Texas Department of Transportation

Texas SPR Work Program

Annual Performance and Expenditures Report (APER)

State Planning and Research (SPR), Subpart B

September 1, 2024 – August 31, 2025

Certification and Disclaimer Statements

State Planning & Research Program, Subpart B - Research

Texas Department of Transportation
Research and Technology Implementation Division
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In cooperation with:
U.S. Department of Transportation Federal Highway Administration
Research – SPR 0511(225)
Implementation Program – SPR 2025(002)
Fiscal Year 2025
(September 1, 2024 – August 31, 2025)

Certification Statement

I, Kevin Pete, Director, of the Research and Technology Implementation Division (RTI), Texas Department of Transportation (TxDOT), do hereby certify that the State is in compliance with all requirements of 23 U.S.C. 505 and its implementing regulations with respect to the research, development, and technology transfer program, and contemplate no changes in statutes, regulations, or administrative procedures which would affect such compliance.

DocuSigned by:
Kevin Pete
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3/23/2026

Director | Date

Disclaimer Statement

The FHWA's approval of reports constitutes acceptance of such reports as evidence of work performed but does not imply endorsement of a report's findings or recommendations. This report is prepared for FHWA-funded work and includes appropriate credit references and disclaimer statements. The preparation of this report has been financed in part through grant(s) from the Federal Highway Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

Contents

Section 1 - Annual Report Summary and References

1.1 Approval and Authorization Process

1.1.1 Funding Research—23 CFR 420.115(b)

The Code of Federal Regulations (CFR)—specifically 23 CFR 420.115(b)—says that the federal government is contractually obligated to authorize work funded by the Federal Highway Administration (FHWA) in whole or in part, pursuant to 23 U.S. Code (USC) 106. The CFR requires that appropriate funds be available for the full federal share of the cost of work authorized.

The Texas Department of Transportation (TxDOT) funds research through its Research and Implementation Program, overseen by the TxDOT Research and Technology Implementation Division (RTI). RTI and the Texas state-supported universities conducting the research or implementation executed all project agreements.

RTI provided the fiscal year (FY) 2025 State Planning and Research (SPR), Subpart B Work Program to the Texas FHWA Division for review and approval. After the FHWA division administrator for the SPR program gave authorization, RTI executed the project agreements.

1.1.2 Reporting Requirements—23 CFR 420.117

The CFR—specifically 23 CFR 420.117—requires that TxDOT issue a report for FHWA approval to continue the agreement between TxDOT and FHWA to carry out statewide transportation planning activities as authorized.

According to 23 CFR 420.117, RTI is responsible for program monitoring and reporting requirements. RTI assigns a team of project managers to monitor the activities and performances of all subrecipients (state-supported universities) to assure that they are managing and performing the work satisfactorily and that they are meeting deadlines.

1.2 Comparison of Actual Performance with Established Goals and Program Overview

1.2.1 Overall Performance

In accordance with 49 CFR 18.40, RTI is fully responsible for managing the day-to-day operations of SPR Subpart B activities. RTI monitors program activities to assure compliance with applicable federal requirements and attainment of performance goals. Its monitoring covers each project, function, and activity.

In FY 2025, RTI managed one hundred eighteen (118) active research projects with 16 universities. Of the 118 projects, eighty-one (81) remain active projects, thirty-seven (37) closed, zero (0) cancelled and during this reporting period with one (1) terminating early. Each of these projects met specific agency screening criteria and aligns with TxDOT's organizational strategic goals, which are:

- Maintaining a safe system.
- Connecting Texas communities.
- Addressing congestion.
- Becoming a best-in-class agency.

These projects impacted TxDOT's core transportation function/services, and added value and benefit to TxDOT, participating agencies/external partners, and Texas citizens.

RTI Guidance Documents

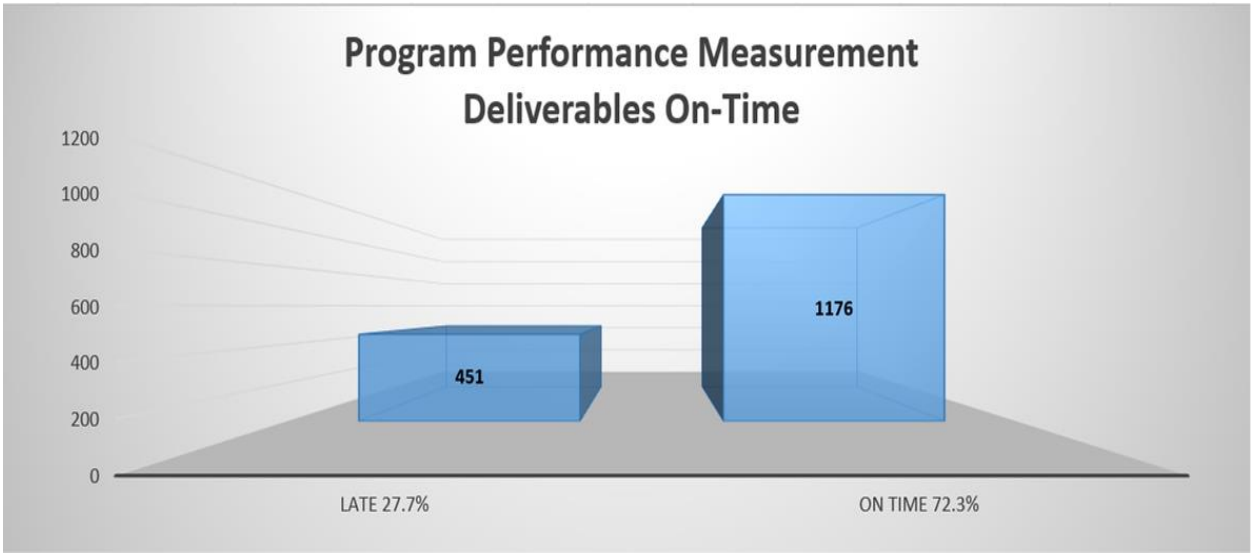
RTI executes a Cooperative Research and Implementation Agreement (CRIA) with each university or university system to conduct research projects. Under this CRIA, the university billings for an individual project agreement may exceed the university's fiscal year budget for that individual project agreement by up to 10 percent or $20,000 (whichever is less) without modification of the project agreement.

RTI has also published the Research Manual and the University Handbook. These two documents and the CRIA outline the provisions and processes of TxDOT's Research and Implementation Program.

Performance Measures

The performance for FY 2025 is an overall 72.3% on-time receipt of project deliverables. Analyses at this level also provides insight into where the program can improve in project monitoring efforts. The data provided for the purpose of this report is accurate as of December 31, 2025.

Figure 1 – Bar chart of deliverables submitted on-time.



1.2.2 Obligation of Funds

Table 1 shows how the federal funds appropriated to the Texas Subpart B Program were obligated.

Table 1 – Total Funding Obligated FY25

Program	SPR Program Number	Total Funding Obligated FY25	Federal 80%	State 20%
Research Program	SPR 0511(225)	$23,677,168.61	$18,941,734.89	$4,735,433.72
RTI Division Program Management	SPR 0511(225)	$2,796,887.83	$2,237,510.26	$559,377.57
Subtotal - Research Program	SPR 0511(225)	$26,474,056.44	$21,179,245.15	$5,294,811.29

Program	SPR Program Number	Total Funding Obligated FY25	Federal 80%	State 20%
Implementation Program	SPR 2025(002)	$4,011,418.79	$3,209,135.03	$802,283.76
Innovation Program	SPR 2025(318)	$579,020.40	$463,216.32	$115,804.08
Grand Total	N/A	$31,064,495.63	$24,851,596.50	$6,212,899.13

Table 2 – Contracting Entities Receiving SPR Funds

Entity That Received SPR Funds	SPR Contribution
Pooled-fund projects (lead agencies)	$1,896,667.00
National Cooperative Highway Research Program (NCHRP)	$5,661,834.00
Transportation Research Board (TRB) dues	$699,382.00

Table 3 – Other Projects/Programs - 100% Federal

Program	Federal Project Number	Total Funding Obligated FY25	Federal 100%
ADS Demonstration (0-7099)	F 2021(463)	$1,069,278.00	$1,069,278.00

Table 4 – Other Projects/Programs - 80/20% Federal

Program	Federal Project Number	Total Funding Obligated FY25	Federal 80%	State 20%
STIC Incentive (5-9909-25)	STIC 2025 (736)	$77,604.00	$62,083.20	$15,520.80
Accelerated Innovation Deployment (AID) Demonstration (0-9912-25)	SPR 2B24(584)	$3,000,000.00	$2,400,000.00	$600,000.00

1.2.3 Actual Expenses

Table 5 – Expenditures by Program for FY25

Program	Budgeted	Expended	Balance
Research	$26,589,962.12	$22,769,450.83	$3,820,511.29
Implementation	$1,942,019.11	$1,698,804.48	$243,214.63
Innovation	$555,000.00	$406,619.30	$143,380.70
Pooled Fund	$1,896,667.00	$1,896,667.00	$0.00
Support Projects	$2,508,108.91	$2,492,444.11	$15,664.80
Special Initiative	$1,069,278.00	$813,741.95	$255,536.05
Management and Administration	$2,402,939.00	$2,217,066.77	$185,872.23
Total	**$36,963,974.14**	**$32,294,794.44**	**$4,664,179.70**

Table 6 – Total Expenditures by Functional Area FY25

Functional Area	Budgeted	Expended	Balance
Construction, Maintenance & Materials	$9,112,399.56	$7,464,244.28	$1,648,155.28
Planning and Environmental	$2,275,310.54	$1,785,059.43	$490,251.11
Program Support	$2,508,108.91	$2,492,444.11	$15,664.80
Safety and Operations	$4,864,574.20	$3,856,591.41	$1,007,982.79
Strategy and Innovation	$6,124,365.02	$2,073,659.02	$4,050,706.00
Structures and Hydraulics	$10,416,851.16	$8,425,733.72	$1,991,117.44
Total	**$35,301,609.39**	**$26,097,731.97**	**$9,203,877.42**

Figure 2 – Funds expended by functional area for closed projects.

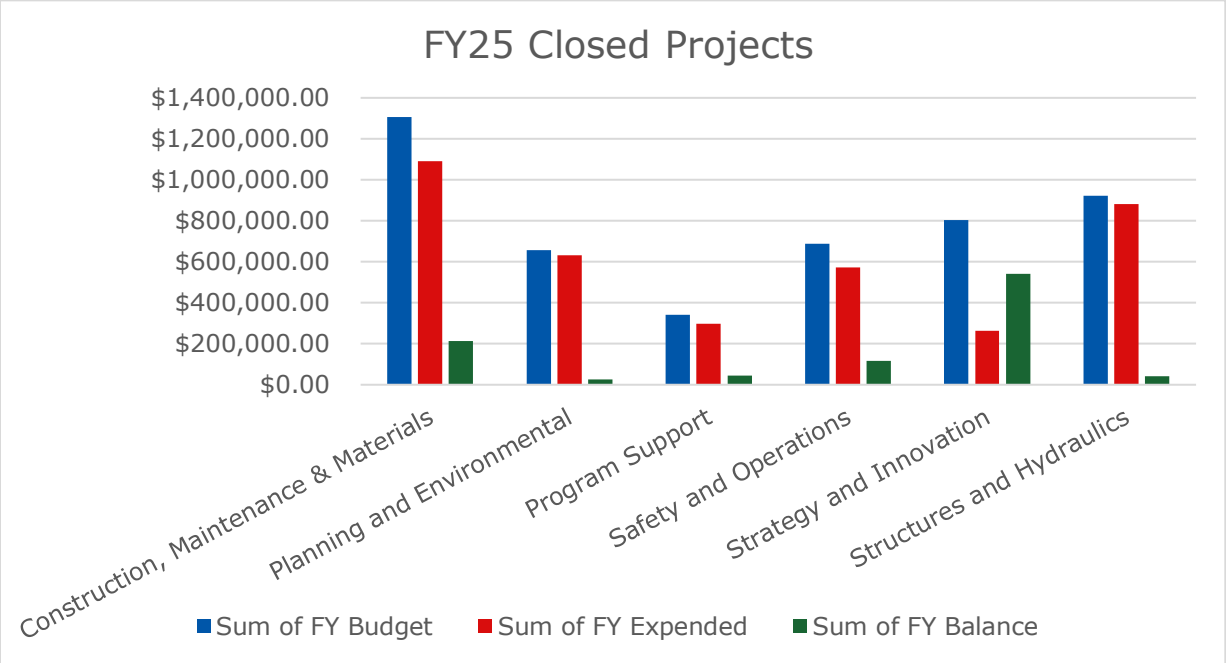


Figure 3 – Funds expended by functional area for continuing projects.

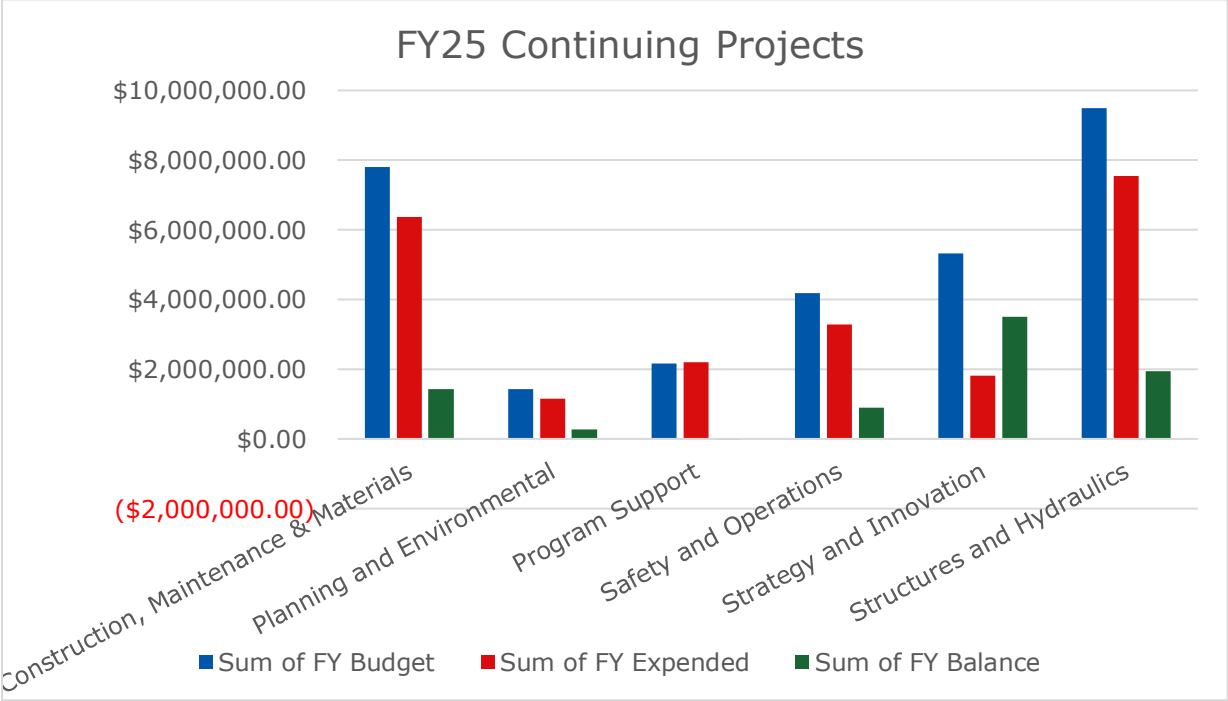


Table 7 – Total Funding by University FY25

University	FY25 Budget	FY25 Expended	FY25 Balance
CTR	$10,456,254.46	$7,736,327.44	$2,719,927.02
TAMUCC	$217,731.00	$185,423.21	$32,307.79
TAR	$57,752.50	$44,819.35	$12,993.15
TARL	$101,548.75	$78,045.54	$23,503.21
TECH	$1,130,334.30	$932,617.10	$197,717.20
TEES	$1,069,278.00	$813,741.95	$255,536.05
TEEX	$2,950.25	$2,181.57	$768.68
TSU	$127,797.80	$43,956.52	$83,841.28
TTI	$15,396,561.00	$10,269,736.44	$5,126,824.56
TXST	$1,028,214.00	$980,856.62	$47,357.38
UH	$332,523.75	$236,490.42	$96,033.33
USGS	$926,533.43	$912,057.72	$14,475.71
UTA	$2,891,499.01	$2,720,245.98	$171,253.03
UTEP	$515,806.44	$414,642.25	$101,164.19
UTRGV	$201,633.75	$80,746.12	$120,887.63
UTSA	$803,007.50	$645,843.74	$157,163.76
UT-Tyler	$42,183.45	$0.	$42,183.45
Grand Total	**$35,301,609.39**	**$26,097,731.97**	**$9,203,877.42**

1.3 Acronyms and Abbreviations

Table 8 – Acronyms used in this document and what they stand for.

Acronym	What it Stands for
APER	Annual Performance and Expenditures Report
CFR	Code of Federal Regulations
CRIA	Cooperative Research and Implementation Agreement
CTR	University of Texas at Austin's Center for Transportation Research
FAC	Functional Area Committee
FHWA	Federal Highway Administration
FY	Fiscal Year
LAMAR	Lamar University
PVAMU	Prairie View A&M University
PVAMU	Prairie View A&M University
RFA	Request for Research Fund Authorization
RTI	Research and Technology Implementation Division
SFASU	Stephen F. Austin State University
SHSU	Sam Houston State University
SPR	State Planning and Research
TAMU	Texas A&M University
TAMU-C	Texas A&M University at Commerce
TAMUK	Texas A&M University – Kingsville
TAR	Texas A&M AgriLife Research
TARL	Tarleton State University

Acronym	What it Stands for
TAMUK	Texas A&M University – Kingsville
TECH	Texas Tech Univ Ctr for Multidisciplinary Transportation Research
TEES	Texas A&M Engineering Experiment Station
TEEX	Texas A&M Engineering Extension Service
TSU	Texas Southern University
TTI	Texas A&M Transportation Institute
TxDOT	Texas Department of Transportation
TXST	Texas State University
UH	University of Houston
UNT	University of North Texas
USC	U.S. Code
USDOT	U.S. Department of Transportation
USGS	United States Geological Survey
UTA	University of Texas at Arlington
UT-Dallas	University of Texas at Dallas
UTEP	University of Texas at El Paso
UTHSC	University of Texas Health Science Center
UT-Permian Basin	University of Texas Permian Basin
UTSA	University of Texas at San Antonio
UT-Tyler	The University of Texas at Tyler
WTAMU	West Texas A&M University

1.4 Contact Information

Contact information for RTI personnel.

Table 9 – RTI Personnel

Name	Position Title	Phone Number	Email Address
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Table 10 – Personnel from Participating Universities

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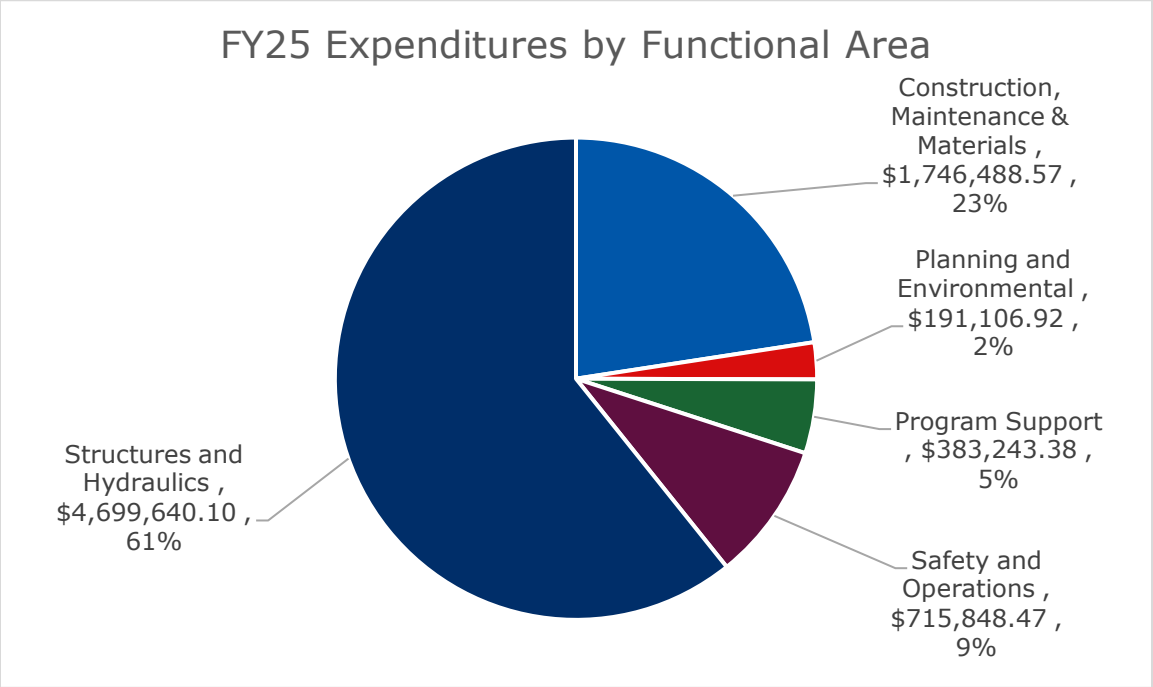
Section 2 – Subrecipients

2.1 CTR – Univ. of Texas - Austin Center for Transportation Research

Figure 4 - Pie chart of CTR expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7061-01	Scaling Up and Finalizing Ozone Ageing for Hot Mix Asphalt (HMA)	Active
Structures and Hydraulics	0-7073	Improving Testing Requirements in Item 300 Of TxDOT Standard Specifications	Closed
Safety and Operations	0-7090	Evaluate the Deployment of High Strength Reinforcing Steel in Texas	Closed

Functional Area	Project Number	Project Name	Status
Safety and Operations	0-7095-01	Flood Assessment System for TxDOT (FAST)	Active
Safety and Operations	0-7113	Determine Service and Ultimate Behavior for Bent to Column Joints in TxDOT Substructures	Closed
Safety and Operations	0-7115	Investigate Live Load Distribution and Stability of Prestressed Concrete Girders During Construction	Closed
Safety and Operations	0-7117	Investigate the Strength of Struts Crossing Cold Joints	Closed
Construction, Maintenance & Materials	0-7138	Driver Distraction in an Era of Rapid Technological Change, Digital Advertising Billboards	Closed
Structures and Hydraulics	0-7141	Evaluation of Nano-Materials in Concrete for Improved Durability	Active
Structures and Hydraulics	0-7145	Develop Rapid New Tests for Detecting Poor Quality Binders and RAP Materials	Active
Structures and Hydraulics	0-7178	Use Network Level Texture to Enhance Pavement Management	Closed
Construction, Maintenance & Materials	0-7182	Determine Effectiveness of Construction Management Plans	Closed

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7186	Develop Next Generation of Hamburg Rutting Test for Asphalt Mixes	Active
Structures and Hydraulics	0-7191	Develop Systematic and Quantitative Approach to Assess the Probability of Extreme Weather and Resilience Risks for TxDOT Highways and Bridges	Closed
Safety and Operations	0-7193	Develop Assessment and Mitigation Guidance for Ancillary Highway Structures with Existing Cracks	Active
Structures and Hydraulics	0-7195	Quantify Bridge and Pavement Consumption Due to Permitted Overweight/Oversized (OW/OS) Vehicles	Active
Structures and Hydraulics	0-7197	Evaluate Effects of Recycled Asphalt Pavement (RAP) on Performance-Graded (PG) Binder Polymer Concentration	Active
Program Support	0-7204	Synthesis: Prevention of Unauthorized Freeway Exits and Entrances	Closed
Structures and Hydraulics	0-7208	Evaluating Minimum Virgin Binder Contents for Durable Recycled Asphalt Pavement (RAP) Mixes	Active
Program Support	0-7209	Develop Guidance for Sustainable Traffic Signal Operation Strategies to Support All Intersection Users	Closed

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7211	Determine Hydroplaning Potential Using Existing Pavement Asset Data	Active
Safety and Operations	0-7213	Develop Design Methodologies and Efficient Details for Triple I-Girder Steel Straddle Caps	Active
Structures and Hydraulics	0-7215	Predicting Field Performance of Pavement Markings Statewide in Texas	Active
Program Support	0-7220	Develop Countermeasures to Lower Operating Speeds and Collisions on Arterial Roadways, and Reduce Vulnerable User Injuries	Active
Structures and Hydraulics	0-7227	Exploring the Use of Antioxidants to Substantially Increase Cracking Life of Asphalt Pavements	Active
Program Support	0-7228	Identify and Evaluate Innovative Pedestrian Safety Countermeasures for Rural and Nighttime Environments	Active
Construction, Maintenance & Materials	0-7231	Synthesis: Carbon Capture and Repurposing By-Products	Closed

Functional Area	Project Number	Project Name	Status
Safety and Operations	0-7237	Synthesis: Develop Design Guidelines for Applications of Light Weight Aggregate in Embankments and Mechanically Stabilized Earth (MSE) Walls -- Evaluate Cost Benefit & Performance	Closed
Strategy and Innovation	0-9902-23	University of Texas Library Services	Active
Construction, Maintenance & Materials	5-6048-07	Implementation of Centrifuge Technology for Pavement Design on Expansive Clays – Phase 2	Active
Construction, Maintenance & Materials	5-6936-01	Implementation of Semi-integral Bridges in Texas	Active
Construction, Maintenance & Materials	5-7007-01	Weather Responsive Management Strategies Implementation	Active
Construction, Maintenance & Materials	5-7041-01	Implementation of the NextGen Bridge Deck System in Texas	Active
Planning and Environmental	5-7074-01	Implementation of Recycled Crushed Concrete Aggregate in Class P Concrete	Active
Construction, Maintenance & Materials	5-9905-24	Innovation Consortium (TTTF, TxSTIC)	Closed

Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	9-1532	TPF-5(508) Concrete Bridge Engineering Institute (CBEI)	Active

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7061-01	Scaling Up and Finalizing Ozone Ageing for Hot Mix Asphalt (HMA)	Active

Project Start Date: 01/22/2025
Completion Date: 12/31/2027
Lead University: CTR
University #2:
Project Status: Active
Total Project Budget: $554,753.73
CTR Total Budget: $554,753.73
CTR FY25 Budget: $174,883.06
CTR Total Project Spend: $132,272.74
CTR FY25 Spend: $132,272.74

