study these topics further in their academic careers.

What is the impact on physical, institutional, and information resources at the university and/or other partner institution?

Project 2: This project has provided insight to the Atlanta Regional Commission and Georgia Department of Transportation to better understand methods in which transit industry issues can be tackled with new technologies and opportunities in transportation management companies.

What is the impact on technology transfer (include transfer of results to entities in government or industry, adoption of new practices, or instances where research has led to the initiation of a start-up company)?

What is the impact on society beyond science and technology?

Nothing to report for this period.

5. CHANGES/PROBLEMS:

Changes in approach and reasons for change

Nothing to report for this period

Actual or anticipated problems or delays and actions or plans to resolve them

Nothing to report for this period

Changes that have a significant impact on expenditures

Nothing to report for this period

Significant changes in use or care of human subjects, vertebrate animals, and/or Biohazards

Nothing to report for this period

Change of primary performance site location from that originally proposed

Nothing to report for this period