Project description: Evaluating the cracking resistance of asphalt mixtures after long-term aging is essential to ensure its long-term performance. NCHRP project 9-54 recommended aging loose asphalt mixtures at 95C for a period of 4 to 8 days (depending on the location in Texas) to simulate 4 years of field aging at 6 mm below the pavement surface. Subsequently, TxDOT Project 0-7061 examined ways to reduce the time required for long-term aging without increasing the aging temperature to beyond 100C to avoid aging artifacts. Project 0-7061 concluded that 5 days of long-term aging at 95C could be reduced to approximately 2 days by increasing the pressure or approximately 1 day by exposing the mix to ozone. This research project shall: (1) develop a scalable prototype ozone aging oven that can used for routine implementation by mixture labs throughout the state, (2) optimize and standardize the ozone concentration to ensure repeatability and sensitivity, (3) provide a standard test method, training, and ozone aging equipment to Receiving Agency, and (4) conduct round robin testing to establish confidence with the test method and make any refinements to the standard test method if necessary.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7061-01

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7073	Improving Testing Requirements in Item 300 Of TxDOT Standard Specifications	Closed

Project Start Date: 09/01/2020
Completion Date: 08/31/2025
Lead University: CTR
University #2: TTI
Project Status: Closed
Total Project Budget: $1,130,000.00
CTR Total Budget: $565,000.00
CTR FY25 Budget: $140,110.43
CTR Total Project Spend: $519,029.22
CTR FY25 Spend: $121,224.99

Project description: The Receiving Agency's standard specification Item 300, Asphalts, Oils, and Emulsions, includes more than 48 different test procedures or conditioning procedures for asphalt concrete (AC) graded binders (12), cutbacks (8), emulsified binders (17), and performance-graded (PG) binders (11) used in different pavement construction and maintenance applications. This does not include testing requirements for recycling agents, crack sealants, or asphalt rubber binder. The Receiving Agency regularly performs many of these tests for quality management or quality assurance purposes. This test schedule presents a challenge for the binder lab in terms of maintaining test procedures, acquiring and maintaining test equipment, calibrating equipment, and training personnel. Some specification tests are legacy tests that once were the state-of-the-art and thought to be related to asphalt binder performance. Many of these legacy tests are not used in more recently developed specifications, as other tests are now available and may be more indicative of performance. This project seeks to review the Receiving Agency's Item 300 binder specifications and tests for relevance; determine whether they assess safety, performance, or constructability; and take into account accuracy, efficiency, and environmental considerations. The project shall also make recommendations for changes.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7073

CTR | Structures and Hydraulics

Project Number	Project Name	Status
0-7090	Evaluate the Deployment of High Strength Reinforcing Steel in Texas	Closed

Project Start Date: 09/01/2020
Completion Date: 12/31/2024
Lead University: CTR
University #2:
Project Status: Closed
Total Proj Budget: $1,175,887.21
CTR Total Budget: $1,175,887.21
CTR FY25 Budget: $34,263.30
CTR Total Proj Spend: $1,168,227.41
CTR FY25 Spend: $34,260.51

Project description: The Performing Agency shall: • Demystify the use of high strength reinforcing steel in Texas bridge design in Phase 1. This shall be accomplished through examination of Texas bridge components and systems. Phase 1 shall address where and when it makes sense to use high strength reinforcing, what benefits can be realized, who else is using high strength reinforcing and how they are using it. • Supplement Phase 1 through a series of analytical and experimental test programs covering a wide range of structural bridge components in Phase 2. This shall include realistically scaled structural testing in combination with numerical modeling to address data gaps related to serviceability performance and ultimate strength behavior.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7090

CTR | Structures and Hydraulics

Project Number	Project Name	Status
0-7095-01	Flood Assessment System for TxDOT (FAST)	Active

Project Start Date: 02/26/2024
Completion Date: 01/31/2027
Lead University: CTR
University #2: USGS
Project Status: Active
Total Proj Budget: $5,850,241.20
CTR Total Budget: $3,009,622.73
CTR FY25 Budget: $923,413.55
CTR Total Proj Spend: $1,301,695.65
CTR FY25 Spend: $644,640.49

Project description: The Receiving Agency wishes to move from a reactive to a proactive response during flood emergency operations. Real-time flood map services provide valuable information for the Receiving Agency flood decision making. The National Weather Service initiated the operation of real-time flood inundation maps for Texas in October 2023. Performing Agency 1 shall create a Flood Assessment System for TxDOT (FAST) as an additional set of real-time flood maps to describe flood impact on the road and bridge system. These maps will be distributed to the Receiving Agency Maintenance staff as web services and tested in large scale flood emergency response exercises conducted with The Receiving Agency Districts. Performing Agency 2 shall operate and maintain 80 RQ-30 stream gages to support flood forecasting and decision making. Performing Agency 2 shall refine the targeted approach for RQ-30 velocity sensor calibrations to support timely rating development using velocimetry. As many of the 80 RQ-30 gauges as possible will be added to the Interagency Flood Risk Management (InFRM) Flood Decision Support Toolbox. Combining novel gauging techniques with inundation mapping provides real-time streamflow information and transportation flood impacts that enable scenario planning and proactive actions to flood events. This project will be a continuation of

Project 0-7095 "Evaluating Improved Streamflow Measurement at TxDOT Bridges."

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

Amend the contract to revise the budget to move funds to allow the subcontractors to continue their tasks into FY2026. CTR Budget: The FY 2024 Budget remains $663,649.65. The FY 2025 Budget is decreased by $130,000.00 from $1,053,413.55 to $923,413.55. The FY 2026 Budget is increased by $ 130,000.00 from $994,396.82 to $1,124,396.82. The FY 2027 Budget remains $298,162.71. CTR Total Project Budget remains $3,009,622.74. USGS FY 26 budget remains unchanged. The Total Itemized Project Budget Estimate remains $5,850,241.20.

CTR Library Project Link:
https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7095-01

CTR | Structures and Hydraulics

Project Number	Project Name	Status
0-7113	Determine Service and Ultimate Behavior for Bent to Column Joints in TxDOT Substructures	Closed

Project Start Date: 09/01/2021
Completion Date: 08/31/2025
Lead University: CTR
University #2:
Project Status: Closed
Total Project Budget: $1,275,132.89
CTR Total Budget: $1,275,132.89
CTR FY25 Budget: $275,166.50
CTR Total Project Spend: $1,273,575.59
CTR FY25 Spend: $275,156.00

Project description: The Bridge Design Manual requires consideration of various extreme events such as lateral stream loads and debris accumulation during flooding, severe scouring, and loss of supports due to collision for multi-column bent cap design. Typically, column-to-cap connections are designed as simple supports. As a result, current/past details have no confinement in bent cap joints, and the longitudinal column reinforcement is not always fully developed into the cap. Detailing joints for developing plastic capacity, as well as to permit sufficient load redistribution, is a common strategy in design for extreme loading scenarios (e.g., seismic design). To accommodate this increased moment demand, the standard column-to-cap connection requires improved detailing techniques. The Performing Agency shall utilize analytical/computational methods and an experimental program to investigate the performance of bent cap connections with traditional and improved details. The Performing Agency shall provide practical, easily implementable design recommendations for column-bent connections through these activities: • Reviewing literature to identify state-of-the-art detailing techniques and design parameters • Performing analytical or computational analysis to determine moment demand induced by extreme events • Developing improved detailing

methods and retrofitting methods • Conducting large-scale structural experiments to investigate the performance of various details • Providing design guidelines for designers to account for the extreme events.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7113

CTR | Structures and Hydraulics

Project Number	Project Name	Status
0-7115	Investigate Live Load Distribution and Stability of Prestressed Concrete Girders During Construction	Closed

Project Start Date: 09/01/2021
Completion Date: 06/30/2025
Lead University: CTR
University #2:
Project Status: Closed
Total Project Budget: $998,766.67
CTR Total Budget: $998,766.67
CTR FY25 Budget: $115,113.89
CTR Total Project Spend: $895,399.38
CTR FY25 Spend: $74,141.10

Project description: The Performing Agency shall focus on the stability of long-span prestressed concrete I- and U-girders during erection and construction. The Performing Agency shall consider the distribution of live load in the completed bridge as well the role of diaphragms in stability and live load distribution and develop methods of analysis of the girder behavior. The Performing Agency shall focus on the stability of long-span prestressed concrete I- and U-girders during erection and construction. The Performing Agency shall consider the distribution of live load in the completed bridge as well the role of diaphragms in stability and live load distribution and develop methods of analysis of the girder behavior.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7115

CTR | Structures and Hydraulics

Project Number	Project Name	Status
0-7117	Investigate the Strength of Struts Crossing Cold Joints	Closed

Project Start Date: 09/01/2021
Completion Date: 06/30/2025
Lead University: CTR
University #2:
Project Status: Closed
Total Proj Budget: $1,366,368.89
CTR Total Budget: $1,366,368.89
CTR FY25 Budget: $299,430.78
CTR Total Proj Spend: $1,364,735.69
CTR FY25 Spend: $299,430.78

Project description: Cold joints commonly occur in concrete structures, whether they are a part of new construction (e.g., staged construction, roadway expansion projects, spliced girder bridges) or retrofit efforts (e.g., interface between the new structural elements and the older concrete components). In many cases, the cold joints occur within "disturbed regions" of a structure. The preferred design method in the AASHTO LRFD Bridge Design Specifications for disturbed regions is the strut-and-tie design method. While the commentary states that the capacity of cold joints should be checked in addition to traditional strut-and-tie design checks, there is no specific guidance provided for how to include shear-interface resistance in the context of the strut-and-tie design provisions. Thus, there is a need to develop specific design recommendations for use in the AASHTO LRFD Bridge Design Specifications, as well as the TxDOT Bridge Design Manual. The Performing Agency shall investigate the strength of struts crossing cold joints through a comprehensive analytical and experimental test program informed by a literature review and examination of common cold joint cases encountered by bridge designers. The design recommendations developed shall provide the guidance for implementing the necessary design checks at cold joints encountered in Texas bridge design practice.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7117

CTR | Planning and Environmental

Project Number	Project Name	Status
0-7138	Driver Distraction in an Era of Rapid Technological Change, Digital Advertising Billboards	Closed

Project Start Date: 09/01/2022
Completion Date: 11/30/2024
Lead University: TTI
University #2: CTR
Project Status: Closed
Total Project Budget: $432,453.89
CTR Total Budget: $78,914.14
CTR FY25 Budget: $7,937.50
CTR Total Project Spend: $65,955.32
CTR FY25 Spend: $7,924.81

Project description: Outdoor advertising signs impact millions of travelers around the world every day. These signs are designed to attract driver attention thus taking it away from the driving task. Driver inattention and distraction are two of the most critical factors for road safety. Receiving Agency regulation of outdoor advertising signs must deal with changing technologies, including digital billboards, which allow for modifications to sign illumination, motion, and content. Regulations are not keeping pace with changing sign trends and must be updated to address potential impacts on road user safety. This research project focuses on the degree of driver distraction caused by typical and digital advertising sign contents. The project includes a comprehensive state-of-the-practice review, crash investigation, and an on road human factors evaluation. The illumination levels and content (including motion) during daytime and nighttime travel for dry and wet-weather conditions are considered. This research project shall provide the Receiving Agency with tools and resources to help manage outdoor digital advertising billboards by establishing practical criteria for sign illumination and content. These resources shall allow the Receiving Agency to manage the advertising signs such that road user safety is accounted for while maintaining the ability of sign owners to develop effective means of

communicating with the public.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Amend the contract to extend the termination date, revise the budget, and revise the Project Schedule due to delays in acquiring the necessary project equipment. TTI budget: The FY 2023 Budget remains $155,276.00.The FY 2024 Budget remains $177,798.25.The FY 2025 Budget is established at $20,465.50.TTI's Total Project Budget is increased by $20,465.50 from $333,074.25 to $353,539.75.CTR Budget: The FY 2023 Budget remains $35,165.51.7he FY 2024 Budget remains $35,811.13.The FY 2025 Budget is established at $7,937.50.The Performing Agency 2 Total Project Budget is increased by $7,937.50 from $70,976.64 to $78,914.14.The Itemized Project Budget Estimate is increased by $28,403.00 from $404,050.89 to $432,453.89.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7138

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7141	Evaluation of Nano-Materials in Concrete for Improved Durability	Active

Project Start Date: 09/01/2022
Completion Date: 05/31/2026
Lead University: CTR
University #2:
Project Status: Active
Total Project Budget: $630,022.25
CTR Total Budget: $630,022.25
CTR FY25 Budget: $169,748.85
CTR Total Project Spend: $496,898.92
CTR FY25 Spend: $152,340.81

Project description: The application of nanotechnology in the construction industry has led to significant advancements in enhancing the mechanical properties of concrete through changing concrete's structure at the nano level. However, advancements in understanding how to leverage nanomaterials to combat durability issues has lagged behind the progress made on the mechanical property side. Concrete is susceptible to various physical and chemical degradation mechanisms that can reduce its service life. Historically, Class F fly ash has been used to address many of these degradation issues. However, with changes in fly ash quality and availability, identifying other materials that the Receiving Agency can use to protect concrete against durability issues are needed. Over the last 20 years, much progress has been made in using nanomaterials in concrete mixtures, for example, nanoparticles have even been used in high-volume fly ash cementitious systems to offset the negative effects of fly ash on rate of hydration and early-age strength gain. This project shall investigate the use of nanomaterials on the properties of concrete mixtures, with special emphasis placed on durability properties and self-healing capabilities. Various nanomaterials shall be used, alone and in combination with

supplementary cementing materials (SCMs). The most promising mixtures shall be selected for field trails to validate laboratory findings.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7141

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7145	Develop Rapid New Tests for Detecting Poor Quality Binders and RAP Materials	Active

Project Start Date: 09/01/2022	Completion Date: 02/29/2028
Lead University: TTI	University #2: CTR
Project Status: Active	Total Proj Budget: $1,725,534.03
CTR Total Budget: $517,632.54	CTR FY25 Budget: $108,440.01
CTR Total Project Spend: $301,241.10	CTR FY25 Spend: $94,532.25

Project description: Asphalt binders are one of the most expensive and critical materials used in the construction of the roadways in Texas, costing taxpayers hundreds of millions of dollars annually. It has been widely recognized that asphalt binders with the same performance grade (PG) can perform very differently due to changes in crude source, refining processes used, modification technique, and other factors. Several districts recently reported early cracking issues with some mixes which had historically performed well, while other districts had mix design and quality assurance (QA) problems when the binder source was switched and/or a different recycled asphalt pavement (RAP) stockpile was used. Thus, the objective of this project is to develop rapid new tests for detecting poor quality binders and RAP materials. To achieve this objective, the Performing Agencies shall review the literature to identify candidate tests that can be used for screening binders and RAP materials. The Performing Agencies shall further refine the most promising tests using laboratory mixture performance tests as a benchmark. The Performing Agencies shall also provide a standard test method and specification limit for each of the final test methods.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7145

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7178	Use Network Level Texture to Enhance Pavement Management s	Closed

Project Start Date: 09/01/2023
Lead University: CTR
Project Status: Closed
CTR Total Budget: $302,923.37
CTR Total Project Spend: $161,682.25
Completion Date: 08/31/2025
University #2:TXST
Total Project Budget: $399,814.26
CTR FY25 Budget: $160,270.24
CTR FY25 Spend: $106,349.28

Project description: The Performing Agencies shall evaluate the use of texture data currently available in the Receiving Agency Pavement Analyst software as collected by the Receiving Agency's third-party vendor (the vendor), and shall assess the accuracy of data (mean profile depth (MPD) and raw profile used to calculate MPD) and provide guidance on applications and uses of the data

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7178

CTR | Planning and Environmental

Project Number	Project Name	Status
0-7182	Determine Effectiveness of Construction Management Plans	Closed

Project Start Date: 09/01/2023
Completion Date: 08/31/2025
Lead University: CTR
University #2:
Project Status: Closed
Total Project Budget:
CTR Total Budget: $299,302.47
CTR FY25 Budget: $150,194.26
CTR Total Project Spend: $235,079.50
CTR FY25 Spend: $128,826.07

Project description: A Construction Management Plan (CMP) is a document that describes the project execution plan and sequence of construction activities that can be performed in the project considering pending clearances related to unclear utility conflicts, right-of-way (ROW) acquisition, ROW encroachments, ROW relocation, and/or outstanding railroad agreements. the Receiving Agency CMPs are required for projects where the estimates for certification and permit clearance extend beyond three months after letting. One of the main goals of CMPs is to mitigate the risk of construction delays. Since the implementation of CMPs a few years ago, the Receiving Agency has not conducted a thorough review of their effectiveness to date. Therefore, the main objectives of this research project are to conduct a review of the Receiving Agency CMPs, verify the potential impact of the Receiving Agency CMPs on change orders and claims, compile lessons learned, and develop recommendations to make the Receiving Agency CMPs more effective. A guidebook and training materials shall be developed to facilitate implementation by districts, divisions, consultants, and contractors

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7182

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7186	Develop Next Generation of Hamburg Rutting Test for Asphalt Mixes	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2: CTR
Project Status: Active
Total Project Budget: $634,305.00
CTR Total Budget: $60,000.00
CTR FY25 Budget: $30,000.00
CTR Total Project Spend: $8,749.79
CTR FY25 Spend: $0.00

Project description: The Hamburg Wheel Track (HWT) rutting test generally serves well as the standard rutting test for asphalt mixes in Texas; however, in the last several years, some premium mixes (i.e. stone matrix asphalt), designed with PG76-22 and low HWT rut depth, have experienced premature rutting failures under slow moving (or stop/ go) traffic in several Receiving Agency Districts. Such failures burden the Receiving Agency with extra cost. Furthermore, it was reported that the HWT test cannot accurately quantify the better rutting performance of some tougher mixes with highly modified asphalt (HiMA). Thus, the Performing Agency shall develop the next generation of HWT test to accurately screen out asphalt mixes that are prone to rutting failures. The Performing Agencies shall review the literature, survey Districts, and other state departments of transportation (DOTs) to identify the proper rutting test(s) and asphalt mixes for addressing the rutting failure caused by the slow-moving traffic. The Performing Agencies shall further develop the next generation of HWT test and associated acceptance criteria through finite element analysis, laboratory testing, field accelerated pavement testing and survey of in-service pavement intersections, round robin test, and recommendation of specification changes.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7186

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7191	Develop Systematic and Quantitative Approach to Assess the Probability of Extreme Weather and Resilience Risks for TxDOT Highways and Bridges	Closed

Project Start Date: 12/05/2025
Completion Date: 08/31/2025
Lead University: TTI
University #2: CTR, UTSA, TXST
Project Status: Closed
Total Project Budget: $796,520.38
CTR Total Budget: $313,917.55
CTR FY25 Budget: $157,196.75
CTR Total Project Spend: $191,165.09
CTR FY25 Spend: $132,436.78

Project description: Climate stressors pose a significant threat to transportation infrastructure. Recognizing this, Federal Highway Administration (FHWA) requires State Departments of Transportation (DOTs) to consider extreme weather and resilience in life cycle planning and risk management analyses within a State's Transportation Asset Management Plan (TAMP). The 2022 Texas TAMP identified risk categories that could impact the Receiving Agency's infrastructure (specifically, highways and bridges). Extreme weather and resilience were discussed extensively, but the 2022 TAMP lacked a systematic and quantitative approach to assess climate-related risks to infrastructure and in life cycle planning analysis. The objective of this research is to develop a robust quantitative risk framework that can be implemented in subsequent Texas TAMPs. To successfully accomplish this objective, the Performing Agencies shall: manage the project scope, budget, and timeline (1), conduct an extensive review of the literature (2), identify climate stressors to the Receiving Agency's pavements and bridges (3), assess the probability of such climate stressors and extreme weather events (4), quantify the impact on bridges (5) and pavements (6), develop an asset risk and resilience assessment framework (7), develop and quantify adaptation strategies (8), conduct scenario analysis (9), and

identify proxy indicators that can be tracked to monitor high-priority risks (10).

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7191

CTR | Structures and Hydraulics

Project Number	Project Name	Status
0-7193	Develop Assessment and Mitigation Guidance for Ancillary Highway Structures with Existing Cracks	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: CTR
University #2: TTI
Project Status: Active
Total Proj Budget: $1,493,580.09
CTR Total Budget: $994,428.34
CTR FY25 Budget: $381,213.48
CTR Total Project Spend: $605,909.54
CTR FY25 Spend: $380,465.06

Project description: Ancillary structures (AS) exist in a wide variety of applications critical to safety and daily needs of the travelling public (e.g. HMIP, COSS, and traffic signals). The long-term corrosion performance of these structures is of utmost importance to prevent deterioration and extend the structural design life and safety. While hot-dipped galvanizing provides excellent long-term behavior for corrosion control of these critical structures, over the past 20 years this process has been found to create extensive cracking of welds on base plate connections that is detrimental to the fatigue lives of these poles. Although improved details are used in new designs, thousands of HMIP, COSS, and signal poles exist in Texas with varying levels of cracking in the welds between the baseplates and pole shafts. The research outlined in this proposal identifies and provides critical assessment parameters and guidance for the Receiving Agency to determine if cracks should be monitored, repaired, or the structural component replaced. The proposed research includes a representative assessment of weld cracking in the AS inventory, the development of monitoring hardware and techniques, the development and assessment of repair techniques, and the development of certification methods/standards for inspection personnel.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7193

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7195	Quantify Bridge and Pavement Consumption Due to Permitted Overweight/Oversized (OW/OS) Vehicles	Active

Project Start Date: 09/01/2023
Completion Date: 02/28/2026
Lead University: CTR
University #2: TTI, UTSA
Project Status: Active
Total Project Budget: $828,584.25
CTR Total Budget: $453,406.25
CTR FY25 Budget: $169,000.12
CTR Total Proj Spend: $219,849.28
CTR FY25 Spend: $124,178.64

Project description: In 2012, the Rider 36 study indicated that damage caused to bridges and pavements by overweight (OW) vehicles surpassed the revenue collected by permit fees by approximately $200 million annually. This finding was corroborated by a recent 2022 study mandated by House Bill 2223, which quantified this gap at $168 million. Besides the revenue shortage to cover bridge and pavement maintenance and rehabilitation costs due to the damage cause by OW vehicles, the 2022 study also identified additional shortcomings that need to be urgently addressed. These shortcomings include: 1) lack of a methodology for periodically adjusting permit fees to account for changes in traffic patterns and configurations and higher inflation rates; 2) lack of accurate data and process for calculating annual vehicles-miles-travelled (VMT) by each permit type; 3) uncertainty in the identification of routes and number of trips for monthly, quarterly, or annual permits; 4) absence of a method and process to assess the damage caused by OW vehicles to the off-system bridges and highways. The Performing Agencies shall develop, recommend, and provide the Receiving

Agency a well-established and documented step-by-step method to periodically update the permit fee structure

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7195

CTR | Construction, Maintenance & Materials

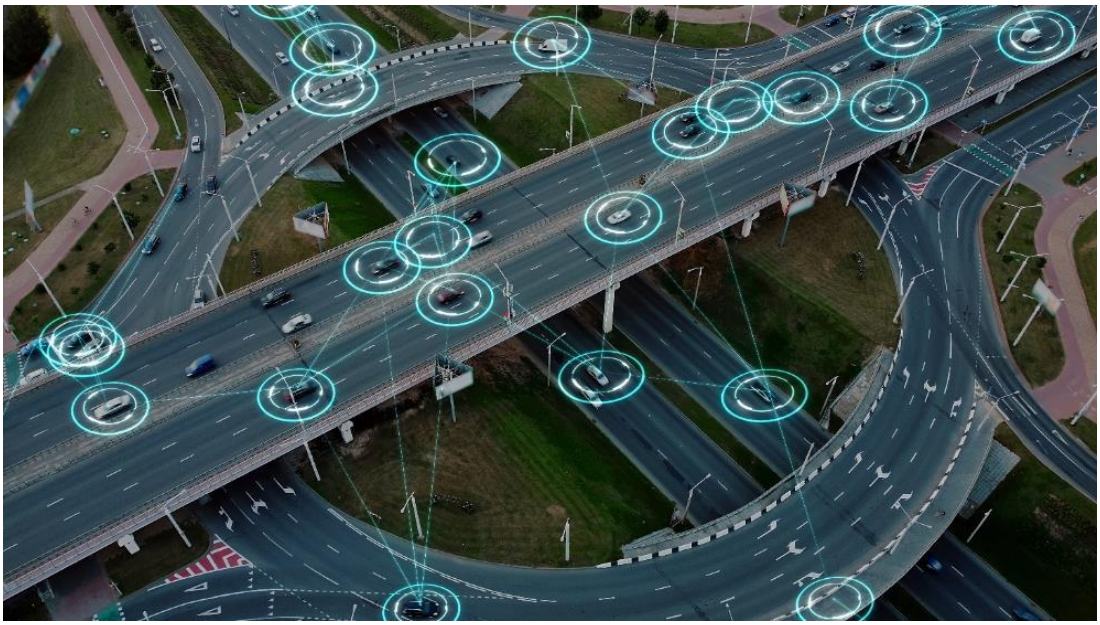
Project Number	Project Name	Status
0-7197	Evaluate Effects of Recycled Asphalt Pavement (RAP) on Performance-Graded (PG) Binder Polymer Concentration	Active

Project Start Date: 10/06/2023
Completion Date: 04/30/2026
Lead University: CTR
University #2: TTI
Project Status: Active
Total Project Budget: $593,006.28
CTR Total Budget: $348,006.28
CTR FY25 Budget: $166,472.56
CTR Total Project Spend: $246,449.02
CTR FY25 Spend: $136,929.52

Project description: Polymer additives are used to design high PG virgin binders that meet the PG requirements to protect the mix against rutting and cracking under the climate and traffic conditions of an HMA project. When RAP is added to the mixture, the effective binder may not meet the desired grade. This project shall quantify the extent to which polymer dilution is a problem that should be addressed in the Receiving Agency's HMA specifications and if so, develop specification language to address it. This project involves evaluating binder blends and mixtures with RAP. Both lab blended and commercial PG binders shall be evaluated for continuous grade, elasticity, polymer content, and other rheological parameters. Then these binders shall be mixed with recovered RAP binders at several percentages and retested to determine the same properties. Standard mixtures(s) shall also be used with several of these binders and various RAP percentages to measure mixture performance-related properties (cracking and rutting). The Performing Agency shall use the results from binder and mixture results on the impact of "virgin binder – RAP binder dilution" and work with the Receiving Agency to develop specification language for inclusion in the Receiving Agency's HMA specifications, as needed.

Approved Work Program Revisions

No. of FY25 Amendments: 0



CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7197

CTR | Safety and Operations

Project Number	Project Name	Status
0-7204	Synthesis: Prevention of Unauthorized Freeway Exits and Entrances	Closed

Project Start Date: 09/01/2024
Lead University: CTR
Project Status: Closed
CTR Total Budget: $64,963.52
CTR Total Project Spend: $59,321.66

Completion Date: 08/31/2025
University #2:
Total Project Budget: $64,963.52
CTR FY25 Budget: $64,963.52
CTR FY25 Spend: $59,321.66

Project description: The Receiving Agency's I-20 Corridor Study includes a major safety goal to mitigate illegal ramp crossings between frontage roads and main lanes. Illegal crossings on controlled access roadways occur in several Receiving Agency districts, in other states and countries. Receiving Agency leadership and law enforcement have emphasized during TV news broadcasts that illegal crossings have resulted in crashes, caused damage to grassy medians, caused fires if grass is dry, resulted in vehicles becoming stuck in mud or soft soils. Illegal crossings are made by motorists to bypass traffic back-ups due to an accident, roadway construction, peak-hour traffic congestion, or to access a frontage road business that is not near a ramp. The Performing Agency shall identify and assess methods to deter illegal crossings through a literature review, a national survey of DOTs and local transportation agencies, and a survey of Receiving Agency districts. District site visits will further help determine the causes of illegal crossings including an assessment of adjacent land use, spacing of ramps, number of illegal crossings, and an evaluation of deterrent efficiency. This information shall be used to develop an Outline of a Recommended Plan to implement deterrents.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7204

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7208	Evaluating Minimum Virgin Binder Contents for Durable Recycled Asphalt Pavement (RAP) Mixes	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: CTR
Project Status: Active
Total Project Budget: $793,403.62
CTR Total Budget: $289,355.37
CTR FY25 Budget: $70,769.01
CTR Total Project Spend: $44,905.46
CTR FY25 Spend: $44,905.46

Project description: Economic factors and environmental sustainability are driving the use of more reclaimed asphalt pavement (RAP); however, durability of those mixes has been a concern. Various approaches (e.g. limiting RAP usage, increasing lab-molded density, or balanced mix design (BMD)) have been tried to improve mix durability. All the approaches point to one essential factor for durable RAP mixes: minimum virgin binder content. Thus, the Performing Agency shall determine the minimum virgin binder content(s) for durable RAP mixes. The Performing Agencies shall review the literature to identify critical factors affecting RAP mix durability. Considering all those critical factors, the Performing Agencies shall develop and execute a statistically sound laboratory experimental design to develop the relationships between cracking properties measured by Overlay test and Ideal cracking test and mix components (e.g. virgin binder content) and their characteristics. Furthermore, the Performing Agencies shall assess field performance of RAP mixes and delineate the correlation between field performance and laboratory mix cracking properties. Subsequently, the Performing Agencies shall recommend minimum virgin binder contents based on the relationships among field performance, mix cracking properties, and mix components and their characteristics, and develop guidelines, update

specifications, and organize training sessions.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7208

CTR | Safety and Operations

Project Number	Project Name	Status
0-7209	Develop Guidance for Sustainable Traffic Signal Operation Strategies to Support All Intersection Users	Closed

Project Start Date: 09/01/2024
Completion Date: 08/31/2025
Lead University: CTR
University #2:
Project Status: Closed
Total Project Budget: $194,160.04
CTR Total Budget: $194,160.04
CTR FY25 Budget: $194,160.04
CTR Total Project Spend: $175,713.27
CTR FY25 Spend: $175,713.27

Project description: The Bipartisan Infrastructure Law promotes a Complete Streets approach, allocating funding and requiring planning efforts to consider pedestrians, cyclists, transit users, and drivers. These roads align with the Safe System Approach (SSA), prioritizing infrastructure to prevent crashes; however, traffic signal operation strategies often face trade-offs between safety and efficiency. This project addresses this gap by developing guidance for traffic signals for Complete Streets. The Performing Agency shall create a tool to estimate the potential benefits and drawbacks of different strategies and develop guidelines for their implementation in Complete Street projects. This will facilitate the Performing Agency to make data-driven decisions that balance safety, congestion management, and cost, ultimately achieving the Bipartisan Infrastructure Law's vision for safer and more accessible roads.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7209

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7211	Determine Hydroplaning Potential Using Existing Pavement Asset Data s	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: CTR
University #2: TxST
Project Status: Active
Total Project Budget: $496,746.67
CTR Total Budget: $266,746.67
CTR FY25 Budget: $131,919.07
CTR Total Project Spend: $118,351.03
CTR FY25 Spend: $118,351.03

Project description: To accurately assess hydroplaning potential at the network-level, the following pieces of information are essential: transverse profile and rutting, macro- and micro-texture, pavement width, radius of curvature, superelevation, cross slope, and grade. To date, the Receiving Agency possesses all these pieces of information except for cross slope, which is one of the most important variables. Therefore, the Performing Agencies shall gather those data elements and compile a comprehensive project database. The Performing Agencies shall also identify critical data gaps and develop both a system and methodology for determining cross slope. The Performing Agencies shall: • Develop a set of two alternative models to calculate hydroplaning potential: (i) a model to predict water film thickness (WFT), and (ii) a model to predict hydroplaning speed (HS). • Determine hydroplaning potential at the network level across all 25 TxDOT Districts for all PMIS sections. • Establish correlations between hydroplaning potential and wet-weather crashes. • Generate heatmaps that illustrate hydroplaning potential and wet-weather crash occurrences highlighting areas where hydroplaning potential and wet-weather crashes intersect. • Establish correlations between highway geometry and the occurrence of crashes under both wet and dry conditions. • Develop

recommendations to be incorporated into TxDOT's Wet Weather Accident Reduction Program.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7211

CTR | Structures and Hydraulics

Project Number	Project Name	Status
0-7213	Develop Design Methodologies and Efficient Details for Triple I-Girder Steel Straddle Cap	Active

Project Start Date: 09/01/2024	Completion Date: 08/31/2027
Lead University: CTR	University #2: TECH
Project Status: Active	Total Proj Budget: $1,201,065.20
CTR Total Budget: $901,103.75	CTR FY25 Budget: $258,929.55
CTR Total Project Spend: $204,254.71	CTR FY25 Spend: $204,254.71

Project description: Straddle caps are frequently required in congested settings in urban environments that preclude the use of central piers due to intersecting roadways. The research focuses on the behavior of three-girder steel straddle caps that offer solutions for each of these desired configurations. Efficient details that maximize the effectiveness of the straddle cap at resisting bending, shear, and torsion will be developed. The work will result in design methodologies that allow engineers to effectively analyze and design straddle caps to produce economical and structurally-efficient systems.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7213

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7215	Predicting Field Performance of Pavement Markings Statewide in Texas	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2028
Lead University: TTI
University #2: CTR, UTSA, TXST
Project Status: Active
Total Project Budget: $908,930.52
CTR Total Budget: $24,557.77
CTR FY25 Budget: $5,777.71
CTR Total Project Spend: $0.00
CTR FY25 Spend: $0.00

Project description: Pavement markings and markers are the primary means for an agency to provide longitudinal guidance to drivers. To be effective, markings and markers must be visible during all driving conditions, day, and night. A variety of pavement marking materials (binders and beads) and varying installation specifications (application type, material thickness) create a wide range of initial performance and maintained performance over a markings service life. Currently, markings are evaluated initially to ensure a minimum initial retro-reflectivity performance is obtained, but that initial performance has not been well researched to determine its impact on the overall durability and performance of the marking over its service life. The Performing Agencies shall explore various factors that affect pavement marking performance over the service life of the marking (pavement marking materials, installation specifications, pavement surface, traffic conditions, and geographic and climatic region) to develop performance models for Texas. Performance of a variety of markings and markers shall be evaluated at various field test areas. These same marking materials shall be evaluated through lab testing to explore accelerated weathering and wear tests that correlate with the field performance.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7215

CTR | Safety and Operations

Project Number	Project Name	Status
0-7220	Develop Countermeasures to Lower Operating Speeds and Collisions on Arterial Roadways, and Reduce Vulnerable User Injuries	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2: CTR
Project Status: Active
Total Project Budget: $469,775.05
CTR Total Budget: $150,368.30
CTR FY25 Budget: $74,636.28
CTR Total Project Spend: $53,226.44
CTR FY25 Spend: $53,226.44

Project description: The Performing Agency shall investigate the effectiveness of arterial-focused speed management countermeasures for application across Texas. The Performing Agency shall quantify the costs and benefits of road and vehicle design, operations, enforcement, and other countermeasure types across a range of settings (for uncontrolled-access arterials under different traffic, road type/context, and land use conditions),

resulting in a Texas Arterial Speed Management Toolkit and reports.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7220

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7227	Exploring the Use of Antioxidants to Substantially Increase Cracking Life of Asphalt Pavements	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: CTR
University #2: TTI
Project Status: Active
Total Project Budget: $800,330.85
CTR Total Budget: $486,195.10
CTR FY25 Budget: $158,015.00
CTR Total Project Spend:
CTR FY25 Spend: $156,451.76

Project description: Cracking dictates the service life of asphalt pavements. Oxidative aging of the asphalt binder renders the binder brittle and susceptible to cracking. Higher number of high temperature days further exacerbates rate of oxidation and reduction in the service life of an asphalt pavement. Recent coordinated studies by a global consortium of researchers have identified generic chemicals that can act as antioxidants to significantly reduce the oxidative aging of asphalt and increase its cracking resistance and service life. Similarly, commercial additive manufacturers are also exploring the development and deployment of antioxidant additives. In this project the Performing Agencies shall review the literature and interface with existing national and international studies to identify the most promising antioxidant(s) for use with asphalt binders as a modifier. The Performing Agencies shall conduct laboratory studies on asphalt binders and mixtures to evaluate the efficacy of these antioxidants. The Performing Agencies shall also conduct workshops with stakeholders and conduct cost-benefit analysis to develop plans for pilot test sections and facilitate the deployment of such sections with districts and industry partners. Finally, the Performing Agencies shall also present metrics that can be used for specification and quality

control purposes by the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7227

CTR | Safety and Operations

Project Number	Project Name	Status
0-7228	Identify and Evaluate Innovative Pedestrian Safety Countermeasures for Rural and Nighttime Environments	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: CTR
University #2:
Project Status: Active
Total Project Budget: $554,222.69
CTR Total Budget: $554,222.69
CTR FY25 Budget: $306,109.71
CTR Total Project Spend: $212,688.31
CTR FY25 Spend: $212,688.31

Project description: The Performing Agency shall investigate effective countermeasures to reduce nighttime pedestrian crashes across the state of Texas. A systems-oriented approach will be central to the analysis, recognizing that pedestrian safety involves infrastructure, driver behavior, and pedestrian actions. This approach moves beyond assigning blame to individuals and focuses on collective responsibility for creating a safer environment. This work will focus on nighttime-specific pedestrian crossing safety countermeasures by identifying and evaluating the costs and feasibility of implementation. Based on experiences in other cities and communities, this work will identify high-interest pedestrian safety crossing treatments. The Performing Agency shall develop a targeted, prioritized list of potential benefits, cost, considerations, and gaps in knowledge about these treatments.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7228

CTR | Planning and Environmental

Project Number	Project Name	Status
0-7231	Synthesis: Carbon Capture and Repurposing By-Products	Closed

Project Start Date: 09/01/2024
Completion Date: 08/31/2025
Lead University: CTR
University #2:
Project Status: Closed
Total Project Budget: $65,000.00
CTR Total Budget: $65,000.00
CTR FY25 Budget: $65,000.00
CTR Total Project Spend: $54,356.04
CTR FY25 Spend: $54,356.04

Project description: The Performing Agency shall investigate the potential for implementing Carbon Capture and Storage (CCS) technologies within Receiving Agency projects. The Performing Agency aims to provide Receiving Agency with the necessary knowledge and tools to incorporate CCS into its operations and achieve significant reductions in carbon emissions on its projects. Specific tasks include (1) a comprehensive review of state-of-the-art CCS technologies used across industries (2) identification of best-practices and lessons learned for CCS implementation on transportation projects, (3) identifying the viability of CCS for Receiving Agency projects using through a consequential life cycle assessment case study, and (4) consolidating findings into an implementation guideline tailored to Receiving Agency, outlining regulatory, cost, incentive, and governance considerations for CCS deployment.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

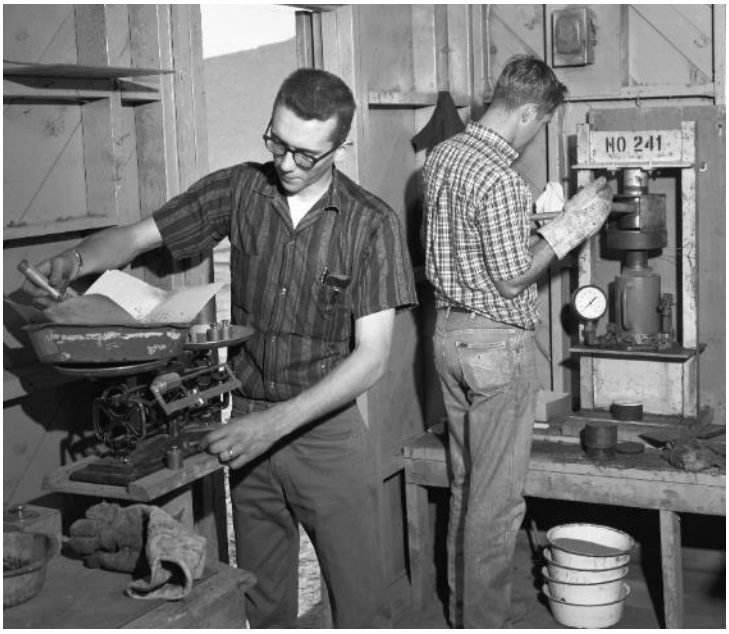
https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7231

CTR | Structures and Hydraulics

Project Number	Project Name	Status
0-7237	Synthesis: Develop Design Guidelines for Applications of Light Weight Aggregate in Embankments and Mechanically Stabilized Earth (MSE) Walls -- Evaluate Cost Benefit & Performance	Closed

Project Start Date: 09/01/2024
Completion Date: 08/31/2025
Lead University: CTR
University #2:
Project Status: Closed
Total Project Budget: $65,000.00
CTR Total Budget: $65,000.00
CTR FY25 Budget: $65,000.00
CTR Total Project Spend $64,843.57
CTR FY25 Spend: $64,843.57

Project description: Construction of fill structures such as embankments and MSE walls on soft, compressible soils is challenging and usually requires costly ground improvement, preloading, or staged construction that may significantly impact the construction timeline. The use of alternative lightweight fills in the construction of such structures may largely reduce or limit the use of ground improvement, preloading, or staged construction. The outcomes of this project shall furnish simplified design guidelines and methodologies that shall aid the long-term performance evaluation guidelines and the applicable process while minimizing the use of alternative costly and complex ground improvement techniques that may eventually minimize the associated construction cost and time and improve the overall performance of the structure.



Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7237

CTR | Program Support

Project Number	Project Name	Status
0-9902-23	University of Texas Library Services	Active

Project Start Date: 08/31/2022
Completion Date: 08/31/2025
Lead University: CTR
University #2:
Project Status: Active
Total Proj Budget: $2,564,323.06
CTR Total Budget: $2,633,939.53
CTR FY25 Budget: $453,133.41
CTR Total Proj Spend $1,040,134.67
CTR FY25 Spend: $383,243.38

Project description: The Performing Agency shall provide publishing services, library information services, and collection management to support the federally-funded State Planning and Research Part II (SPR II) Work Program managed by the Receiving Agency's Research and Technology Implementation Division (RTI). The Performing Agency shall provide the facilities, technical oversight, and trained professional, technical, and clerical staff needed to respond to the Receiving Agency's research information needs and to update, preserve, and facilitate public access to the collection of published resources contained in the Receiving Agency's transportation research library (TxDOT Research Library). The U.S. Department of Transportation (USDOT) Public Access Plan ensures public access to unclassified publications and digital data sets arising from the USDOT's research and development funding, which includes the SPR Part II Work Program (Research Program). The Performing Agency shall support transparency and long-term stewardship of Research Program results by providing online public access to Research Program information, performing services that ensure the Receiving Agency follows USDOT Public Access Plan guidelines, and serving as the Receiving Agency's official repository for all Research Program deliverables.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract in order to amend the total amount of the contract and extend the termination date. Establish FY26 Budget for $415,383.09. Establish FY27 budget for $439,577.52, Establish FY27 Budget for $465,222.74.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-9902-23

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
5-6048-07	Implementation of Centrifuge Technology for Pavement Design on Expansive Clays – Phase 2	Active

Project Start Date: 10/11/2023
Completion Date: 08/31/2027
Lead University: CTR
University #2:
Project Status: Active
Total Project Budget: $939,433.17
CTR Total Budget: $939,433.17
CTR FY25 Budget: $303,626.30
CTR Total Proj Spend $293,651.69
CTR FY25 Spend: $274,246.51

Project description: The Receiving Agency Pavement Manual establishes thresholds of the Potential Vertical Rise (PVR) that shall not be exceeded in the design of roads founded on expansive clays (e.g., a maximum allowable PVR of 1.5 in. for main lanes). Using the PVR as an index, these thresholds have been established from field empirical evidence collected over decades to identify roads with excessive levels of distress triggered by the presence of expansive clays. However, there are two significant sources of uncertainty in the thresholds adopted by the Pavement Manual, which have heavily compromised roadway designs: (1) Inaccuracies in the determination of the PVR, the original version of which relies heavily on outdated data and correlations, and (2) Inconsistencies in the documentation of the levels of distress typical of roadways founded on expansive clays. The Receiving Agency has developed technology for accurate determination of PVR and has also developed adequate protocols for roadway performance over expansive clays. The primary objective of this implementation project is to generate accurately determined PVR data and calibrate it against consistently obtained levels of roadway distress.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-6048-07

CTR | Structures and Hydraulics

Project Number	Project Name	Status
5-6936-01	Implementation of Semi-integral Bridges in Texas	Active

Project Start Date: 02/15/2024
Lead University: CTR
Project Status: Active
CTR Total Budget: $780,032.31
CTR Total Project Spend: $359,820.20
Completion Date: 12/31/2026
University #2: TTI
Total Project Budget: $780,032.31
CTR FY25 Budget: $235,587.51
CTR FY25 Spend: $234,060.03

Project description: The Performing Agency shall validate predicted semi-integral bridge performance against actual semi-integral bridge performance; particularly regarding backfill placement requirements. In particular, the geotextile-confined backfill will be monitored to assess its impact on (1) the lateral earth pressures induced due to cycles of temperature-induced backfill movements and (2) the settlements of the backfill material. The new approach, developed in research project 0-6936, is expected to reduce lateral earth pressures and decrease settlements. This validation of field performance shall facilitate the development of a standard detail and commentary for the Bridge Design Manual as well as the compilation of additional design and construction guidelines. The Performing Agency shall also monitor the semi-integral bridge at China Creek, in the Wichita Falls District using the wireless field monitoring system installed during research project 0-6936.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-6936-01

CTR | Safety and Operations

Project Number	Project Name	Status
5-7007-01	Weather Responsive Management Strategies Implementation	Active

Project Start Date: 01/29/2024
Completion Date: 06/30/2027
Lead University: CTR
University #2:
Project Status: Active
Total Project Budget: $766,992.51
CTR Total Budget: $766,992.51
CTR FY25 Budget: $248,006.90
CTR Total Project Spend: $308,204.69
CTR FY25 Spend: $214,898.79

Project description: Receiving Agency personnel who work in responding to extreme weather can greatly benefit from the ability to monitor live activities and analyze recent treatment progress. Handwritten brine logs can be supplemented with automated recordkeeping. Sensing of winter operations (WinterOps) such as plowing, brine spraying, and gravel spreading is accomplished through the use of the GPS fleet tracking system already equipped in all Receiving Agency vehicles, along with the installation of a few low-cost items. WinterOps activities are then tracked without any special interaction required from the driver or operations personnel. Integration of visualizations with GIS systems provide powerful ways to use the collected data for improving safety, operations, and public communications

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to necessary to revise the scope, budget, and schedule to respond to strong interest from district staff in leveraging data to improve winter weather operations. The FY2024 budget remains $138,765.80. The FY2025 budget is increased by $12,284.87 from $235,722.03 to $248,006.90. The FY2026 budget is increased by $177,707.45 from $92,557.52 to $270,264.97. The FY2027 budget is established at $109,954.84. The Itemized Project Budget Estimate is increased by $299,947.16 from $467,045.35 to $766,992.51

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-7007-01

CTR | Structures and Hydraulics

Project Number	Project Name	Status
5-7041-01	Implementation of the NextGen Bridge Deck System in Texas	Active

Project Start Date: 09/01/2024
Lead University: CTR
Project Status: Active
CTR Total Budget: $442,088.48
CTR Total Project Spend: $163,910.52
Completion Date: 04/30/2027
University #2:
Total Project Budget: $442,088.48
CTR FY25 Budget: $180,197.24
CTR FY25 Spend: $163,910.52

Project description: In this implementation project, the Performing Agency shall conduct instrumentation, monitoring, and inspection into two selected bridges in collaboration with the Receiving Agency to ensure the successful implementation of the NextGen Bridge Deck System. The collected data shall facilitate the evaluation of constructability and serviceability and offer a comparative analysis with conventional bridge deck systems.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-7041-01

CTR | Construction, Maintenance & Materials

Project Number	Project Name	Status
5-7074-01	Implementation of Recycled Crushed Concrete Aggregate in Class P Concrete	Active

Project Start Date: 07/19/2024
Lead University: CTR
Project Status: Active
CTR Total Budget: $498,500.00
CTR Total Proj Spend: $202,064.27

Completion Date: 05/31/2027
University #2:
Total Project Budget: $498,500.00
CTR FY25 Budget: $168,518.96
CTR FY25 Spend: $152,268.80

Project description: The successful use of recycled concrete aggregate (RCA) in continuously reinforced concrete pavement (CRCP) in a field trial near Sealy, TX under TxDOT Project 0-7074 demonstrated the potential for increasing the sustainability of concrete paving while still achieving target performance. Based on the progress made under TxDOT 0-7074 and in line with ongoing TxDOT and FHWA initiatives to reduce the carbon footprint of new concrete construction, this implementation project aims to build upon the previous trial near Sealy, while expanding the depth and breadth of the implementation to include significantly longer trial sections with a wider range of RCA replacement levels. The Performing Agency shall facilitate implementation of the project findings by documenting the results of laboratory and field studies in the Research Report of the TxDOT Research project "Increase the Allowable Content of Recycled Crushed Concrete Fine Aggregate in Class P Concrete ". The Research Report shall include specific recommendations on the use of recycled crushed concrete fine and coarse aggregate into Class P concrete.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-7074-01

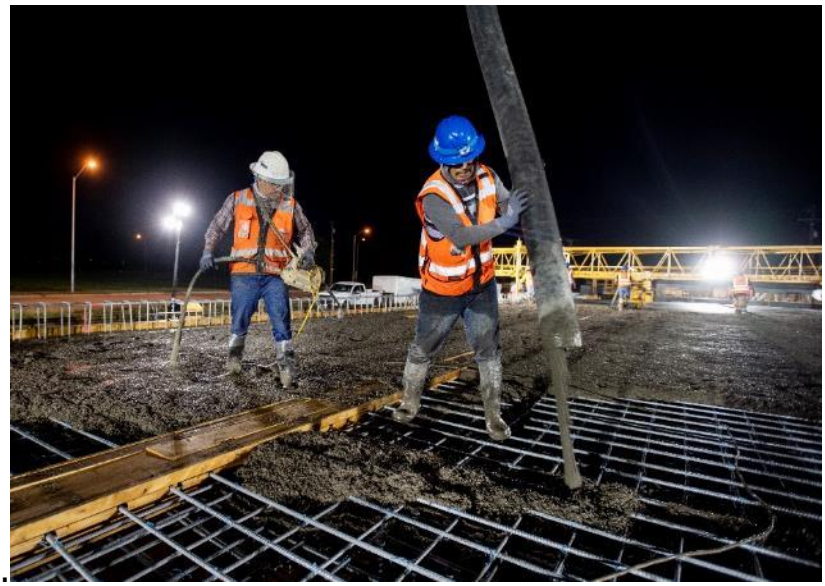
CTR | Strategy and Innovation

Project Number	Project Name	Status
5-9905-24	Innovation Consortium (TTTF, TxSTIC)	Closed

Project Start Date: 09/01/2023
Lead University: CTR
Project Status: Closed
CTR Total Budget: $550,000.00
CTR Total Proj Spend: $406,619.30
Completion Date: 08/31/2025
University #2:
Total Project Budget: $998,124.00
CTR FY25 Budget: $550,000.00
CTR FY25 Spend: $406,619.30

Project description: The Texas Department of Transportation (TxDOT) needs support to manage the projects or programs that facilitate collaboration, dissemination, and development of innovative transportation technologies and practices. Texas Technology Task Force (TTTF), authorized by Texas's 83rd Legislature General Appropriations Bill, S.B. No. 1, Item 44, VII-31, was established in 2013 to enhance its vision for the future of Texas's transportation systems. The TTTF began with a core knowledge group of transportation experts and has grown into a successful program that is responsible for managing the Emerging Technology Portfolio, publishing white papers on critical topics, delivering strategic plans such as the Technology Utilization Plan, developing communication strategies, and conducting TTTF meetings with in-depth technical analysis. The TTTF program serves as a catalyst for rapid deployment of nationally and state identified new technologies, strategies, and methods that have already been demonstrated to be successful in real world applications and would lead to

improved performance and effectiveness of the transportation system within the State of Texas.



Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-9905-24

CTR | Structures and Hydraulics

Project Number	Project Name	Status
9-1532	TPF-5(508) Concrete Bridge Engineering Institute (CBEI)	Active

Project Start Date: 06/21/2023
Completion Date: 05/31/2027
Lead University: CTR
University #2:
Project Status: Active
Total Proj Budget: $6,422,458.90
CTR Total Budget: $6,422,458.90
CTR FY25 Budget: $3,505,552.97
CTR Total Proj Spend: $4,376,150.45
CTR FY25 Spend: $2,324,478.33

Project description: The objective of TPF-5(508) Concrete Bridge Engineering Institute (CBEI) Transportation Pooled Fund (TPF) is to create a national resource for innovative workforce development programs and implementation of new technologies in the field of concrete bridges, establishing a consortium of member states. CBEI shall be the center of concrete bridge related research, education, and training at the Performing Agency, the University of Texas at Austin in the Cockrell School of Engineering. The Performing Agency shall work with bridge stakeholders (primarily state and federal transportation agencies) and seek input from industry groups representing the concrete bridge community to develop pioneering, practical, and effective programs that will have national impact with the goal of addressing issues encountered in concrete bridges and implementing plans to work toward ensuring resiliency expectations for concrete bridges. The Performing Agency's specific objectives are to develop and implement the following services with coordinated input from members of the pooled fund: • Three training programs which will include both classroom and hands-on training Concrete Bridge Deck Construction Inspection Program Concrete Materials for Bridges Program Post-tensioning (PT) Laboratory • The Concrete Solutions Center • The Bridge Component Collection •The Technology Development Program The

Performing Agency shall also implement the components of the Concrete Solutions Center comprised of workshops, seminars, and project technical support. The Performing Agency shall develop and administer the Technology Development Program for the evaluation and implementation of new and emerging technologies in the field of concrete bridges.

Approved Work Program Revisions

No. of FY25 Amendments: Two

Amendment #3:

Amend the contract to revise the budget and project schedule to adjust for the additional costs associated with Task 9, Strength Evaluation of Existing Inverted-T Caps. The FY2023 budget remains $182,345.00. The FY2024 budget is decreased by $1,081,333.61 from $2,950,820.77 to $1,869,487.16. The FY2025 budget is increased by $2,121,676.26 from $1,315,466.71 to $3,437,142.97. The FY2026 remains $587,771.28. The FY2027 budget remains $277,302.49. The Itemized Project Budget Estimate is increased by $1,040,342.65 from $5,313,706.25 to $6,354,048.90.

CALTRANS has contributed $150,000.00 to the pooled fund which is not yet represented in the total New Project Budget of $6,354,048.90.

Amendment #4:

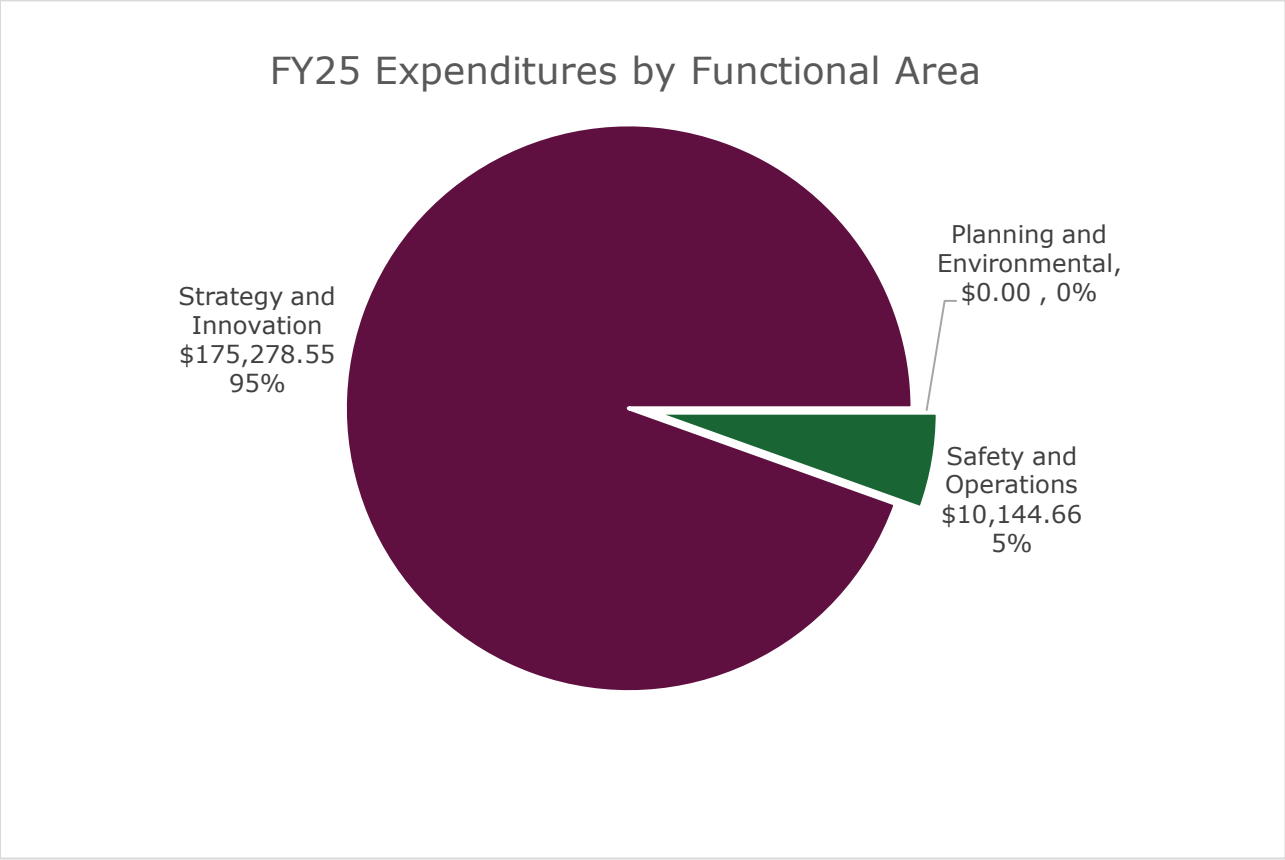
Amend the contract to revise the budget to accommodate the upgrade costs aimed at enhancing the durability and safety of the walkway and safety railing on top of the reaction beam, as well as the expenses related to remobilizing for the demolition of the test segments associated with Task 9, Strength Evaluation of Existing Inverted-T Caps. The FY2023 budget remains $182,345.00; the FY2024 budget remains $1,869,487.16; the FY2025 budget is increased by $68,410.00 from $3,437,142.97 to $3,505,552.97; the FY2026 budget remains $587,771.28; the FY2027 budget remains $277,302.49. The Itemized Project Budget Estimate is increased by $68,410.00 from $6,354,048.91 to $6,422,458.90

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=9-1532

2.2 TAMUCC - Texas A&M University at Corpus Christi

Figure 5 – Pie chart of PVAMU expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Planning and Environmental	0-7127	Examine Reconnaissance Scanning of Underground Utilities in the ROW	Closed
Safety and Operations	0-7157	Develop Guidelines for Integration of UAS LiDAR and Photogrammetry to Enhance Land Surveying Capabilities	Closed

Functional Area	Project Number	Project Name	Status
Strategy and Innovation	0-7159	Develop Guidelines for the Use of Unmanned Aerial Systems (UASs) and Smartphones for Construction and Utility Inspections	Active
Strategy and Innovation	0-7221	Develop Data Collection Requirements and Strategic Research Roadmap to Support the Digital Delivery Program	Active

TAMUCC | Planning and Environment

Project Number	Project Name	Status
0-7127	Examine Reconnaissance Scanning of Underground Utilities in the ROW	Closed

Project Start Date: 09/21/2021
Lead University: TTI
Project Status: Closed
TAMUCC Total Budget: $132,015.00
TAMUCC Total Project Spend: $116,644.33
Completion Date: 02/28/2025
University #2: TAMUCC
Total Project Budget: $1,264,144.00
TAMUCC FY25 Budget: $0.00
TAMUCC FY25 Spend: $0.00

Project description: Mapping of buried utilities using rigorous subsurface utility engineering (SUE) quality level B (QLB), as is frequently performed or recommended, can be costly. It can also be ineffective for unknown utilities (i.e., utilities that exist but for which no information is available). This is particularly common and problematic in areas of oil and gas operations. When undiscovered until construction, these unknown utilities may cause serious scheduling disruptions as well as higher construction costs, along with safety and environmental risks. There is a need for a faster, less expensive method of scanning the right of way (ROW) for these unknown utilities. This research shall evaluate, select and test the application of newly available geophysical measurement systems. These systems would allow quickly and cheaply detecting and mapping unknown pipelines or other utilities in the ROW. It compares the effectiveness and cost of deployment to standard QLB SUE and reports on technologies that are both technically and cost effective for identifying unknown utilities.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7127

TAMUCC | Safety and Operations

Project Number	Project Name	Status
0-7157	Develop Guidelines for Integration of UAS LiDAR and Photogrammetry to Enhance Land Surveying Capabilities	Closed

Project Start Date: 09/01/2022
Completion Date: 10/31/2024
Lead University: TAMUCC
University #2: TTI
Project Status: Closed
Total Project Budget: $553,669.00
TAMUCC Total Budget: $374,453.50
TAMUCC FY25 Budget: $10,335.00
TAMUCC Total Project Spend: $363,459.03
TAMUCC FY25 Spend: $10,144.66

Project description: Unmanned aircraft systems (UASs) equipped with digital cameras, light detection and ranging (LiDAR) sensors, or both enable the collection of high spatial resolution three-dimensional (3D) quantitative geospatial data. This data may be used to support a variety of surveying and mapping activities, potentially with lower costs and greater safety than traditional survey methods. When using a camera, the technique is called Structure-from-Motion photogrammetry or UAS-SfM. In practice, there are important differences between UAS-SfM and UAS-LiDAR including measurement fidelity, operational considerations, post-processing workflows, and cost-effectiveness. With a lack of clear guidance on when UAS-SfM versus UAS-LiDAR is the best fit for a specific task, there is a need to evaluate the real-world performance capabilities and limitations of both technologies.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7157

TAMUCC | Strategy and Innovation

Project Number	Project Name	Status
0-7159	Develop Guidelines for the Use of Unmanned Aerial Systems (UASs) and Smartphones for Construction and Utility Inspections	Active

Project Start Date: 09/01/2022
Completion Date: 02/28/2026
Lead University: TTI
University #2: TAMUCC
Project Status: Active
Total Project Budget: $834,078.25
TAMUCC Total Budget: $159,603.75
TAMUCC FY25 Budget: $39,142.50
TAMUCC Total Project Spend: $123,193.03
TAMUCC FY25 Spend: $39,026.80

Project description: Unmanned aircraft systems (UASs) equipped with miniaturized cameras enable the collection of high resolution, three-dimensional (3D) geospatial data at lower costs than traditional techniques. New technologies also make it possible to gather pictures and video using smartphones, which can be fed to Structure from Motion (SfM) software to develop highly accurate 3D products. Operating UASs requires trained pilots and observers, but smartphones do not. There is a need to test whether construction contractor crews in the field can gather data using either of these technologies and upload the imagery and video to a server to enable inspectors to conduct inspections remotely. The Performing Agencies shall conduct a literature review of UAS-SfM and smartphone technologies; prepare a list of use cases and case studies to test relevant technologies; conduct field tests to document advantages, disadvantages, complementary capabilities, and potential implementation scenarios and costs; prepare recommended settings, procedures, use cases, and operational workflows to ensure repeatable data collection and processing; and prepare guidelines for quality assurance and control of inspections conducted with UAS- and

smartphone-based SfM photogrammetry, as well as identify project suitability for the adoption of these technologies to support construction and utility inspection activities at the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

It has become necessary to amend the contract to extend the termination date, revise the budget and the Project Schedule due to shipping delays of the REDUCT ABM probes due to supply chain issues from the manufacturer.TTI's Budget: The FY 2023 budget remains $203,697.25. The FY 2024 budget remains $178,119.50. The FY 2025 budget is decreased by $65,178.50 from $289,753.75 to $224,575.25. The FY 2026 budget is established at $68,082.50. The Total Project Budget is increased by $2,904.00 from $671,570.50 to $674,474.50. TAMUCC's Budget: The FY 2023 budget remains $50,311.25. The FY 2024 budget remains $50,150.00. The FY 2025 budget is decreased by $10,811.25 from $49,953.75 to $39,142.50. The FY 2026 budget is established at $20,000.00. The Total Project Budget is increased by $9,188.75 from $150,415.00 to $159,603.75. The Itemized Project Budget is increased by $12,092.75 from $821,985.50 to $834,078.25.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7159

TAMUCC | Strategy and Innovation

Project Number	Project Name	Status
0-7221	Develop Data Collection Requirements and Strategic Research Roadmap to Support the Digital Delivery Program	Active

Project Start Date: 10/14/2024
Completion Date: 09/30/2026
Lead University: TTI
University #2: TAMUCC
Project Status: Active
Total Project Budget: $1,082,763.75
TAMUCC Total Budget: $297,064.75
TAMUCC FY25 Budget: $168,253.50
TAMUCC Total Proj Spend: $142,695.36
TAMUCC FY25 Spend: $136,251.75

Project description: The Performing Agencies shall aide the Receiving Agency in transitioning from GeoPak to OpenRoads Designer (ORD) by researching how to extract 3D models from multiple data sources, develop and test procedures to extract 3D models, and develop and test automated workflows for change detection, quality control, and 3D model updating. The Performing Agencies shall also develop a strategic research roadmap to support the Receiving Agency's Digital Delivery Section within the Design Division.

Approved Work Program Revisions

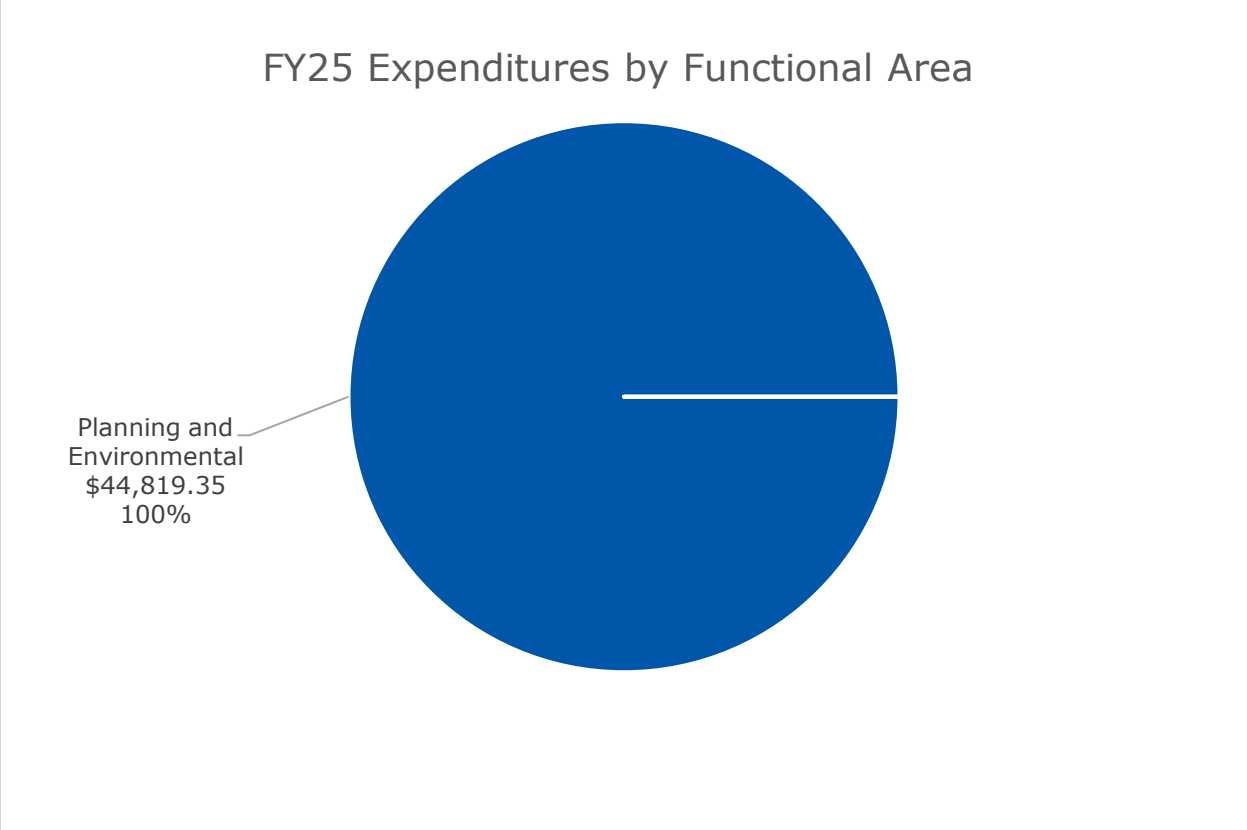
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7221

2.4 TAR - Texas A & M AgriLife Research

Figure 6 – Pie chart of CTR expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Planning and Environmental	0-7022-01	Monarch Conservation Strategies for Texas Roadways	Active

TAR | Planning and Environmental

Project Number	Project Name	Status
0-7022-01	Monarch Conservation Strategies for Texas Roadways	Active

Project Start Date: 02/17/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2: TAR
Project Status: Active
Total Project Budget: $842,065.00
TAR Total Budget: $238,538.75
TAR FY25 Budget: $57,752.50
TAR Total Proj Spend: $122,758.30
TAR FY25 Spend: $44,819.35

Project description: The US Fish and Wildlife Service (USFWS) supported federal listing of the monarch butterfly (Danaus plexippus) in December 2020, but listing is currently delayed due to other higher priority listing actions. Texas roadways play a critical role in the successful spring and fall migrations of the eastern monarch butterfly population. Receiving Agency project 0-7022, "Evaluating Fall Monarch Butterfly Roadkill Hotspot Incidence and Potential Roadkill Mitigation" has revealed perennial hotspots for fall monarch butterfly roadkill in Texas. Yearly roadkill can comprise up to 2.5% of the Mexican overwintering population. Spring and fall roadside milkweed and monarch-preferred nectar plant hotspots have also been identified which provide critical resources to monarchs in terms of both milkweed larval food and flower nectar for adults.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract to extend the termination date from August 31, 2025, to August 31, 2026, revise the budget, the project schedule, and scope to add an additional diverter on Interstate Highway (IH)-10. Performing Agency 1: The FY 2023 Budget remains $171,962.00. The FY 2024 Budget remains $116,893.25. The FY 2025 Budget remains $112,119.25. The FY2026 Budget is established for $202,551.75. The Performing Agency 1 Total Project Budget is increased by $202,551.75 from $400,974.50 to $603,526.25. Performing Agency 2: The FY 2023 Budget remains $64,492.50. The FY 2024 Budget remains $57,440.00. The FY 2025 Budget remains $57,752.50. The FY2026 Budget is established for $58,853.75. The Performing Agency 2 Total Project Budget is increased by $58,853.75 from $179,685.00 to $238,538.75. The Itemized

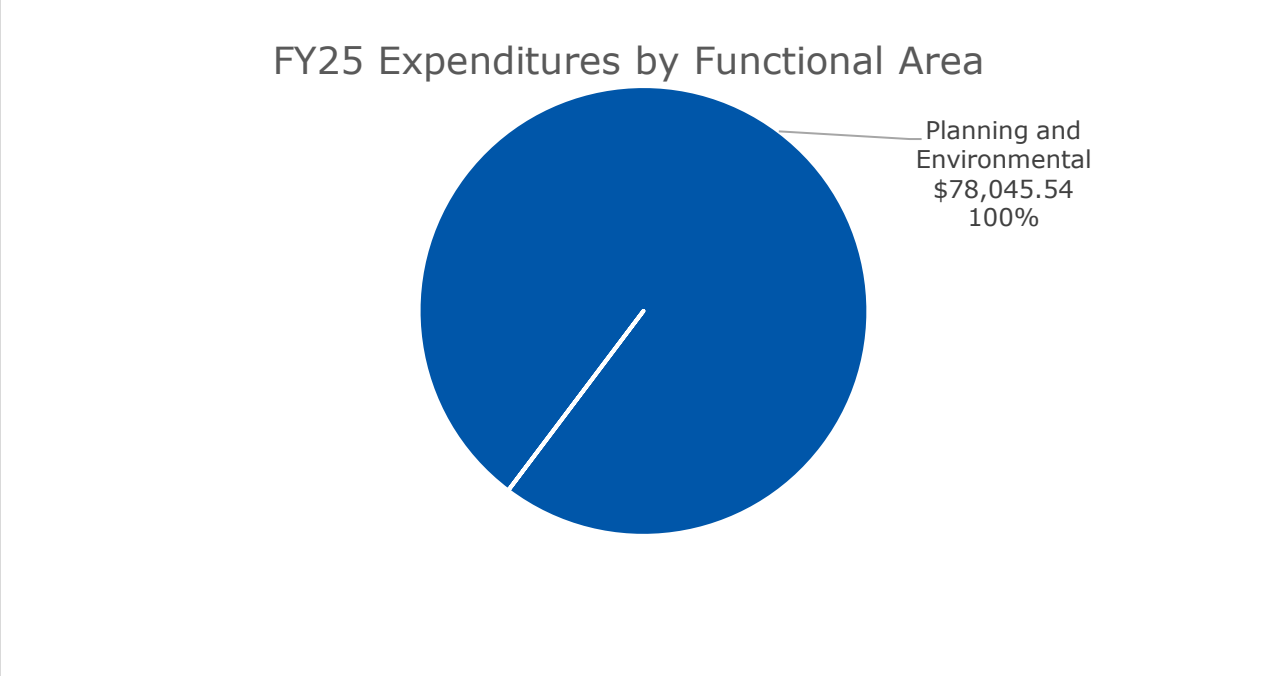
Project Budget Estimate is increased by $261,405.50 from $580,659.50 to $842,065.00

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7022-01

2.5 TARL – Tarleton State University

Figure 7 – Pie chart of CTR expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Planning and Environmental	0-7194	Evaluating the Risks that Erosion Control Products Pose to Protected Species and Other Wildlife	Active

TARL | Planning and Environment

Project Number	Project Name	Status
0-7194	Evaluating the Risks that Erosion Control Products Pose to Protected Species and Other Wildlife	Active

Project Start Date: 09/26/2023
Completion Date: 08/31/2026
Lead University: TARL
University #2: UTSA
Project Status: Active
Total Project Budget: $310,621.25
TARL Total Budget: $240,288.75
TARL FY25 Budget: $101,548.75
TARL Total Proj Spend: $166,436.46
TARL FY25 Spend: $78,045.54

Project description: Although many erosion control products (ECPs) are marketed as wildlife friendly, few assessments of the risk of such products to wildlife exist. Current knowledge focuses primarily on reptiles, specifically snakes, thus, the effects on other species such as terrestrial arthropods, mammals, or birds remains unknown. This research would provide evaluations on wildlife friendly ECPs from the Approved Product List (APL) based on their risk of wildlife entanglement. Our objectives are to (1) determine entanglement potential for different sizes and categories of animals in different products on APL, (2) evaluate the temporal window in which an erosion control blanket poses a risk to wildlife entanglement from pre-vegetative growth through post-vegetative growth, (3) determine which types of materials pose greater and lesser risk to protected species and other wildlife, (4) determine if weaving type or mesh size impacts entanglement, and (5) identify which products contain non-biodegradable materials. We shall address these objectives through the integration of wildlife camera trapping, surveys of construction workers for observational data, and controlled field experiments. We shall cross-reference species of concern within TxDOT districts with our study results, to produce a region-

specific list of rankings of ECPs and risk to wildlife specific to each district's ecological region.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

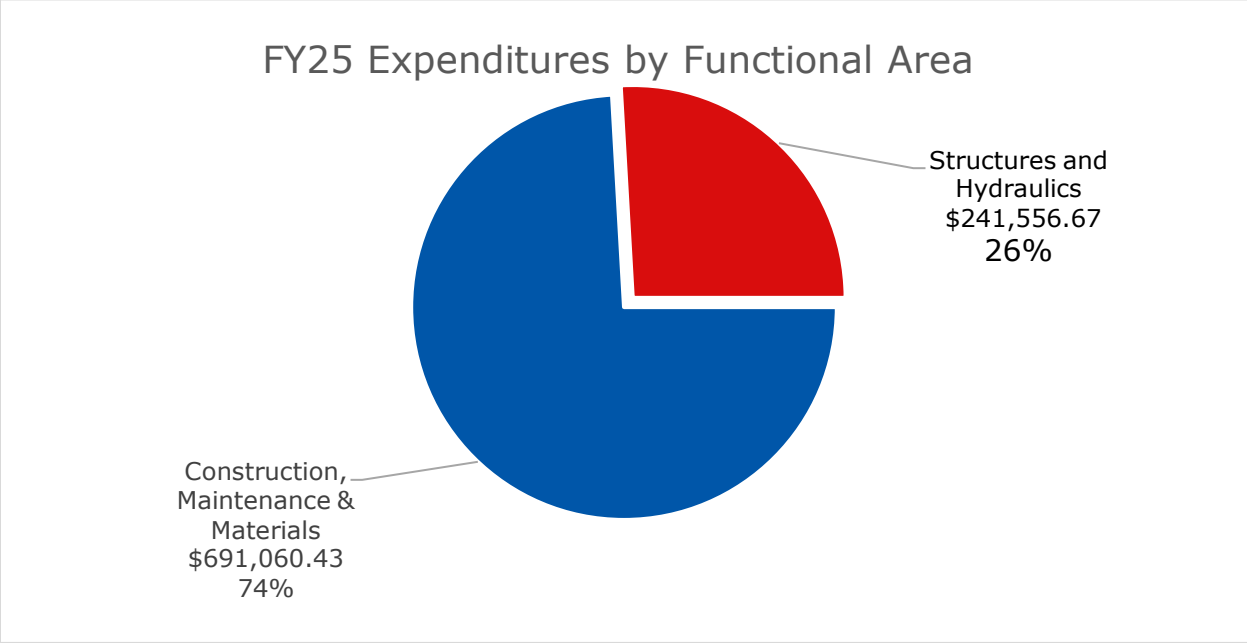
It has become necessary to amend the contract to extend the termination date, revise the budget, project schedule, and Scope in Task 4 due to delays in obtaining data and site access. TARL Budget: FY 2024 is decreased by $45,949.34 from $129,820.00 to $83,870.66. The FY 2025 is decreased by $8,920.00 from $110,468.75 to $101,548.75. FY 2026 is established at $54,869.34. TARL Total Project Budget remains $240,288.75. UTSA: FY 2024 budget remains $34,723.75. The FY 2025 budget remains $35,608.75. The FY 2026 budget remains $0.00. UTSA Total Project Budget remains at $70,332.50. Itemized Total Project Budget remains $310,621.25.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7194

2.6 TECH – Texas Tech University – Center for Multidisciplinary Research in Transportation

Figure 8 – Pie chart of TECH expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-7147	Project Level Performance Database for Rigid Pavements in Texas, Phase III	Active
Construction, Maintenance & Materials	0-7148	Develop Design Details for CRCP Whitetopping at Intersections	Closed
Construction, Maintenance & Materials	0-7173	Develop Guidelines for Evaluation of Embankment Conditions in Bridge Approach Slabs and Pavement Structures	Active

Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-7206	Develop Optimum 2-Mat Reinforcement Design in Continuously Reinforced Concrete Pavement (CRCP)	Active
Structures and Hydraulics	0-7213	Develop Design Methodologies and Efficient Details for Triple I-Girder Steel Straddle Caps	Active
Construction, Maintenance & Materials	0-7218	Revisions for the TxDOT Pavement Management Information System (PMIS) Rater's Manual	Active
Structures and Hydraulics	0-7236	Develop Standardized LRFD Design Methods for Ancillary Highway Structure Foundations	Active

TECH | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7147	Project Level Performance Database for Rigid Pavements in Texas, Phase III	Active

Project Start Date: 09/01/2022
Completion Date: 08/31/2026
Lead University: TECH
University #2:
Project Status: Active
Total Project Budget: $869,999.55
TECH Total Budget: $869,999.55
TECH FY25 Budget: $258,597.17
TECH Total Proj Spend: $623,535.32
TECH FY25 Spend: $180,263.78

Project description: The primary tasks in this project will consist of:

- Collecting field performance information on rigid pavements.
- Gathering field performance information on experimental and special sections in Texas.
- Evaluating the effectiveness of special or innovative techniques tried in Texas.
- Developing a platform for storing all the information collected in this study in a central server with various features imbedded so that the information could be easily accessible in a systematic way.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Amend the contract to extend the termination date, revise the Project Budget, and the Project Schedule, due to the need to identify the causes and mechanisms for the rapid rate of decline in concrete pavement structural integrity on IH 35 in the Waco District, which will help develop optimum preventive maintenance strategies as well as optimum repair methods. The FY 2023 budget remains $241,544.29. The FY 2024 budget remains $249,858.09. The FY 2025 budget remains $258,597.17. The FY 2026 budget is established at $120,000.00. The Total Project Budget is increased by $120,000.00 from $749,999.55 to $869,999.55.

CTR Library Project Link:

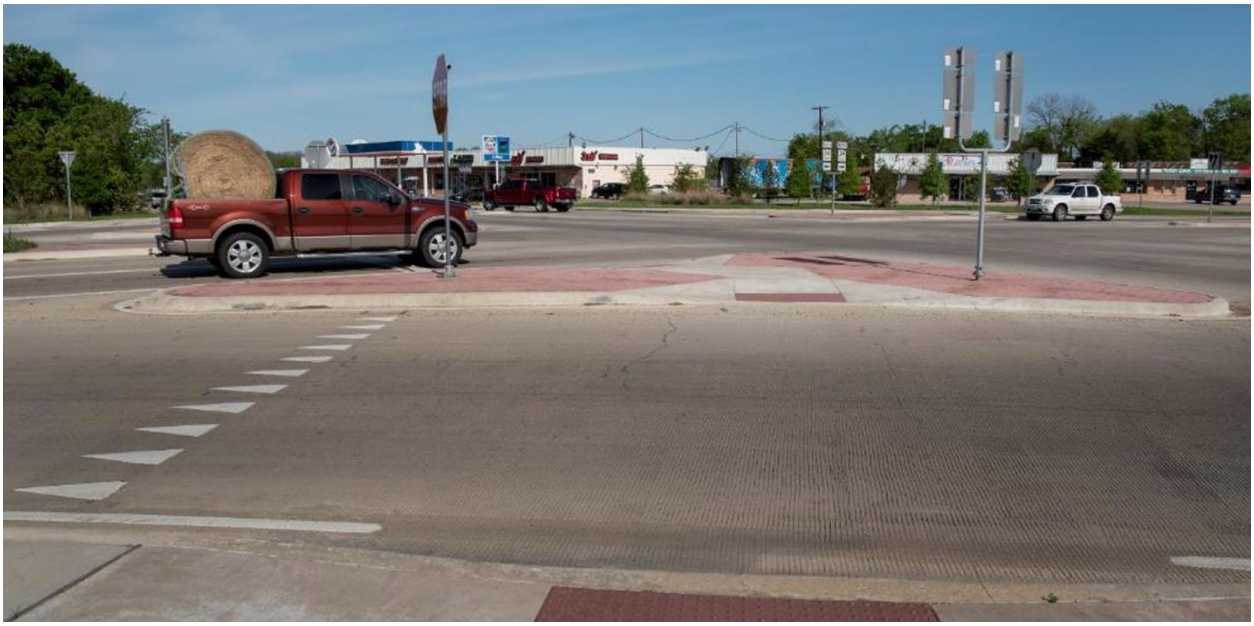
https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7147

TECH | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7148	Develop Design Details for CRCP Whitetopping at Intersections	Closed

Project Start Date: 09/01/2022
Completion Date: 08/31/2025
Lead University: TECH
University #2: TTI
Project Status: Closed
Total Project Budget: $599,563.25
TECH Total Budget: $299,591.25
TECH FY25 Budget: $104,317.00
TECH Total Proj Spend: $256,390.54
TECH FY25 Spend: $79,253.93

Project description: The Performing Agencies shall establish a method to evaluate the existing pavement structural condition and design continuously reinforced concrete pavement (CRCP) overlays, both thin and thick. The design methods will include non-destructive (NDT) pavement evaluation techniques and tools, deflection based CRCP slab thickness design procedures, and CRCP reinforcing design details. The Performing Agencies shall identify state-of-the-art practices that can be implemented as well as areas that need additional research. The findings from this research will result in procedures that will be used to design CRCP overlays, both thin and thick.



Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7148

TECH | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7173	Develop Guidelines for Evaluation of Embankment Conditions in Bridge Approach Slabs and Pavement Structures	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: TECH
University #2:
Project Status: Active
Total Project Budget: $716,613.77
TECH Total Budget: $716,613.76
TECH FY25 Budget: $254,939.30
TECH Total Proj Spend: $433,813.66
TECH FY25 Spend: $220,605.36

Project description: Distresses of bridge approach slabs (BAS) and nearby pavement structures on roadway embankments are often caused by poor conditions in the embankments. The goal of this project is to develop guidelines for (1) evaluations of roadway embankment conditions and (2) maintenance strategies. The Performing Agency shall (a) conduct literature review and survey to synthesize information about the current state of the practice for embankment evaluations and repairs, (b) locate field test sections for new evaluations and monitoring of past repair performance, (c) conduct field investigations of the test sections and develop evaluation guidelines for embankment conditions, (d) identify causes of distresses and classify them, (e) develop maintenance strategies for the classified distress types and mechanisms, and conduct pilot field applications, and (f) develop training materials for the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7173

TECH | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7206	Develop Optimum 2-Mat Reinforcement Design in Continuously Reinforced Concrete Pavement (CRCP)	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TECH
University #2: TXST
Project Status: Active
Total Project Budget: $737,885.85
TECH Total Budget: $528,159.61
TECH FY25 Budget: $171,988.48
TECH Total Proj Spend: $159,842.42
TECH FY25 Spend: $159,842.42

Project description: The Performing Agencies shall develop optimum designs for longitudinal steel, including the amount of steel as well as the depths of each layer of steel. The Performing Agencies shall obtain detailed CRCP structural responses from field experiments, analyze the data, and develop the optimum steel designs for thick CRCP. The Performing Agencies shall develop and present field experimental plans to the Receiving Agency for its feedback and concurrence. Once the Receiving Agency approves, the Performing Agencies shall conduct field testing per the approved experimental plans and present the data and its analysis results as well as its implications to the Performing Agency. The Performing Agencies shall also provide any technical assistance that might be needed for the implementation of the findings.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7206

TECH | Structures and Hydraulics

Project Number	Project Name	Status
0-7213	Develop Design Methodologies and Efficient Details for Triple I-Girder Steel Straddle Caps	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: CTR
University #2: TECH
Project Status: Active
Total Project Budget: $1,201,065.20
TECH Total Budget: $299,961.46
TECH FY25 Budget: $84,141.89
TECH Total Proj Spend: $69,269.90
TECH FY25 Spend: $69,269.90

Project description: Straddle caps are frequently required in congested settings in urban environments that preclude the use of central piers due to intersecting roadways. The research focuses on the behavior of three-girder steel straddle caps that offer solutions for each of these desired configurations. Efficient details that maximize the effectiveness of the straddle cap at resisting bending, shear, and torsion will be developed. The work will result in design methodologies that allow engineers to effectively analyze and design straddle caps to produce economical and structurally-efficient systems.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7213

TECH | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7218	Revisions for the TxDOT Pavement Management Information System (PMIS) Rater's Manual	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: TECH, TXST
Project Status: Active
Total Project Budget: $729,643.60
TECH Total Budget: $216,698.36
TECH FY25 Budget: $70,009.56
TECH Total Proj Spend: $51,094.94
TECH FY25 Spend: $51,094.94

Project description: The Receiving Agency Pavement Management Information System (PMIS) Rater's Manual is in need of revision. Several distress rating definitions for different pavement types in the current manual are confusing or outdated and can be improved to assess the condition of such pavements more accurately and consistently. The Performing Agencies shall review, analyze, and propose changes to the current distress rating definitions for flexible and concrete (jointed and continuously reinforced) pavements. The Performing Agencies shall hold collaborative workshops to gather input from Receiving Agency's Maintenance Division and districts on pavement condition data collection challenges using the current manual. The Performing Agencies shall assess the impact of the rating changes to the PMIS scores and recommend changes to distress utility curves if needed. In collaboration with the Receiving Agency, the Performing Agencies shall make adjustments to determine acceptable impacts. The Performing Agencies shall develop a revised PMIS Rater's Manual based on the research results and through collaboration between the Performing Agencies and the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7218

TECH | Structures and Hydraulics

Project Number	Project Name	Status
0-7236	Develop Standardized LRFD Design Methods for Ancillary Highway Structure Foundations	Active

Project Start Date: 09/01/2024	Completion Date: 08/31/2026
Lead University: TECH	University #2:
Project Status: Active	Total Project Budget: $371,864.43
TECH Total Budget: $371,864.43	TECH FY25 Budget: $186,340.90
TECH Total Proj Spend: $172,286.77	TECH FY25 Spend: $172,286.77

Project description: The Receiving Agency's current standards for design of ancillary highway structure foundations are based on allowable stress design (ASD) framework and need to be updated to the load and resistance factor design (LRFD) framework to be compliant with AASHTO policy. The goal of this project is to develop standardized LRFD design methods for foundations of various ancillary traffic structures that are compliant with AASHTO requirements while maintaining an efficient design and the ease-of-use of a standard. The Performing Agency shall (a) perform literature review and summarize the state of the practice and key findings of standards and design criteria for traffic structure foundations of the Receiving Agency and other DOTs, (b) identify soil parameters and associated testing methods that can be used in updated standards, (c) evaluate the Receiving Agency's current traffic structure standards for foundation design by comparing design outcomes from the Receiving Agency's standards and those from other DOTs for various soil and loading conditions, (d) develop new LRFD design criteria for updates to the applicable standards, and (e) prepare design examples using the new LRFD design criteria.

Approved Work Program Revisions

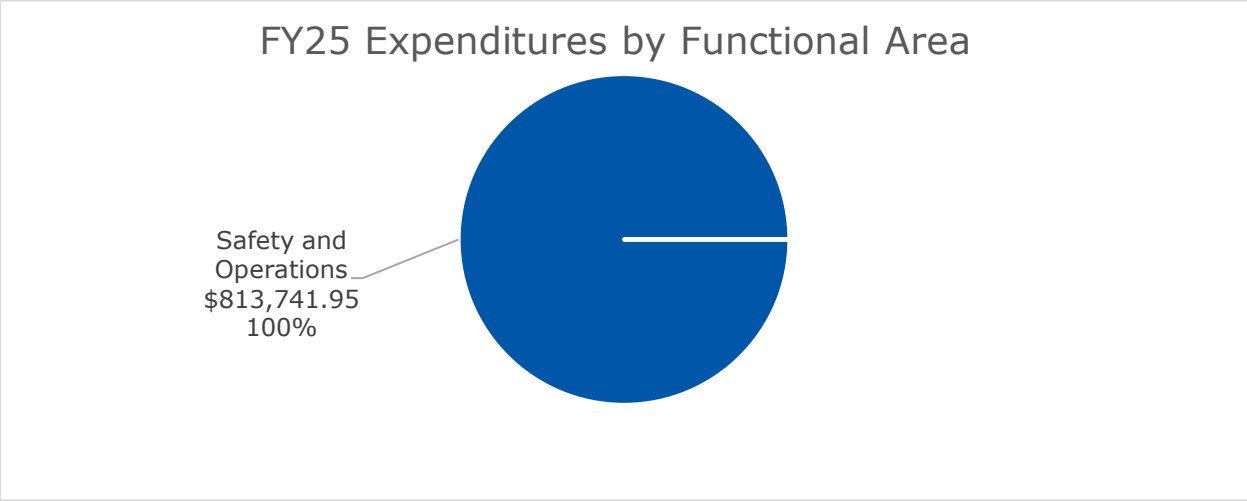
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7236

2.7 TEES – A&M Engineering Experiment Station (TEES)

Figure 9 – Pie chart of TEES expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Safety and Operations	0-7099	AVA: Automated Vehicles for All	Active

TEES | Safety and Operations

Project Number	Project Name	Status
0-7099	AVA: Automated Vehicles for All	Active

Project Start Date: 01/26/2021
Completion Date: 08/31/2026
Lead University: TEES
University #2:
Project Status: Active
Total Proj Budget: $7,063,787.00
TEES Total Budget: $6,307,509.58
TEES FY25 Budg: $1,069,278.00
TEES Total Proj Spend: $4,998,710.47
TEES FY25 Spend: $813,741.95

Project description: USDOT awarded federal funds to Texas A&M Engineering Experiment Station (TEES) to take the lead on and subcontract with George Washington University, University of California at Davis, University of Illinois at Urbana-Champaign to study and test the safe integration of automated driving systems on rural Texas roadways for the purpose of the Automated Driving System Demonstration Grants program. TxDOT through RTI will help foster these efforts in partnership with FHWA and govern reimbursement of this project, in a separate Grant Subrecipient Agreement with TEES. All necessary Grant documents that outline the details of this agreement have been completed and attached.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

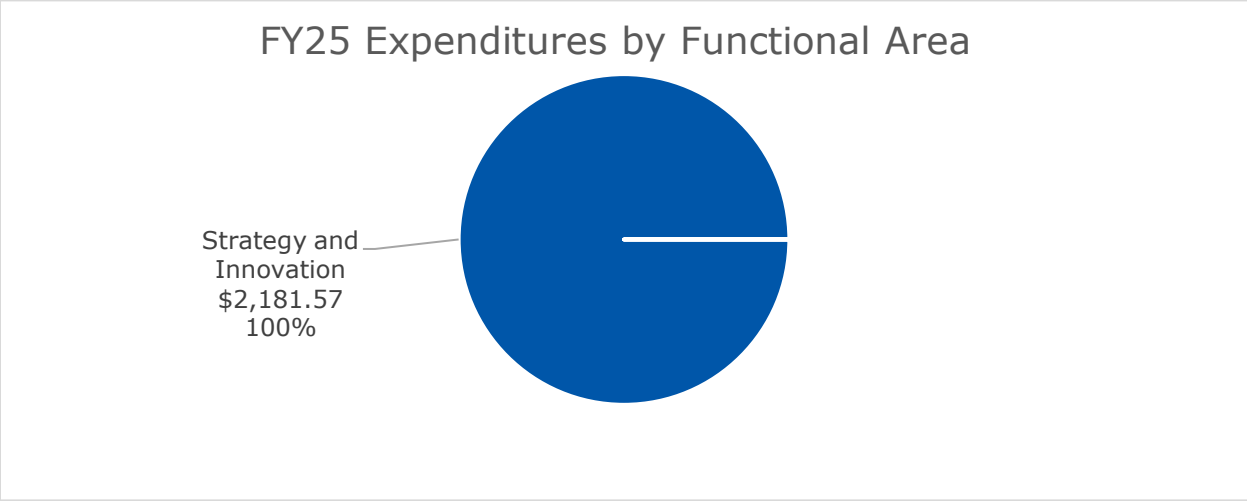
It has become necessary to amend the contract to extend the termination date, revise the budget, and revise the Project Schedule due to delays in acquiring the necessary project equipment.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7099

2.8 TEEX – Texas Engineering Extension Service

Figure 10 – Pie chart of TEEX expenditures by Functional Area



TEEX | Strategy and Innovation

Project Number	Project Name	Status
0-7199	Identification of Needs and Strategies for First Responder Interactions with Automated Vehicles (Avs)	Closed

Project Start Date: 09/01/2023
Completion Date: 04/30/2025
Lead University: TTI
University #2: TEEX
Project Status: Closed
Total Project Budget: $310,814.13
TEEX Total Budget: $22,352.63
TEEX FY25 Budget: $2,950.25
TEEX Total Proj Spend: $15,734.09
TEEX FY25 Spend: $2,181.57

Project description: The number of vehicles with automated functions continues to increase on Texas roadways. Several companies are testing or will soon deploy demonstrations of Level 4 automated vehicles or connected automated vehicles (CAV/AVs) within the state, with no notification requirements. Additionally, several automated commercial motor vehicle (ACMV) projects are testing Level 4 automation. While safety goals are

aimed at minimizing the number of adverse incidents that occur, it is inevitable that a crash or other adverse operations will happen involving one (1) of these automated vehicles. The Receiving Agency's Highway Emergency Response Operator (HERO) program and other first responders are part of the front line that must be prepared to encounter a CAV/AV or ACMV during a routine interaction or adverse event/accident. This project will identify needs and strategies for first responders to understand how these vehicles operate, how to safely approach and disable these vehicles as needed during routine and adverse incident interactions and how to interact with AVs during an accident or emergency.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

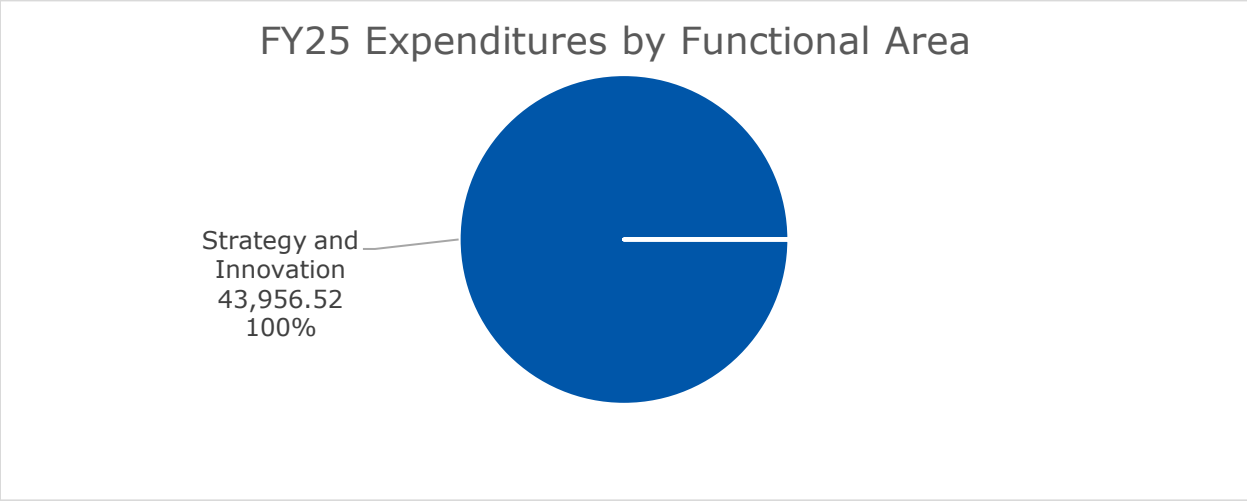
Amend the contract to extend the termination date and revise the Project Schedule to allow the Receiving Agency to review draft deliverables with external subject matter experts.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7199

2.9 TSU – Texas Southern University

Figure 11 – Pie chart of TSU expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Strategy and Innovation	0-7235	Leverage AI for Asset Inventories & Management	Active

TSU / Strategy and Innovation

Project Number	Project Name	Status
0-7235	Leverage AI for Asset Inventories & Management	Active

Project Start Date: 10/14/2024
Completion Date: 06/30/2026
Lead University: UH
University #2: TSU
Project Status: Active
Total Project Budget: $387,140.65
TSU Total Budget: $192,484.40
TSU FY25 Budget: $127,797.80
TSU Total Proj Spend: $43,956.52
TSU FY25 Spend: $43,956.52

Project description: The Performing Agency shall expand the Receiving Agency's Transportation Asset Management Plan (TAMP) which currently only includes pavements and bridges. Other state departments of transportation (DOTs) have already included five additional assets: traffic signals, sign supports, pavement markings, and highway buildings, acknowledging their importance to the safety and integrity of the roadway network. This effort shall increase the value of various data sources to assist in informed procurement decisions.

Approved Work Program Revisions

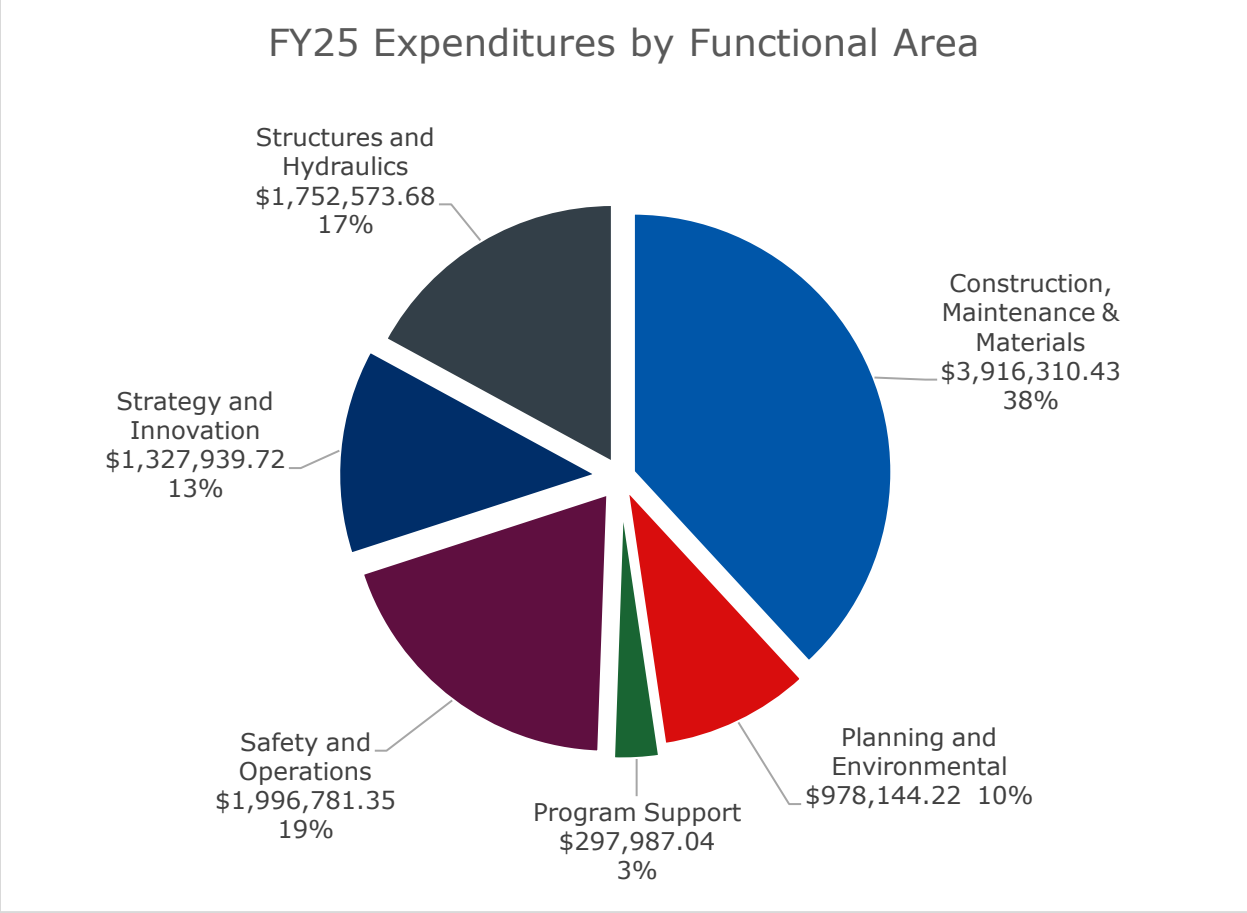
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7235

2.10 TTI – Texas A&M – Transportation Institute

Figure 12 – Pie chart of TTI expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-6674-04	Automated IDEAL Cracking and Rutting Tests	Active
Planning and Environmental	0-6701-02	Planning and Environmental Linkages Toolkit	Closed
Program Support	0-6974	Digital Publication and Outreach Services in Support of Research	Closed

Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-7006	Design, Construction, and Performance Monitoring of Stabilization of Expansive Soils and Cement	Active
Planning and Environmental	0-7022-01	Monarch Conservation Strategies for Texas Roadways	Active
Construction, Maintenance & Materials	0-7073	Improving Testing Requirements in Item 300 Of TxDOT Standard Specifications	Closed
Construction, Maintenance & Materials	0-7103	Investigating Prime versus Curing: Where, When and Why	Closed
Construction, Maintenance & Materials	0-7104	Establish Performance-Based Acceptable Lab-Molded Density Range for Mix Design and QC/QA	Closed
Construction, Maintenance & Materials	0-7105	Measuring Seal Coat Rate Field Adjustments	Closed
Construction, Maintenance & Materials	0-7106	Quantify Maximum Accumulated Seal Coat Layers for Stability	Closed
Structures and Hydraulics	0-7112	Development of a Continuous for Live Load Prefabricated Steel Accelerated Bridge Construction (ABC) Unit for Texas Bridges	Closed
Planning and Environmental	0-7127	Examine Reconnaissance Scanning of Underground Utilities in the ROW	Closed

Functional Area	Project Number	Project Name	Status
Planning and Environmental	0-7138	Driver Distraction in an Era of Rapid Technological Change, Digital Advertising Billboards	Closed
Construction, Maintenance & Materials	0-7143	Develop Methodologies for Reducing Costs in Full Depth Reclamation (FDR) Construction	Active
Safety and Operations	0-7144	Develop a Real-time Decision Support Tool for Urban Roadway Safety Improvement	Closed
Construction, Maintenance & Materials	0-7145	Develop Rapid New Tests for Detecting Poor Quality Binders and RAP Materials	Active
Construction, Maintenance & Materials	0-7148	Develop Design Details for CRCP Whitetopping at Intersections	Closed
Construction, Maintenance & Materials	0-7151	Develop Recommendations for Evaluating Surface Types and Aggregate Properties to Minimize Wet Weather Crashes	Active
Planning and Environmental	0-7152	Estimating Latent Bicyclist and Pedestrian Demand for Shared Use Path Design	Closed
Structures and Hydraulics	0-7155	Develop/Refine Design Provisions for Headed and Hooked Reinforcement	Active

Functional Area	Project Number	Project Name	Status
Safety and Operations	0-7156-01	Using Vehicle Probe Data to Evaluate Speed Limits on Texas Highways	Active
Strategy and Innovation	0-7159	Develop Guidelines for the Use of Unmanned Aerial Systems (UASs) and Smartphones for Construction and Utility Inspections	Active
Structures and Hydraulics	0-7167	Evaluate Performance of Sealers and Coatings Applied to TxDOT Bridge Substructures	Closed
Structures and Hydraulics	0-7170	Evaluate Bridge Deck Condition and Replacement Methods	Active
Safety and Operations	0-7171	Barrier Striping for the Reduction of Accidents	Active
Planning and Environmental	0-7174	Develop an Interactive Statewide Production Rate Estimation Tool for Reliable Contract Time Determination	Active
Construction, Maintenance & Materials	0-7175	Develop Best Practices for Flexible Pavement Repairs	Active
Planning and Environmental	0-7176	Develop and Updated Methodology for Calculation of Reimbursement Levels for Utility Relocations	Active
Construction, Maintenance & Materials	0-7177	Identifying Pavement Improvement Projects for Enhanced Safety	Active

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7179	Evaluate Safety End Treatments for Roadside Drainage Structures	Active
Safety and Operations	0-7183	Develop Crash Modification Factors for Super 2 Highways	Closed
Construction, Maintenance & Materials	0-7185	Develop Enhanced Cold Recycling Methods and Specifications	Active
Construction, Maintenance & Materials	0-7186	Develop Next Generation of Hamburg Rutting Test for Asphalt Mixes	Active
Planning and Environmental	0-7187	Exploring and Developing Innovative Methods for Estimating VMT on Local Roads in Texas	Closed
Planning and Environmental	0-7189	Safety Assessment of Shared Use Paths at Roadway Crossings using Exposure-Based Models	Active
Safety and Operations	0-7190	Roadside Safety Device Analysis, Testing, and Evaluation Program	Active
Construction, Maintenance & Materials	0-7191	Develop Systematic and Quantitative Approach to Assess the Probability of Extreme Weather and Resilience Risks for TxDOT Highways and Bridges	Closed
Structures and Hydraulics	0-7192	Develop Performance of Baseplate Connections in COSS and Traffic Signal Structures	Active

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7193	Develop Assessment and Mitigation Guidance for Ancillary Highway Structures with Existing Cracks	Active
Construction, Maintenance & Materials	0-7195	Quantify Bridge and Pavement Consumption Due to Permitted Overweight/Oversized (OW/OS) Vehicles	Active
Construction, Maintenance & Materials	0-7197	Evaluate Effects of Recycled Asphalt Pavement (RAP) on Performance-Graded (PG) Binder Polymer Concentration	Active
Safety and Operations	0-7198	Traffic Control Device Analysis, Testing, and Evaluation Program	Active
Strategy and Innovation	0-7199	Identification of Needs and Strategies for First Responder Interactions with Automated Vehicles (Avs)	Closed
Strategy and Innovation	0-7200	Utilizing Telematics to Understand Driving Behavior During Missed Exits and Wrong Turns	Closed
Structures and Hydraulics	0-7203	Evaluate the Effectiveness of Dowels for Lateral Restraint of Prestressed Concrete Beams	Active
Construction, Maintenance & Materials	0-7205	Evaluation of Adhesive Anchors in Concrete Pavement Applications	Active

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7207	Determine Feasibility and Efficacy of Hollow Precast Straddle Bents	Active
Construction, Maintenance & Materials	0-7208	Evaluating Minimum Virgin Binder Contents for Durable Recycled Asphalt Pavement (RAP) Mixes	Active
Construction, Maintenance & Materials	0-7210	Evaluation of Low-Speed Profiler for Network-Level Pavement Management	Active
Construction, Maintenance & Materials	0-7212	Incorporating Lab Skid measurements into the Balanced Mix Design process	Active
Construction, Maintenance & Materials	0-7215	Predicting Field Performance of Pavement Markings Statewide in Texas	Active
Construction, Maintenance & Materials	0-7218	Revisions for the TxDOT Pavement Management Information System (PMIS) Rater's Manual	Active
Safety and Operations	0-7220	Develop Countermeasures to Lower Operating Speeds and Collisions on Arterial Roadways, and Reduce Vulnerable User Injuries	Active
Strategy and Innovation	0-7221	Develop Data Collection Requirements and Strategic Research Roadmap to Support the Digital Delivery Program	Active

Functional Area	Project Number	Project Name	Status
Safety and Operations	0-7222	Develop Crash Predictive Methods for Frontage Roads Including Ramp Terminals, and Intersections with Crossroads in Texas	Active
Safety and Operations	0-7223	Conduct MASH Test Level 3 (TL-3) Evaluations of Concrete Barriers on Roadside Slopes	Active
Strategy and Innovation	0-7224	Improve Utility Investigations through AI Data Fusion and Reliable Quality Assessments	Active
Safety and Operations	0-7226	Analyze Operational and Safety Improvements Associated with Implemented Innovative Intersections in Texas	Active
Construction, Maintenance & Materials	0-7227	Exploring the Use of Antioxidants to Substantially Increase Cracking Life of Asphalt Pavements	Active
Safety and Operations	0-7230	Improve Safety and Decrease Vehicle Fatalities by Improving Pavement Markings	Active
Strategy and Innovation	0-7232	Improve Safety of Vehicles and Vulnerable Road Users at Intersections Integrating C-V2X and LiDAR Sensing Technologies	Active

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7234	Address Knowledge Gaps in Scour Analyses for Cohesive and Other Challenging Channel Materials	Active
Planning and Environmental	5-6674-03	Implementation of Asphalt Mixture Automated Testing System with Zero Intervention (AMAZE)	Active
Construction, Maintenance & Materials	5-7025-01	Pilot Implementation of Surface Aggregate Classification of Reclaimed Asphalt Pavement	Active
Construction, Maintenance & Materials	5-7027-01	Implementation and Performance Monitoring of Accelerating Mix Designs for Cement Treated Base	Active
Construction, Maintenance & Materials	5-7188-01	Implementation of Pavement Widening Best Practices	Active
Safety and Operations	9-1531	Development and Evaluation of Roadside Safety Systems for Motorcyclists	Closed
Construction, Maintenance & Materials	9-1533	Designing Roadside Safety Hardware for Emerging Vehicle Types	Active

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-6674-04	Automated IDEAL Cracking and Rutting Tests	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $742,780.00
TTI Total Budget: $742,780.00
TTI FY25 Budget: $248,440.00
TTI Total Proj Spend: $530,770.16
TTI FY25 Spend: $228,939.24

Project description: The objective of this project is to complete the design and construction of the automated test system and to deliver an automated IDEAL cracking and rutting test system working unit to the Receiving Agency's MTD lab. The automated test system includes (1) specimen rapid cooling unit, (2) auto-air void measurement unit, (3) specimen conditioning unit for both room and high temperature, (4) automation arm unit, and (5) automated IDEAL cracking test (IDEAL-CT), IDEAL rutting test (IDEAL-RT), and indirect tensile (IDT) strength test unit, and (6) waste disposal unit. This automated test system shall shorten test time and improve lab safety, test efficiency and accuracy. The Performing Agency shall work closely with the Receiving Agency to build one automated lab test system. The Performing Agency shall conduct comprehensive parallel comparison with the standard (manual) test system to ensure that the automated test results align with the current standard tests. The Performing Agency shall develop a user manual for the automated test system. Additionally, the Performing Agency shall provide training and demonstrations to Receiving Agency lab technicians after delivering the automated test system.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract to revise the budget to include the purchase of a robot arm and its accessories. The FY 2024 Budget remains $294,828.00. The FY 2025 Budget is increased by $50,000.00 from $198,440.00 to $248,440.00. The FY2026 Budget remains $199,512.00. The Total Project Budget is increased by $50,000.00 from $692,780.00 to $742,780.00.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-6674-04

TTI | Planning and Environment

Project Number	Project Name	Status
0-6701-02	Planning and Environmental Linkages Toolkit	Closed

Project Start Date: 03/03/2023
Completion Date: 04/30/2025
Lead University: TTI
University #2:
Project Status: Closed
Total Project Budget: $307,811.50
TTI Total Budget: $307,811.50
TTI FY25 Budget: $0.00
TTI Total Proj Spend: $262,196.22
TTI FY25 Spend: $0.00

Project description: The Receiving Agency funded research project 0-6701 in FY 2012 to investigate potential methods of linking transportation planning in Texas with the environmental clearance process required of the National Environmental Policy Act (NEPA). The study approach and findings were documented in a guidance document entitled Texas Department of Transportation (TxDOT) Resource for Linking Planning with Project Planning in Support of NEPA (0-6701-P1). The research that produced 0-6701-P1 was developed a decade ago prior to the Receiving Agency's participation in the NEPA Assignment program under 23 U.S.C. 327 and the Memorandum of Understanding with FHWA. In early FY2022, the Performing Agency renewed this effort in 0-6701-01 by conducting structured interviews with the Receiving Agency's planning and environmental subject matter experts, five of the state's Metropolitan Planning Organizations (MPOs), and five state Departments of Transportation (DOTs) that pioneered Planning and Environmental Linkages (PEL) to determine the need for updated/new PEL guidance. The structured interviews conducted in 0-6701-01 revealed the need for updated/additional PEL guidance. In 0-6701-02 the Performing Agency shall develop a user-friendly PEL Toolkit that the Receiving Agency's Divisions and District staff, as well as transportation partners can reference when using PELs in the state of Texas.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #4:

It has become necessary to amend the contract to revise the termination date, budget, and the Project Schedule due to the recent release of the updated Federal Highway Administration (FHWA) Planning and Environmental Linkages (PEL) Toolkit and guidance, in addition to discrepancies in the formal FHWA process as it relates to the Receiving Agency planning process. Furthermore, this research was scoped towards the creation of guidance for an additional planning deliverable in the form of a Receiving Agency PEL toolkit, which would have been redundant with current Receiving Agency practices regarding feasibility, corridor, and National Environmental Policy Act (NEPA) studies. The FY2023 budget remains $162,292.50; the FY2024 budget remains $145,519.00; the FY2025 budget is decreased by $80,924.00 from $80,924.00 to $0.00. The Itemized Project Budget Estimate is decreased by $80,924.00 from $388,735.50 to $307,811.50.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-6701-02

TTI | Program Support

Project Number	Project Name	Status
0-6974	Digital Publication and Outreach Services in Support of Research	Closed

Project Start Date: 07/11/2018
Completion Date: 08/31/2025
Lead University: TTI
University #2:
Project Status: Closed
Total Project Budget: $1,913,647.00
TTI Total Budget: $1,913,647.00
TTI FY25 Budget: $341,227.75
TTI Total Proj Spend: $1,756,836.40
TTI FY25 Spend: $297,987.04

Project description: The Performing Agency shall produce Video Summary Report's (VSRs) for the Receiving Agency which summarize transportation research and implementation projects. Additionally, the Performing Agency shall also produce outreach materials for the Receiving Agency that will be transportation research related material and may include additional related subjects of interest.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-6974

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7006	Design, Construction, and Performance Monitoring of Stabilization of Expansive Soils and Cement	Active

Project Start Date: 04/24/2019
Completion Date: 01/31/2027
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $2,567,267.50
TTI Total Budget: $2,567,267.50
TTI FY25 Budget: $400,000.00
TTI Total Proj Spend: $1,653,993.10
TTI FY25 Spend: $335,706.41

Project description: The Receiving Agency is actively looking for alternatives to stabilize expansive soils and cement treated bases with polypropylene fiber. Polypropylene fiber, hereafter is referred to as fiber. Many areas in Texas have problems stabilizing expansive soils with traditional stabilizers (i.e. lime, cement, fly ash, or in combination) because of the high levels of sulfates in the soil. Many major pavement failures have occurred due to lime/cement induced sulfate heaves. In addition, reflection cracks from cement treated bases have been reported in numerous projects. Expansive soils have caused extensive pavement heaves, bumps and longitudinal cracks. The repetitive shrinking and swelling is responsible for the development of cracks, heaves and bumps on Texas roads. Roadway surface cracks allow water intrusion which degrades underlying pavement layers, and prematurely fails the pavement structure. Surface heaves and bumps are a driver safety issue. Cracks, heaves, and bumps are extremely expensive to repair over the life of the pavement, and it would be more economical and safer to the public to mitigate their occurrences during construction. Previous research results indicate that the fiber-reinforced cement treated bases has shown to increase performance. Significant improvements in both shear and compressive strengths, as well as flexibility,

have been reported in fiber reinforced soils and fiber reinforced cement treated bases. Also, fiber reinforced clays and sands were able to reduce volumetric shrinkage strains and swell pressures. It is expected that these types of improvements would directly mitigate the aforementioned distresses. There are huge potential benefits of applying polypropylene fiber to stabilize expansive soils and cement treated bases to (1) increase strength, (2) reduce shrinkage potential, (3) reduce chemical stabilizer content, and (4) increase flexibility/ductility. There is a critical need to incorporate fiber in the Receiving Agency's "Modification and Stabilization of Soils and Base for Use in Pavement Structures" guidelines. Therefore, this study will develop appropriate laboratory test methods to evaluate mix designs for (1) fiber reinforced cement treated base, (2) fiber reinforced clay, and (3) fiber reinforced sandy soil. In addition, this study will provide assistances to Receiving Agency Districts to develop optimum fiber application rates and establish specifications and construction QC/QA plans for uniform mixing. The Performing Agency shall conduct laboratory tests to determine optimum fiber application rates for cement treated base and 6 different subgrade soils: (1) PI < 15, (2) 15 ≤ PI < 35, (3) PI ≥ 35, (4) sulfate concentration > 3000 ppm but ≤ 8000 ppm, (5) sulfate concentration > 8000 ppm, and (6) organics content exceeds 1%. Over the last few years, the Receiving Agency has successfully constructed several Full Depth Recycling (FDR) sections with foamed asphalt using innovative reclaiming equipment. One key issue that the Performing Agency shall address in this study is an evaluation of the mix technologies that ensure fibers are mixed uniformly in the field. The Performing Agency shall use the Wirtgen Reclaimer as the initial device for mixing fibers into the material being stabilized. The Performing Agency shall progress to other common construction equipment and processes to achieve the optimum mixing results. This study shall investigate innovative Nondestructive Testing (NDT) tools to (1) assist site characterization, (2) select candidate test sections, (3) identify sampling locations, (4) provide input on mix design process, (5)

provide Input during QC/QA process, and (6) monitor field performance of the test section. The Performing Agency shall document the optimal construction techniques and identify time and cost savings.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #6:

It has become necessary to amend the contract to extend the termination date, revise the budget, the project schedule, and scope to include the health and safety aspects of using waste carpet fibers and fibrillated polypropylene fibers for highway pavement stabilization. The FY 2019 budget remains $59,000.00. The FY 2020 budget remains $154,999.50. The FY 2021 budget remains $283,174.00. The FY 2022 budget remains $434,216.50. The FY 2023 budget remains $316,623.75. The FY 2024 budget remains $382,898.75. The FY 2025 budget is decreased by $65,000.00 from $465,000.00 to $400,000.00. The FY 2026 budget is established at $441,000.00. The FY 2027 budget is established at $95,355.00. The Total Project Budget is increased by $471,355.00 from $2,095,912.50 to $2,567,267.50.

CTR Library Project Link:

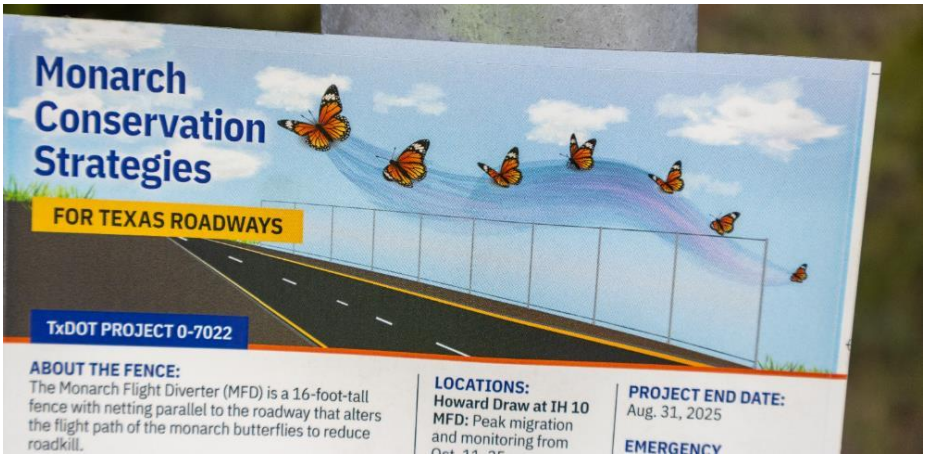
https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7006

TTI | Planning and Environment

Project Number	Project Name	Status
0-7022-01	Monarch Conservation Strategies for Texas Roadways	Active

Project Start Date: 02/17/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2: TAR
Project Status: Active
Total Project Budget: $842,065.00
TTI Total Budget: $603,526.25
TTI FY25 Budget: $112,119.25
TTI Total Proj Spend: $350,117.03
TTI FY25 Spend: $106,200.06

Project description: The US Fish and Wildlife Service (USFWS) supported federal listing of the monarch butterfly (Danaus plexippus) in December 2020, but listing is currently delayed due to other higher priority listing actions. Texas roadways play a critical role in the successful spring and fall migrations of the eastern monarch butterfly population. Receiving Agency project 0-7022, "Evaluating Fall Monarch Butterfly Roadkill Hotspot Incidence and Potential Roadkill Mitigation" has revealed perennial hotspots for fall monarch butterfly roadkill in Texas. Yearly roadkill can comprise up to 2.5% of the Mexican overwintering population. Spring and fall roadside milkweed and monarch-preferred nectar plant hotspots have also been identified which provide critical resources to monarchs in terms of both milkweed larval food and flower nectar for adults.



Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract to extend the termination date from August 31, 2025, to August 31, 2026, revise the budget, the project schedule, and scope to add an additional diverter on Interstate Highway (IH)-10. Performing Agency 1: The FY 2023 Budget remains $171,962.00. The FY 2024 Budget remains $116,893.25. The FY 2025 Budget remains $112,119.25. The FY2026 Budget is established for $202,551.75. The Performing Agency 1 Total Project Budget is increased by $202,551.75 from $400,974.50 to $603,526.25. Performing Agency 2: The FY 2023 Budget remains $64,492.50. The FY 2024 Budget remains $57,440.00. The FY 2025 Budget remains $57,752.50. The FY2026 Budget is established for $58,853.75. The Performing Agency 2 Total Project Budget is increased by $58,853.75 from $179,685.00 to $238,538.75. The Itemized Project Budget Estimate is increased by $261,405.50 from $580,659.50 to $842,065.00.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7022-01

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7073	Improving Testing Requirements in Item 300 Of TxDOT Standard Specifications	Closed

Project Start Date: 09/01/2020
Completion Date: 08/31/2025
Lead University: CTR
University #2: TTI
Project Status: Closed
Total Project Budget: $1,130,000.00
TTI Total Budget: $565,000.00
TTI FY25 Budget: $150,000.00
TTI Total Proj Spend: $495,313.74
TTI FY25 Spend: $132,020.36

Project description: The Receiving Agency's standard specification Item 300, Asphalts, Oils, and Emulsions, includes more than 48 different test procedures or conditioning procedures for asphalt concrete (AC) graded binders (12), cutbacks (8), emulsified binders (17), and performance-graded (PG) binders (11) used in different pavement construction and maintenance applications. This does not include testing requirements for recycling agents, crack sealants, or asphalt rubber binder. The Receiving Agency regularly performs many of these tests for quality management or quality assurance purposes. This test schedule presents a challenge for the binder lab in terms of maintaining test procedures, acquiring and maintaining test equipment, calibrating equipment, and training personnel. Some specification tests are legacy tests that once were the state-of-the-art and thought to be related to asphalt binder performance. Many of these legacy tests are not used in more recently developed specifications, as other tests are now available and may be more indicative of performance. This project seeks to review the Receiving Agency's Item 300 binder specifications and tests for relevance; determine whether they assess safety, performance, or constructability; and take into account accuracy, efficiency, and environmental considerations. The project shall also make recommendations for changes.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7073

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7103	Investigating Prime versus Curing: Where, When and Why	Closed

Project Start Date: 09/01/2021
Lead University: TTI
Project Status: Closed
TTI Total Budget: $525,000.25
TTI Total Proj Spend: $375,285.50

Completion Date: 11/30/2024
University #2:
Total Project Budget: $525,000.25
TTI FY25 Budget: $21,269.25
TTI FY25 Spend: $16,076.29

Project description: The objective of this research project is to determine where, when, and why a prime or cure is needed for a pavement layer. Materials such as prime coats, curing materials, seal coats, and tack coat are typically considered non-structural, but integral to the pavement structure. Some materials can be used for multiple purposes: prime, bond or help cure; however, the rates and timing of use may change depending on why the material is being used. Guidance is needed to help designers, inspectors and construction personnel understand the materials and where, when, and why to use them. The Performing Agency shall develop guidelines for prime and curing through a series of laboratory and field testing and develop tests and procedures to determine the best materials for a prime, cure or a combination. These guidelines shall aid decision makers in determining whether a prime, cure or bonding material is needed, and where, when and why to design and use the appropriate materials.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7103

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7104	Establish Performance-Based Acceptable Lab-Molded Density Range for Mix Design and QC/QA	Closed

Project Start Date: 09/01/2021
Completion Date: 04/30/2025
Lead University: TTI
University #2: UTEP
Project Status: Closed
Total Project Budget: $829,999.25
TTI Total Budget: $469,999.25
TTI FY25 Budget: $76,107.75
TTI Total Proj Spend: $438,468.47
TTI FY25 Spend: $73,435.81

Project description: Lab-molded density of asphalt mixes is a critical factor for laboratory mix design, plant production, and field performance. Current mix design and production quality control and quality assurance (QC/QA) are developed around a fixed lab-molded density of 96 percent. Adherence to a fixed lab-molded density is not only one of the main factors leading to drier, more crack susceptible mixes where low asphalt binder content is often caused by balancing high lab-molded density values at plant production, but it also impacts the implementation of the Balanced Mix Design approach. Furthermore, various field test sections designed with densities ranging from 96.5 to 98 percent were previously constructed in different areas of Texas, and they performed well in the field with no observed rutting problems. Thus, the objective of this project is to establish an acceptable range of lab-molded densities for laboratory mix design and production QC/QA testing. To achieve the objective, the Performing Agencies shall review the literature, conduct extensive laboratory performance tests, construct test sections and monitor their performance, and finally recommend an acceptable range of lab-molded density based on all the information and data collected.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7104

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7105	Measuring Seal Coat Rate Field Adjustments	Closed

Project Start Date: 09/01/2021
Completion Date: 11/30/2024
Lead University: TTI
University #2: UT-TYLER
Project Status: Closed
Total Project Budget: $450,000.00
TTI Total Budget: $415,453.75
TTI FY25 Budget: $15,113.00
TTI Total Proj Spend: $381,520.52
TTI FY25 Spend: $6,308.24

Project description: The objective of this research project is to develop measurable and repeatable adjustment criteria for seal coat application rates based on pavement condition, traffic and material properties for the design method developed in research project 0-6989 Update Seal Coat Application Rate Design Method (TxDM6989). Current practice requires experienced personnel to understand the adjustments needed for application rates, including changing the adjustments as conditions on the pavement change. The adjustments in the TxDM6989 combine multiple pavement conditions into one description. By measuring the conditions, a combined adjustment based upon measured parameters will remove subjectivity from the procedure. This will lead to more consistently constructed projects that meet the objectives of designing the rates so that the resulting seal will not have too much binder so that it flushes or bleeds in the summer; but there is enough binder to prevent rock loss over the winter. This research project will produce measurable methods for adjustments to the rate design procedures that will help engineers and inspectors make better decisions resulting in successful projects.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7105

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7106	Quantify Maximum Accumulated Seal Coat Layers for Stability	Closed

Project Start Date: 09/01/2021
Completion Date: 11/30/2024
Lead University: TTI
University #2: UT-TYLER
Project Status: Closed
Total Project Budget: $449,211.00
TTI Total Budget: $439,017.25
TTI FY25 Budget: $17,330.25
TTI Total Proj Spend: $402,654.77
TTI FY25 Spend: $5,030.45

Project description: The Receiving Agency invests over $250 million annually on seal coats, it is therefore critical to apply the right treatment to the right road at the right time. Projects are typically selected based on the time since the last seal coat (an average of 7 years) with little to no testing performed to ensure that the section is a good candidate for seal coat and how many seal coats to apply. The objective of this research is to determine the maximum number of seal coats that can be applied to a pavement surface before the accumulated layers of seal coats become unstable. The Performing Agencies shall evaluate the stability of existing accumulated seal coat substrate layers through a series of laboratory and field testing and develop tests and procedures to determine when an additional seal coat may not perform well. The Performing Agencies shall develop guidelines to select candidate seal coat projects with multiple seal coat layers ensuring that a new seal coat is used on a good candidate pavement will lower risk to the Receiving Agency, improve life cycle costs and lead to better performing sections of pavement.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7106

TTI | Structures and Hydraulics

Project Number	Project Name	Status
0-7112	Development of a Continuous for Live Load Prefabricated Steel Accelerated Bridge Construction (ABC) Unit for Texas Bridges	Closed

Project Start Date: 09/01/2021
Completion Date: 02/28/2025
Lead University: TTI
University #2: UTEP
Project Status: Closed
Total Project Budget: $759,994.50
TTI Total Budget: $640,375.75
TTI FY25 Budget: $70,000.00
TTI Total Proj Spend: $620,919.69
TTI FY25 Spend: $68,325.99

Project description: The overall goal is to develop a system where prefabricated steel ABC unit perform continuous for live load. The system must be easily constructible, fast to assemble, durable long-term, safe, and cost-effective. The Performing Agencies shall conduct a literature review to first synthesize what has been done by state departments of transportation and other agencies. The Performing Agencies shall also evaluate the behavior of related Receiving Agency bridges through visual inspection and monitoring. The Performing Agencies shall perform a system development program utilizing this information in conjunction with expert feedback from an Industry Review Panel (IRP) workshop (including the Receiving Agency Panel). The three (3) best system designs shall be selected for full-scale laboratory testing followed by an analytical parametric study. The Performing Agencies shall compile and present the results at an IRP meeting with the Receiving Agency, where the final system shall be selected. The Performing Agencies shall develop full Microstation details and specifications along with a user-friendly design guide. The guide shall identify the following:

- Span length capabilities for girder sizes/depths/spacings.
- General details for establishing live load continuity.

- Closure pour details at interior bents and how to achieve acceptable deck stresses.
- Structural steel splice details and acceptable tolerances.
- Bearing layout to meet the Receiving Agency substructure details.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7112

TTI / Planning and Environmental

Project Number	Project Name	Status
0-7127	Examine Reconnaissance Scanning of Underground Utilities in the ROW	Closed

Project Start Date: 09/21/2021
Completion Date: 02/28/2025
Lead University: TTI
University #2: TAMUCC
Project Status: Closed
Total Project Budget: $1,264,144.00
TTI Total Budget: $1,132,129.00
TTI FY25 Budget: $84,625.00
TTI Total Proj Spend: $1,128,241.56
TTI FY25 Spend: $84,323.86

Project description: Mapping of buried utilities using rigorous subsurface utility engineering (SUE) quality level B (QLB), as is frequently performed or recommended, can be costly. It can also be ineffective for unknown utilities (i.e., utilities that exist but for which no information is available). This is particularly common and problematic in areas of oil and gas operations. When undiscovered until construction, these unknown utilities may cause serious scheduling disruptions as well as higher construction costs, along with safety and environmental risks. There is a need for a faster, less expensive method of scanning the right of way (ROW) for these unknown utilities. This research shall evaluate, select and test the application of newly available geophysical measurement systems. These systems would allow quickly and cheaply detecting and mapping unknown pipelines or other utilities in the ROW. It compares the effectiveness and cost of deployment to standard QLB SUE and reports on technologies that are both technically and cost effective for identifying unknown utilities.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7127

TTI | Planning and Environment

Project Number	Project Name	Status
0-7138	Driver Distraction in an Era of Rapid Technological Change, Digital Advertising Billboards	Closed

Project Start Date: 09/01/2022
Completion Date: 11/30/2024
Lead University: TTI
University #2: CTR
Project Status: Closed
Total Project Budget: $432,453.89
TTI Total Budget: $353,539.75
TTI FY25 Budget: $20,465.50
TTI Total Proj Spend: $331,840.27
TTI FY25 Spend: $21,329.45

Project description: Outdoor advertising signs impact millions of travelers around the world every day. These signs are designed to attract driver attention thus taking it away from the driving task. Driver inattention and distraction are two of the most critical factors for road safety. Receiving Agency regulation of outdoor advertising signs must deal with changing technologies, including digital billboards, which allow for modifications to sign illumination, motion, and content. Regulations are not keeping pace with changing sign trends and must be updated to address potential impacts on road user safety. This research project focuses on the degree of driver distraction caused by typical and digital advertising sign contents. The project includes a comprehensive state-of-the-practice review, crash investigation, and an on road human factors evaluation. The illumination levels and content (including motion) during daytime and nighttime travel for dry and wet-weather conditions are considered. This research project shall provide the Receiving Agency with tools and resources to help manage outdoor digital advertising billboards by establishing practical criteria for sign illumination and content. These resources shall allow the Receiving Agency to manage the advertising signs such that road user safety is accounted for

while maintaining the ability of sign owners to develop effective means of communicating with the public.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Amend the contract to extend the termination date, revise the budget, and revise the Project Schedule due to delays in acquiring the necessary project equipment. TTI budget: The FY 2023 Budget remains $155,276.00.The FY 2024 Budget remains $177,798.25.The FY 2025 Budget is established at $20,465.50.TTI's Total Project Budget is increased by $20,465.50 from $333,074.25 to $353,539.75.CTR Budget: The FY 2023 Budget remains $35,165.51.7he FY 2024 Budget remains $35,811.13.The FY 2025 Budget is established at $7,937.50.The Performing Agency 2 Total Project Budget is increased by $7,937.50 from $70,976.64 to $78,914.14.The Itemized Project Budget Estimate is increased by $28,403.00 from $404,050.89 to $432,453.89.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7138

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7143	Develop Methodologies for Reducing Costs in Full Depth Reclamation (FDR) Construction	Active

Project Start Date: 09/01/2022
Completion Date: 11/30/2025
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $679,483.50
TTI Total Budget: $679,483.50
TTI FY25 Budget: $232,618.50
TTI Total Proj Spend: $566,978.63
TTI FY25 Spend: $207,827.37

Project description: Full depth reclamation (FDR) using emulsified asphalt or foamed asphalt continues to grow in usage throughout Texas. To date, almost all mixtures use a cement additive in the mix design. The cement additive reportedly contributes to early strength gain which can be particularly important for projects that require daily opening to heavy traffic. However, not all construction projects require daily opening to traffic, and some materials may provide adequate performance without the cement additive. Additionally, with potential cement supply shortages, design and construction of FDR layers using only the asphalt treatments could save materials cost, reduce schedule risk, and increase daily productivity since one less step would be required in the treatment process. The Performing Agency shall analyze the performance of asphalt-based FDR materials with and without the cement additive and evaluate the strength and stiffness properties of those mixes in the early, intermediate, and final curing stages. The Performing Agency shall leverage those results to determine the operational benefits and acceptability of placing traffic on the section for traffic control and construction staging, evaluate how the long-term performance of the layer may be impacted for pavement design, and make recommendations for mix design and construction specification updates.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7143

TTI | Safety and Operations

Project Number	Project Name	Status
0-7144	Develop a Real-time Decision Support Tool for Urban Roadway Safety Improvement	Closed

Project Start Date: 01/09/2023
Completion Date: 06/30/2025
Lead University: TXST
University #2: TTI
Project Status: Closed
Total Project Budget: $465,010.00
TTI Total Budget: $105,991.50
TTI FY25 Budget: $10,609.50
TTI Total Proj Spend: $104,135.69
TTI FY25 Spend: $10,336.89

Project description: Due to the complex nature of urban roadways, conventional crash prediction models are limited as these models omit operating speed, short-duration volume, and weather data. To mitigate this research gap, the following three national databases can be utilized: (1) National Performance Management Research Data Set (NPMRDS) with passenger and freight speed data, (2) Travel Monitoring Analysis System (TMAS) data with both temporary traffic counting and continuous traffic counting programs, and (3) real-time weather data from the National Oceanic and Atmospheric Administration (NOAA). The fatality rate on Texas roadways for 2020 was 1.50 deaths per hundred million vehicle miles traveled, which is an 18.94% increase from 1.26 in 2019. From 2011 to 2020, the fatalities on rural roadways increased by 19%, and this increase on urban roadways is disproportionately high (31%). Research and a supporting decision support tool are necessary to improve urban safety. The Performing Agencies shall leverage ongoing staff leadership and engagement in several national and state Department of Transportation (DOT) speed-safety projects. The Performing Agencies shall provide updated safety performance functions (SPFs) for urban roadways and a real-time decision

support tool on risk scoring with the applicability of new data input and model updating pipeline.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7144

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7145	Develop Rapid New Tests for Detecting Poor Quality Binders and RAP Materials	Active

Project Start Date: 09/01/2022
Completion Date: 02/29/2028
Lead University: TTI
University #2: CTR
Project Status: Active
Total Project Budget: $1,725,534.03
TTI Total Budget: $1,207,901.50
TTI FY25 Budget: $257,923.00
TTI Total Proj Spend: $774,197.04
TTI FY25 Spend: $223,455.13

Project description: Asphalt binders are one of the most expensive and critical materials used in the construction of the roadways in Texas, costing taxpayers hundreds of millions of dollars annually. It has been widely recognized that asphalt binders with the same performance grade (PG) can perform very differently due to changes in crude source, refining processes used, modification technique, and other factors. Several districts recently reported early cracking issues with some mixes which had historically performed well, while other districts had mix design and quality assurance (QA) problems when the binder source was switched and/or a different recycled asphalt pavement (RAP) stockpile was used. Thus, the objective of this project is to develop rapid new tests for detecting poor quality binders and RAP materials. To achieve this objective, the Performing Agencies shall review the literature to identify candidate tests that can be used for screening binders and RAP materials. The Performing Agencies shall further refine the most promising tests using laboratory mixture performance tests as a benchmark. The Performing Agencies shall also provide a standard test method and specification limit for each of the final test methods.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7145

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7148	Develop Design Details for CRCP Whitetopping at Intersections	Closed

Project Start Date: 09/01/2022
Completion Date: 08/31/2025
Lead University: TECH
University #2: TTI
Project Status: Closed
Total Project Budget: $599,563.25
TTI Total Budget: $299,972.00
TTI FY25 Budget: $92,738.25
TTI Total Proj Spend: $250,343.78
TTI FY25 Spend: $82,634.64

Project description: The Performing Agencies shall establish a method to evaluate the existing pavement structural condition and design continuously reinforced concrete pavement (CRCP) overlays, both thin and thick. The design methods will include non-destructive (NDT) pavement evaluation techniques and tools, deflection based CRCP slab thickness design procedures, and CRCP reinforcing design details. The Performing Agencies shall identify state-of-the-art practices that can be implemented as well as areas that need additional research. The findings from this research will result in procedures that will be used to design CRCP overlays, both thin and thick.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7148

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7151	Develop Recommendations for Evaluating Surface Types and Aggregate Properties to Minimize Wet Weather Crashes	Active

Project Start Date: 11/10/2022
Completion Date: 02/28/2026
Lead University: TTI
University #2: UT-TYLER
Project Status: Active
Total Project Budget: $599,992.25
TTI Total Budget: $554,716.00
TTI FY25 Budget: $169,354.75
TTI Total Proj Spend: $536,405.06
TTI FY25 Spend: $184,038.30

Project description: The current design methodology for asphalt and seal coat surfaces is limited when considering safety aspects like friction and surface texture, also known as skid resistance. The only requirement for asphalt or seal coats placed on high demand areas is that they use surface aggregate classification (SAC) A coarse aggregates. This approach has several shortcomings:

- Does not consider the friction and texture of the final surface.
- Does not consider the change in skid resistance versus trafficking.
- SAC system is defined by the acid insolubility test, not a direct measurement of aggregate properties that mechanically generate skid resistance.
- SAC categories are very broad with no distinction of the best and worst performing aggregates in each class. Consequently, some recent resurfacing projects have resulted in unacceptable skid resistance shortly after construction, even when SAC A aggregates were used. As such, there is a serious need to improve the current design process for asphalt and seal coat to ensure that the surfaces will have acceptable long-term skid resistance.

The Performing Agencies shall develop a laboratory-based system to select the pavement surface type and coarse aggregate types that will provide adequate skid resistance over the life of the pavement surface.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7151

TTI | Planning and Environment

Project Number	Project Name	Status
0-7152	Estimating Latent Bicyclist and Pedestrian Demand for Shared Use Path Design	Closed

Project Start Date: 09/01/2022
Completion Date: 12/31/2024
Lead University: TTI
University #2:
Project Status: Closed
Total Project Budget: $250,173.75
TTI Total Budget: $250,173.75
TTI FY25 Budget: $17,533.50
TTI Total Proj Spend: $259,936.76
TTI FY25 Spend: $19,265.13

Project description: The Receiving Agency's Roadway Design Manual was updated in July 2020 and incorporates considerations for and accommodations of bicyclists and pedestrians, including preferred design order toward Shared Use Paths (SUPs) compared to bicycle lanes and shared lanes. However, the Guidance does not include specific procedures to estimate the anticipated volumes of non-motorized path users. The Receiving Agency's Bicycle Accommodation Design Guidance makes it clear that anticipated user volumes should be considered when designing facilities. Performing Agency shall develop a simple sketch planning-level demand estimation tool that provides anticipated user volumes for SUPs. The project shall also incorporate the results into the future editions of The Receiving Agency's design guidance/manuals. Given the uncertainty in resources, Performing Agency shall not use an overly complicated method or a method that requires complex data or data architecture. The project shall benefit from existing data sources, including The Receiving Agency's Texas Bicycle and Pedestrian Count Exchange and other count data resources in the State as well as other secondary and spatial data sources. Performing Agency shall develop an easy-to-use tool responding to the needs and requirements of

the intended audience while incorporating advancements to improve the accuracy of the demand estimation.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7152

TTI | Structures and Hydraulics

Project Number	Project Name	Status
0-7155	Develop/Refine Design Provisions for Headed and Hooked Reinforcement	Active

Project Start Date: 09/01/2022
Completion Date: 08/31/2026
Lead University: TTI
University #2: UTSA
Project Status: Active
Total Project Budget: $999,401.25
TTI Total Budget: $680,187.50
TTI FY25 Budget: $167,913.50
TTI Total Proj Spend: $665,105.11
TTI FY25 Spend: $184,178.22

Project description: The usefulness of reinforced concrete is dependent on sufficient anchorage between concrete and reinforcing steel. Sufficient anchorage occurs when reinforcing steel is embedded into the concrete a distance referred to as the development length. When this length of embedment is achieved, the reinforcing steel is expected to reach or exceed stresses beyond yield. Geometric constraints within structural members may prevent straight lengths of reinforcement from developing their yield strength, such as straight bars being terminated within a beam-column joint. In these cases, the addition of a hook or headed bar attachment provides a more efficient anchorage mechanism compared to straight bars. Both hooked and headed bars have shorter development lengths than straight bars. However, the current American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design Bridge Design Specifications (LRFD) Bridge Design Specification (9th edition) has not developed standard details for headed reinforcement in bridge structures. In addition, current AASHTO LRFD design provisions for hooked bars are adapted from the American Concrete Institute (ACI) 318-14 Building Code Requirements for Structural Concrete. Considerable revisions to the current ACI 318-19 specification for the design of hooked

reinforcement, which require increased lengths (50 to 70 percent longer) relative to previous code cycles, necessitates the Receiving Agency to revisit its current design practice for hooked reinforcement. This research seeks to provide the Receiving Agency with clear and concise design guidance for engineers to use both hooked and headed bar attachments in Receiving Agency bridge structures. The Performing Agencies shall accomplish this through large-scale experimental testing of specimens with hooked and headed bars representative of Receiving Agency bridge structures and current design practice.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7155

TTI / Safety and Operations

Project Number	Project Name	Status
0-7156-01	Using Vehicle Probe Data to Evaluate Speed Limits on Texas Highways	Active

Project Start Date: 04/15/2025
Completion Date: 06/30/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $324,312.75
TTI Total Budget: $324,312.75
TTI FY25 Budget: $138,128.00
TTI Total Proj Spend: $143,359.48
TTI FY25 Spend: $114,054.39

Project description: The Performing Agency shall eplore if there are refinements that could be made to the recently developed protocol for using third party dasta in generating suggested speed limtis. The suggested speed limit probe data (SSL-Probe) prtocol was developed to allow Receiving Agency distrcits to be more pro-active and responsive with their speed zone program. The protocol also provides a much safer method of collecting speed datea, especially on high-speed and controlled access highways.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7156-01

TTI | Strategy and Innovation

Project Number	Project Name	Status
0-7159	Develop Guidelines for the Use of Unmanned Aerial Systems (UASs) and Smartphones for Construction and Utility Inspections	Active

Project Start Date: 09/01/2022
Completion Date: 02/28/2026
Lead University: TTI
University #2: TAMUCC
Project Status: Active
Total Project Budget: $834,078.25
TTI Total Budget: $674,474.50
TTI FY25 Budget: $224,575.25
TTI Total Proj Spend: $610,034.94
TTI FY25 Spend: $222,778.98

Project description: Unmanned aircraft systems (UASs) equipped with miniaturized cameras enable the collection of high resolution, three-dimensional (3D) geospatial data at lower costs than traditional techniques. New technologies also make it possible to gather pictures and video using smartphones, which can be fed to Structure from Motion (SfM) software to develop highly accurate 3D products. Operating UASs requires trained pilots and observers, but smartphones do not. There is a need to test whether construction contractor crews in the field can gather data using either of these technologies and upload the imagery and video to a server to enable inspectors to conduct inspections remotely. The Performing Agencies shall conduct a literature review of UAS-SfM and smartphone technologies; prepare a list of use cases and case studies to test relevant technologies; conduct field tests to document advantages, disadvantages, complementary capabilities, and potential implementation scenarios and costs; prepare recommended settings, procedures, use cases, and operational workflows to ensure repeatable data collection and processing; and prepare guidelines for quality assurance and control of inspections conducted with UAS- and smartphone-based SfM photogrammetry, as well as identify project

suitability for the adoption of these technologies to support construction and utility inspection activities at the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

It has become necessary to amend the contract to extend the termination date, revise the budget and the Project Schedule due to shipping delays of the REDUCT ABM probes due to supply chain issues from the manufacturer.TTI's Budget: The FY 2023 budget remains $203,697.25. The FY 2024 budget remains $178,119.50. The FY 2025 budget is decreased by $65,178.50 from $289,753.75 to $224,575.25. The FY 2026 budget is established at $68,082.50. The Total Project Budget is increased by $2,904.00 from $671,570.50 to $674,474.50. TAMUCC's Budget: The FY 2023 budget remains $50,311.25. The FY 2024 budget remains $50,150.00. The FY 2025 budget is decreased by $10,811.25 from $49,953.75 to $39,142.50. The FY 2026 budget is established at $20,000.00. The Total Project Budget is increased by $9,188.75 from $150,415.00 to $159,603.75. The Itemized Project Budget is increased by $12,092.75 from $821,985.50 to $834,078.25.

CTR Library Project Link:

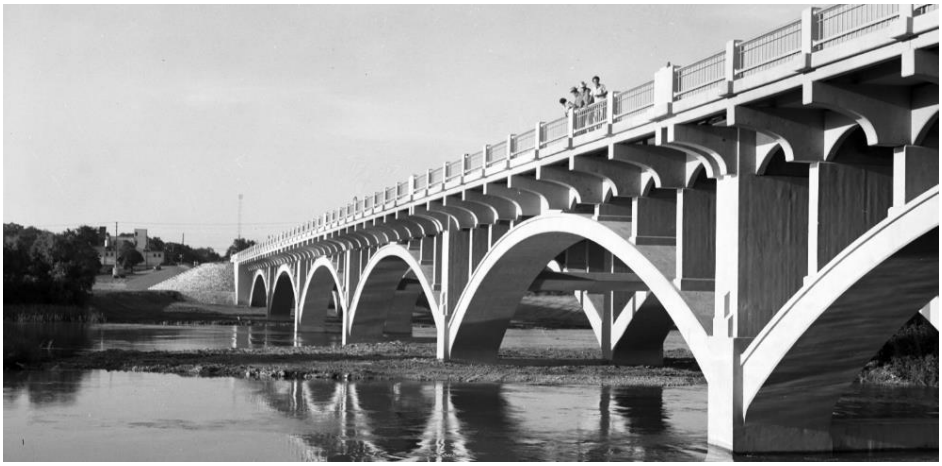
https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7159

TTI | Structures and Hydraulics

Project Number	Project Name	Status
0-7167	Evaluate Performance of Sealers and Coatings Applied to TxDOT Bridge Substructures	Closed

Project Start Date: 09/01/2022
Completion Date: 10/31/2024
Lead University: TTI
University #2:
Project Status: Closed
Total Project Budget: $519,972.00
TTI Total Budget: $519,972.00
TTI FY25 Budget: $20,000.00
TTI Total Proj Spend: $536,415.91
TTI FY25 Spend: $21,414.83

Project description: The Performing Agency shall perform a comprehensive evaluation of concrete sealers and coatings applied to bridge substructure in the state of Texas. The Performing Agency shall investigate the need for and extent of surface preparation on both new and existing concrete surfaces including those with previously applied coatings. A focus is placed on material testing to evaluate the performance of coatings applied with various surface preparation methods and exposed to environmental conditions. The potential benefits are the development of recommendations for the level of surface preparation required for various sealer or coating systems and for the optimal coating type for the Receiving Agency's substructures with or without previously applied coatings.



Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7167

TTI | Structures and Hydraulics

Project Number	Project Name	Status
0-7170	Evaluate Bridge Deck Condition and Replacement Methods	Active

Project Start Date: 01/01/2023
Completion Date: 03/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $734,786.00
TTI Total Budget: $734,786.00
TTI FY25 Budget: $237,894.50
TTI Total Proj Spend: $510,763.79
TTI FY25 Spend: $156,819.21

Project description: Bridge decks usually have a minimum service life of 50 years but many bridge decks in Texas far exceed that value and are showing concerning signs of deck soffit cracking. Deck replacement is performed to take advantage of the good existing condition of the super- and sub-structures; however, since replacement is expensive (up to 40% of the cost of a new bridge), especially over concrete girders, it is critical to have sound decision and appropriate design and construction methods for this work to protect public safety and use bridge preservation funds wisely. While life-cycle cost analysis can be beneficial when assessing the overall deck condition relative to the condition of the rest of the deck, it does not address the risk of a punch through failure. The outcomes of this project will aid the Receiving Agency's Bridge Division and districts to have accurate assessments of cast-in-place (CIP) bridge deck conditions to make sound decisions about emergency repairs, regular repairs, deck overlay, and deck replacement to preserve bridge assets while minimizing the risk of punch through.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7170

TTI | Safety and Operations

Project Number	Project Name	Status
0-7171	Barrier Striping for the Reduction of Accidents	Active

Project Start Date: 09/01/2023
Completion Date: 11/30/2025
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $303,741.50
TTI Total Budget: $233,247.75
TTI FY25 Budget: $45,999.25
TTI Total Proj Spend: $221,872.25
TTI FY25 Spend: $46,838.15

Project description: The Traffic Safety Division (TRF) of the Receiving Agency drafted a special specification (SS) for the vertical application of a retroreflective solid stripe on concrete barriers, approximately six (6) inches below the barrier's top. During the phase of new product approval, this SS describes an application similar to three (3) locations already installed on Texas roadways in previous years. Barrier striping increases motorist awareness of the roadway's edge and the barrier itself, particularly in low-visibility conditions (i.e., heavy rain and snow). These existing implementation sites have not been formally evaluated. Furthermore, the short-term effectiveness of the treatments has not been investigated; therefore, there is a need for long-term and short-term safety effectiveness evaluation of these treatments. The Performing Agencies shall collect before-and-after collision data from Crash Record Information System (CRIS) and near-collision data from connected vehicle data vendor (e.g., Wejo) to evaluate the effectiveness of vertical application of a retroreflective solid stripe on concrete barriers. Furthermore, the Performing Agencies shall install these treatments at six (6) high crash locations with different barrier types including, but not limited to concrete barriers and metal beam guard fences to evaluate their short-term effectiveness using non-traditional safety

evaluation approaches. The Performing Agencies shall utilize the findings to update the drafted SS for the future use across the state and beyond.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #3:

It has become necessary to amend the contract to extend the termination date, and revise the budget and the Project Schedule due to the delays in installing barrier striping at all six new sites identified by the Performing Agency and Receiving Agency. TTI's Budget: The FY 2024 budget remains $179,630.75; the FY 2025 budget is decreased by $7,617.75 from $53,617.00 to $45,999.25; the FY 2026 budget is established at $7,617.75. TTI's Total Project Budget remains $233,247.75. TXST's Budget: The FY 2024 budget remains $48,753.75; the FY 2025 budget remains $19,177.50; the FY 2026 budget is established at $2,562.50; TXST's Total Project Budget is increased by $2,562.50 from $67,931.25 to $70,493.75. The Itemized Project Budget is increased by $2,562.50 from $301,179.00 to $303,741.50.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7171

TTI | Planning and Environment

Project Number	Project Name	Status
0-7174	Develop an Interactive Statewide Production Rate Estimation Tool for Reliable Contract Time Determination	Active

Project Start Date: 09/01/2023
Completion Date: 06/30/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $374,458.25
TTI Total Budget: $374,458.25
TTI FY25 Budget: $151,631.00
TTI Total Proj Spend: $286,866.92
TTI FY25 Spend: $139,995.94

Project description: Understanding and estimating realistic production rates of major work items in a highway project are critical to determining a reasonable project contract time, evaluating the contractor's baseline schedule, monitoring progress schedules, and ultimately completing the project on time. The Performing Agency shall leverage the Receiving Agency's historical project data to obtain the as-built information of production rates of various work items and shall develop a) an expanded version of the Receiving Agency's construction production rates table, b) an interactive tool that can generate color-coded heat maps to visualize feasible ranges of production rates of major work items across Texas, and c) implementation guidance and recommendations. An advanced and interactive production rate estimation tool could significantly help the Receiving Agency achieve the goal of completing highway projects on time. The Performing Agency's decision-aid tool could significantly improve the Receiving Agency's practice in determining more accurate production rates, resulting in more accurate contract time determination, the contractor's baseline schedule evaluation, and progress schedule monitoring. The Performing Agency shall aid in providing higher certainty and reliability of

data-driven and practical production rates to expand the Receiving Agency's current construction production rates table.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7174

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7175	Develop Best Practices for Flexible Pavement Repairs	Active

Project Start Date: 09/01/2023
Completion Date: 02/28/2026
Lead University: TTI
University #2: PVAMU
Project Status: Active
Total Project Budget: $413,069.00
TTI Total Budget: $401,866.50
TTI FY25 Budget: $181,152.25
TTI Total Proj Spend: $300,735.98
TTI FY25 Spend: $156,421.50

Project description: This research study aims to perform a study focusing on best practices for performing pavement preparatory work in advance of preventive maintenance (PM) surfacing contracts. The study shall respond to answer, "What are the best practices for repairing a roadway before a new surface is placed?" Seal coats or thin overlays are typical PM surfacing projects. The preparatory work performed by in-house maintenance forces or maintenance contracts may include crack sealing, fog seal, repairs, milling, and level-up. The preparatory work should be completed well before the PM contract. This study will identify the main flexible pavement repair types and investigate best practices for performing both in-house and contracted repairs. A procedure will be developed to determine the limits and type of flexible pavement repair. An evaluation process of the repair, including its performance and effects on the PM surfacing, will be developed.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7175

TTI | Planning and Environment

Project Number	Project Name	Status
0-7176	Develop and Updated Methodology for Calculation of Reimbursement Levels for Utility Relocations	Active

Project Start Date: 09/01/2023
Completion Date: 12/31/2025
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $423,896.25
TTI Total Budget: $423,896.25
TTI FY25 Budget: $133,011.75
TTI Total Proj Spend: $329,103.50
TTI FY25 Spend: $101,924.45

Project description: Of the various situations in which a utility relocation is eligible for reimbursement at the Receiving Agency, one of the most complex situations is when parts of the existing utility facility involve a property interest. For utility facilities that involve a private property interest, the Receiving Agency uses an eligibility ratio, which is defined as the percentage of utility facilities that are reimbursable in relation to the total amount of utility facilities being relocated. In practice, eligibility calculations can be convoluted or complex, particularly in situations where the utility facility spans multiple property interest locations. The Performing Agency shall develop and test an improved methodology to determine reimbursement eligibility and calculate utility reimbursement amounts. The Performing Agency shall document a significant sample of utility relocations and their associated reimbursement costs to develop a reliable baseline of practices throughout the state, evaluate practices in other states, develop and test an updated methodology for utility reimbursement eligibility criteria and calculations, prepare a guidebook with examples on how to determine utility reimbursement criteria and calculate reimbursement amounts, and prepare and test training materials.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

It has become necessary to amend the contract to extend the termination date, revise the budget, the Project Schedule, due to the delays in receiving feedback regarding the analysis approach and how to structure the results and recommendations; The FY 2024 budget remains $250,971.50. The FY 2025 budget is decreased by $39,913.00 from $172,924.75 to $133,011.75. The FY 2026 budget is established at $39,913.00. The Total Project Budget remains $423,896.25.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7176

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7177	Identifying Pavement Improvement Projects for Enhanced Safety	Active

Project Start Date: 09/18/2023
Completion Date: 02/28/2026
Lead University: TTI
University #2: UH
Project Status: Active
Total Project Budget: $478,160.00
TTI Total Budget: $368,491.25
TTI FY25 Budget: $148,018.00
TTI Total Proj Spend: $325,641.88
TTI FY25 Spend: $160,815.58

Project description: The Performing Agencies shall develop a method and tool for analyzing safety-related pavement data to identify candidate pavement safety projects, such as cross-slope improvement projects and flushing treatment projects. The Performing Agencies shall assemble a dataset containing comprehensive data on the pavement, site condition, and crashes for a representative sample of on-system roadways. The Performing Agencies shall conduct a comprehensive analysis of the integrated dataset to identify critical combinations and thresholds of pavement conditions that may pose a safety hazard and use these factors to assess pavement susceptibility to crashes. The Performing Agencies shall quantify the pavement crash susceptibility based on measurable pavement characteristics such as cross-slope, geometrics, distresses (e.g., rutting, flushing), skid resistance, and roughness. Finally, the Performing Agencies shall develop a data analysis and visualization tool for assessing pavement crash susceptibility and recommending solutions to reduce crash risks. The Receiving Agency's districts will be able to use this tool to identify potential site-specific crash contributing factors and proactively select appropriate pavement safety improvement projects.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7177

TTI | Structures and Hydraulics

Project Number	Project Name	Status
0-7179	Evaluate Safety End Treatments for Roadside Drainage Structures	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $863,759.75
TTI Total Budget: $863,759.75
TTI FY25 Budget: $368,299.75
TTI Total Proj Spend: $222,629.23
TTI FY25 Spend: $98,090.29

Project description: Drainage is a critical element of roadside design and often calls for the use of cross-drainage and parallel-drainage culverts. If untreated, the ends of the drainage structures can become roadside hazards that can result in serious injury when an errant vehicle leaves the roadway. The most cost-effective strategy is often to make the culvert end traversable using grates comprised of pipe runners across the culvert end. The Performing Agency shall investigate the safety performance of traversable cross-drainage and parallel-drainage culvert end treatments installed on roadside slopes. The Performing Agency shall address the various design variations of safety end treatments supported by current standards to investigate the safety performance. The Performing Agency shall develop design guidance to recommend slopes and size, length, and spacing of the pipe runners for both cross-drainage and parallel-drainage culverts that comply with the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH). The Performing Agency shall use full-scale crash testing to aid with validating the design guidance.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract to revise the budget to include testing and construction services in FY25 and FY26.The FY 2024 budget remains $204,590.00. The FY 2025 budget remains $368,299.75.The FY 2026 budget remains $290,870.00. The Total Project Budget remains $863,759.75.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7179

TTI | Safety and Operations

Project Number	Project Name	Status
0-7183	Develop Crash Modification Factors for Super 2 Highways	Closed

Project Start Date: 09/01/2023
Completion Date: 11/30/2024
Lead University: TTI
University #2: TXST
Project Status: Closed
Total Project Budget: $236,029.68
TTI Total Budget: $167,065.25
TTI FY25 Budget: $21,220.25
TTI Total Proj Spend: $166,425.00
TTI FY25 Spend: $22,517.20

Project description: Super 2 highways have been used across Texas for over 20 years, providing operational and safety benefits to rural two-lane highways at lower cost than widening to four-lane, and more are planned as the demand increases on the state highway system. Previous Super 2 research has provided insights on safety improvements, but the Receiving Agency would benefit from an updated crash modification factor (CMF) based on a rigorous review and analysis of recent crash data from the state's many Super 2 highways. This CMF would provide additional support for installing Super 2 corridors throughout the state and complement existing guidance. The Performing Agencies shall use their existing database of Super 2 highways and site characteristics, combined with additional data on traffic volumes, crashes, and other relevant factors, to develop a comprehensive Super 2 dataset for analysis and identification of relationships between crashes and other characteristics. Using the results of this analysis, the Performing Agencies shall define one (1) or more CMFs or crash modification functions (CMFunctions) that the Receiving Agency and other practitioners can use to make decisions on installing future Super 2 corridors. The Performing Agencies shall disseminate these CMFs to the Federal Highway Administration's (FHWA's) CMF Clearinghouse for inclusion in their database.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7183

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7185	Develop Enhanced Cold Recycling Methods and Specifications	Active

Project Start Date: 09/19/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $1,731,875.00
TTI Total Budget: $1,731,875.00
TTI FY25 Budget: $551,853.00
TTI Total Proj Spend: $785,871.23
TTI FY25 Spend: $380,163.41

Project description: Texas continues to use cold recycling for pavement rehabilitation and performs a significant amount of full depth reclamation (FDR). While cement remains the most widely used treatment, use of asphalt emulsion and foamed asphalt continues to grow. This project shall identify and evaluate topics to strategically enhance cold recycling practices in Texas. This project shall perform a comprehensive performance analysis of recent as-built projects to identify strengths and opportunities for process enhancement. For cement, this project shall evaluate how cement type may influence mixture properties, analyze the Texas Flexible Pavement System (FPS) structural design assumptions based on current mix design and construction practices, and summarize methods to improve early trafficking. For emulsified and foamed asphalt, this project shall develop cold-in-place recycling (CIR) applications for Texas and identify, evaluate, and recommend enhanced pavement design procedures for cold recycling with asphalt binders. This project shall use all results to develop enhanced cold recycling project selection procedures, recommend updates to the Receiving Agency's specifications, and develop and perform training.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7185

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7186	Develop Next Generation of Hamburg Rutting Test for Asphalt Mixes	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2: CTR
Project Status: Active
Total Project Budget: $634,305.00
TTI Total Budget: $574,305.00
TTI FY25 Budget: $197,673.00
TTI Total Proj Spend: $307,191.36
TTI FY25 Spend: $127,931.44

Project description: The Hamburg Wheel Track (HWT) rutting test generally serves well as the standard rutting test for asphalt mixes in Texas; however, in the last several years, some premium mixes (i.e. stone matrix asphalt), designed with PG76-22 and low HWT rut depth, have experienced premature rutting failures under slow moving (or stop/ go) traffic in several Receiving Agency Districts. Such failures burden the Receiving Agency with extra cost. Furthermore, it was reported that the HWT test cannot accurately quantify the better rutting performance of some tougher mixes with highly modified asphalt (HiMA). Thus, the Performing Agency shall develop the next generation of HWT test to accurately screen out asphalt mixes that are prone to rutting failures. The Performing Agencies shall review the literature, survey Districts, and other state departments of transportation (DOTs) to identify the proper rutting test(s) and asphalt mixes for addressing the rutting failure caused by the slow-moving traffic. The Performing Agencies shall further develop the next generation of HWT test and associated acceptance criteria through finite element analysis, laboratory testing, field accelerated pavement testing and survey of in-service pavement intersections, round robin test, and recommendation of specification changes.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7186

TTI | Planning and Environment

Project Number	Project Name	Status
0-7187	Exploring and Developing Innovative Methods for Estimating VMT on Local Roads in Texas	Closed

Project Start Date: 09/05/2023
Completion Date: 08/31/2025
Lead University: TTI
University #2: TXST
Project Status: Closed
Total Project Budget: $399,269.95
TTI Total Budget: $359,104.50
TTI FY25 Budget: $201,499.00
TTI Total Proj Spend: $363,664.35
TTI FY25 Spend: $204,416.33

Project description: State agencies must report vehicle miles traveled (VMT) estimates for local roads compiled in the statewide summaries dataset of the Highway Performance Monitoring System (HPMS) database. While the VMTs for higher functional class roads are the product of annual average daily traffic (AADT) with the corresponding roadway segment length (L); the states produce the VMT estimates for local roads as an aggregate measure using a variety of methods. Currently, the local road network accounts for more than two-thirds (67%) of the total roadway mileage in Texas and is the largest in the United States. Conducting short-term counts (STCs) (e.g., for a few hours up to a few weeks) on an extensive local road network to develop VMT is financially challenging; hence, the Receiving Agency uses statistical methods to obtain aggregated VMT. Although the current methods are statistically verified, they are yet to be revised and validated. The Performing Agencies shall investigate and develop data-driven methods for VMT estimation that can be implemented in Texas and provide significant savings to the Receiving Agency. The developed methods shall also reduce any bias in the estimation of VMTs on local roads that can lead to the overestimation or underestimation of travel demand.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7187

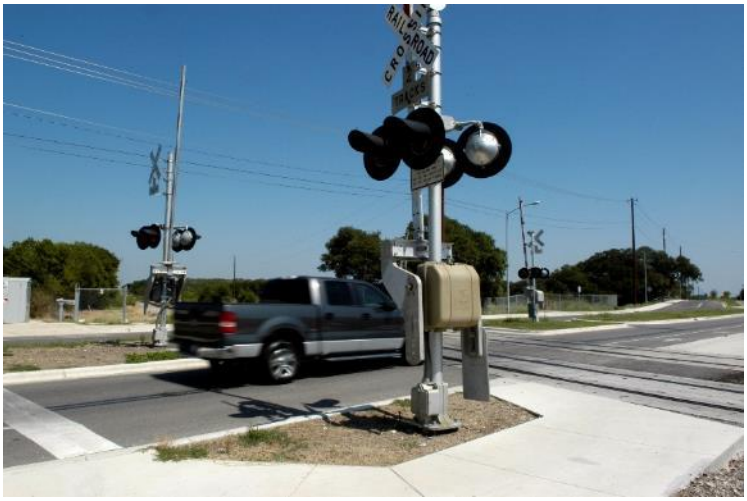
TTI | Planning and Environment

Project Number	Project Name	Status
0-7189	Safety Assessment of Shared Use Paths at Roadway Crossings using Exposure-Based Models	Active

Project Start Date: 09/01/2023
Completion Date: 04/30/2026
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $489,073.35
TTI Total Budget: $412,128.75
TTI FY25 Budget: $147,504.50
TTI Total Proj Spend: $338,918.03
TTI FY25 Spend: $135,498.95

Project description: Shared or multiuse paths invite a wide range of users, including pedestrians, bicyclists, and other wheeled users, with a range of transportation purposes such as commuting, exercise, and recreation. Although shared use path (SUP) users are physically separated from traffic, they remain vulnerable at roadway crossings. In the absence of roadway cross-section designs for accommodating pedestrians and bicyclists, SUP crossings can present users with complex tasks including gap selection, scanning for turning vehicles, and interacting with other path users. Ensuring safe crossings for all users at these locations is essential. Pedestrian and bicycle treatments have been developed and their safety effectiveness has been assessed in several studies and practices. Although technically these designs can be applied to SUPs, it is not clear how to integrate treatments for different types of path users, road classifications, land-use contexts, and crossing geometries. With the increasing implementation practices of SUPs across Texas, there is a need to assess the potential safety concerns involving pedestrians, bicyclists, micromobility users, and people with disabilities at these locations and develop guidance for treatment selection, including for paths next to railroads. The Performing Agencies shall explore

the pedestrian and bicyclist crashes at the vicinity of SUPs and develop design and planning guidance for implementation purposes.



Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

Amend the contract to extend the termination date, and to revise the Project Budget, the Project Schedule, and the Work Plan, due to the need to identify additional on-system shared user path (SUP) roadway sites to collect and analyze data. TTI: The FY 2024 budget remains $185,614.25; the FY 2025 budget is increased by $37,432.75 from $110,071.75 to $147,504.50; the FY 2026 budget is established at $79,010.00; TTI's Total Project Budget is increased by $116,442.75 from $295,686.00 to $412,128.75. TXST: The FY 2024 budget remains $31,040.30; the FY 2025 budget remains $23,273.05; the FY 2026 budget is established at $22,631.25; TXST's Total Project Budget is increased by $22,631.25 from $54,313.35 to $76,944.60. The Itemized Project Budget is increased by $139,074.00 from $349,999.35 to $489,073.35.

CTR Library Project Link:

TTI / Safety and Operations

Project Number	Project Name	Status
0-7190	Roadside Safety Device Analysis, Testing, and Evaluation Program	Active

Project Start Date: 09/01/2023	Completion Date: 11/30/2026
Lead University: TTI	University #2:
Project Status: Active	Total Project Budget: $2,542,402.75
TTI Total Budget: $2,542,402.75	TTI FY25 Budget: $822,643.50
TTI Total Proj Spend: $1,587,006.68	TTI FY25 Spend: $827,960.01

Project description: The Road to Zero has targeted a goal of zero deaths and serious injuries on Texas roadways. Recent trends in Texas indicate a continued increase in highway fatalities each of the past three years. In 2021, roadway departure crashes were responsible for 40 percent of all crash-related fatalities in Texas, which is the largest single category by crash type. In October 2021, Federal Highway Administration (FHWA) designated Texas as one of 16 Roadway Departure Focus States based on being over-represented on three (3) different roadway departure crash fatality metrics. Roadside safety devices are a key element of an effective roadway departure safety strategy. These safety devices shield motorists from roadside hazards such as non-traversable terrain and fixed objects, thereby reducing injuries and fatalities associated with roadway departure crashes.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7190

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7191	Develop Systematic and Quantitative Approach to Assess the Probability of Extreme Weather and Resilience Risks for TxDOT Highways and Bridges	Closed

Project Start Date: 12/05/2023
Completion Date: 08/31/2025
Lead University: TTI
University #2: CTR, UTSA, TXST
Project Status: Closed
Total Project Budget: $796,520.38
TTI Total Budget: $329,123.25
TTI FY25 Budget: $169,345.25
TTI Total Proj Spend: $330,778.39
TTI FY25 Spend: $166,441.43

Project description: Climate stressors pose a significant threat to transportation infrastructure. Recognizing this, Federal Highway Administration (FHWA) requires State Departments of Transportation (DOTs) to consider extreme weather and resilience in life cycle planning and risk management analyses within a State's Transportation Asset Management Plan (TAMP). The 2022 Texas TAMP identified risk categories that could impact the Receiving Agency's infrastructure (specifically, highways and bridges). Extreme weather and resilience were discussed extensively, but the 2022 TAMP lacked a systematic and quantitative approach to assess climate-related risks to infrastructure and in life cycle planning analysis. The objective of this research is to develop a robust quantitative risk framework that can be implemented in subsequent Texas TAMPs. To successfully accomplish this objective, the Performing Agencies shall:

1. Manage the project scope, budget, and timeline.
2. Conduct an extensive review of the literature.
3. Identify climate stressors to the Receiving Agency's pavements and bridges.

4. Assess the probability of such climate stressors and extreme weather events.
5. Quantify the impact on bridges.
6. Quantify the impact on pavements.
7. Develop an asset risk and resilience assessment framework.
8. Develop and quantify adaptation strategies.
9. Conduct scenario analysis.
10. Identify proxy indicators that can be tracked to monitor high-priority risks.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7191

TTI | Structures and Hydraulics

Project Number	Project Name	Status
0-7192	Develop Performance of Baseplate Connections in COSS and Traffic Signal Structures	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2: UTEP
Project Status: Active
Total Project Budget: $988,604.75
TTI Total Budget: $877,423.50
TTI FY25 Budget: $342,947.50
TTI Total Proj Spend: $592,207.35
TTI FY25 Spend: $354,950.68

Project description: The Receiving Agency cantilever overhead sign structures (COSS) and traffic signal pole structures have a socketed fillet welded connection between the column and the baseplate. While economical, this connection has a low fatigue-resistance threshold. Some current and past Receiving Agency designs and contractor submitted alternates involving multi-sided bent plate columns were not designed using fatigue provisions. Fatigue provisions did not exist in the design specification of the time. The Receiving Agency is currently updating various ancillary structure standards for Load and Resistance Factor Design - Luminaires and Traffic Signals (LRFD-LTS) specifications, which does include fatigue provisions. Research is needed to ascertain the best connection type and design, while balancing economy and performance for new structures. The Performing Agencies shall identify the fatigue life of existing structures, including critical cases and means of repair and retrofit, in this research. The results of this research will lead to improved ancillary structure details with mitigated fatigue risk, as well as a method of identifying existing inventory with fatigue risks. The objectives of this research are to:

1. Outline fabrication practices and economic considerations that may affect proposed connection type and design.

2. Develop an inventory database of COSS and traffic signal pole structures that are representative.
3. Utilize structural modeling to identify from within the inventory critical cases that should be advanced to a testing program.
4. Develop and execute a targeted testing program that isolates critical design parameters for the fatigue performance of both the critical cases found in the inventory and recommended connection types and designs.
5. Provide recommendations for connection types and designs based on fatigue provisions.
6. Provide recommendations for identifying fatigue-critical of existing inventory.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7192

TTI | Structures and Hydraulics

Project Number	Project Name	Status
0-7193	Develop Assessment and Mitigation Guidance for Ancillary Highway Structures with Existing Cracks	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: CTR
University #2: TTI
Project Status: Active
Total Proj Budget: $1,493,580.09
TTI Total Budget: $499,151.75
TTI FY25 Budget: $203,309.00
TTI Total Proj Spend: $324,040.02
TTI FY25 Spend: $204,859.07

Project description: Ancillary structures (AS) exist in a wide variety of applications critical to safety and daily needs of the travelling public (e.g. HMIP, COSS, and traffic signals). The long-term corrosion performance of these structures is of utmost importance to prevent deterioration and extend the structural design life and safety. While hot-dipped galvanizing provides excellent long-term behavior for corrosion control of these critical structures, over the past 20 years this process has been found to create extensive cracking of welds on base plate connections that is detrimental to the fatigue lives of these poles. Although improved details are used in new designs, thousands of HMIP, COSS, and signal poles exist in Texas with varying levels of cracking in the welds between the baseplates and pole shafts. The research outlined in this proposal identifies and provides critical assessment parameters and guidance for the Receiving Agency to determine if cracks should be monitored, repaired, or the structural component replaced. The proposed research includes a representative assessment of weld cracking in the AS inventory, the development of monitoring hardware and techniques, the development and assessment of repair techniques, and the development of certification methods/standards for inspection personnel.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7193

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7195	Quantify Bridge and Pavement Consumption Due to Permitted Overweight/Oversized (OW/OS) Vehicles	Active

Project Start Date: 09/01/2023
Completion Date: 02/28/2026
Lead University: CTR
University #2: TTI, UTSA
Project Status: Active
Total Project Budget: $828,584.25
TTI Total Budget: $75,000.00
TTI FY25 Budget: $30,000.00
TTI Total Proj Spend: $59,284.23
TTI FY25 Spend: $27,865.15

Project description: In 2012, the Rider 36 study indicated that damage caused to bridges and pavements by overweight (OW) vehicles surpassed the revenue collected by permit fees by approximately $200 million annually. This finding was corroborated by a recent 2022 study mandated by House Bill 2223, which quantified this gap at $168 million. Besides the revenue shortage to cover bridge and pavement maintenance and rehabilitation costs due to the damage cause by OW vehicles, the 2022 study also identified additional shortcomings that need to be urgently addressed. These shortcomings include: 1) lack of a methodology for periodically adjusting permit fees to account for changes in traffic patterns and configurations and higher inflation rates; 2) lack of accurate data and process for calculating annual vehicles-miles-travelled (VMT) by each permit type; 3) uncertainty in the identification of routes and number of trips for monthly, quarterly, or annual permits; 4) absence of a method and process to assess the damage caused by OW vehicles to the off-system bridges and highways. The Performing Agencies shall develop, recommend, and provide the Receiving Agency a well-established and documented step-by-step method to periodically update the permit fee structure.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7195

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7197	Evaluate Effects of Recycled Asphalt Pavement (RAP) on Performance-Graded (PG) Binder Polymer Concentration	Active

Project Start Date: 10/06/2023
Completion Date: 04/30/2026
Lead University: CTR
University #2: TTI
Project Status: Active
Total Project Budget: $593,006.28
TTI Total Budget: $245,000.00
TTI FY25 Budget: $120,243.50
TTI Total Proj Spend: $193,985.22
TTI FY25 Spend: $111,906.51

Project description: Polymer additives are used to design high PG virgin binders that meet the PG requirements to protect the mix against rutting and cracking under the climate and traffic conditions of an HMA project. When RAP is added to the mixture, the effective binder may not meet the desired grade. This project shall quantify the extent to which polymer dilution is a problem that should be addressed in the Receiving Agency's HMA specifications and if so, develop specification language to address it. This project involves evaluating binder blends and mixtures with RAP. Both lab blended and commercial PG binders shall be evaluated for continuous grade, elasticity, polymer content, and other rheological parameters. Then these binders shall be mixed with recovered RAP binders at several percentages and retested to determine the same properties. Standard mixtures(s) shall also be used with several of these binders and various RAP percentages to measure mixture performance-related properties (cracking and rutting). The Performing Agency shall use the results from binder and mixture results on the impact of "virgin binder – RAP binder dilution" and work with the Receiving Agency to develop specification language for inclusion in the Receiving Agency's HMA specifications, as needed.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7197

TTI | Safety and Operations

Project Number	Project Name	Status
0-7198	Traffic Control Device Analysis, Testing, and Evaluation Program	Active

Project Start Date: 09/01/2023
Completion Date: 11/30/2027
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $1,637,159.25
TTI Total Budget: $1,637,159.25
TTI FY25 Budget: $538,838.50
TTI Total Proj Spend: $855,353.15
TTI FY25 Spend: $322,746.03

Project description: Traffic control devices (TCDs) are the primary means of communicating highway information to road users and play a key role in highway automation. The design, application, and maintenance of TCDs is under constant transformation as new technologies, methodologies, and policies are introduced. In addition, vehicle technologies and the roadway infrastructure industry are rapidly evolving, spurred by technology advancements, customer demand, changes in the vehicle fleet, and changes in national and state policies. The Performing Agency shall provide the Receiving Agency a mechanism to quickly and effectively conduct high priority evaluations of issues related to TCDs. The TCD issues to be evaluated in this project could represent new devices or technologies, new applications of an existing device or technology, TCD material performance, changes in the Receiving Agency's practices regarding a TCD, or other TCD related needs. Examples of various evaluations include human factors, machine vision performance, safety and operational effects, visibility assessments, and cost effectiveness analyses. The activities conducted through this project shall support the development of TCD related policy, specifications, guidelines, handbooks, and training.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Revise the budget by removing the subcontractor because the Performing Agency hired him as an employee.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7198

TTI | Strategy and Innovation

Project Number	Project Name	Status
0-7199	Identification of Needs and Strategies for First Responder Interactions with Automated Vehicles (Avs)	Closed

Project Start Date: 09/01/2023
Completion Date: 04/30/2025
Lead University: TTI
University #2: TEEX
Project Status: Closed
Total Project Budget: $310,814.13
TTI Total Budget: $288,461.50
TTI FY25 Budget: $57,037.25
TTI Total Proj Spend: $286,017.19
TTI FY25 Spend: $58,974.71

Project description: The number of vehicles with automated functions continues to increase on Texas roadways. Several companies are testing or will soon deploy demonstrations of Level 4 automated vehicles or connected automated vehicles (CAV/AVs) within the state, with no notification requirements. Additionally, several automated commercial motor vehicle (ACMV) projects are testing Level 4 automation. While safety goals are aimed at minimizing the number of adverse incidents that occur, it is inevitable that a crash or other adverse operations will happen involving one (1) of these automated vehicles. The Receiving Agency's Highway Emergency Response Operator (HERO) program and other first responders are part of the front line that must be prepared to encounter a CAV/AV or ACMV during a routine interaction or adverse event/accident. This project will identify needs and strategies for first responders to understand how these vehicles operate, how to safely approach and disable these vehicles as needed during routine and adverse incident interactions and how to interact with AVs during an accident or emergency.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Amend the contract to extend the termination date and revise the Project Schedule to allow the Receiving Agency to review draft deliverables with external subject matter experts.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7199

TTI | Strategy and Innovation

Project Number	Project Name	Status
0-7200	Utilizing Telematics to Understand Driving Behavior During Missed Exits and Wrong Turns	Closed

Project Start Date: 09/01/2023
Completion Date: 08/31/2025
Lead University: TTI
University #2: UTA
Project Status: Closed
Total Project Budget: $403,695.31
TTI Total Budget: $253,800.50
TTI FY25 Budget: $125,096.50
TTI Total Proj Spend: $249,010.86
TTI FY25 Spend: $122,793.43

Project description: Texas is currently experiencing its largest population growth in decades. More and more lands are being urbanized and complex design methods are often adopted. As a result, drivers are likely confused at certain locations such as ramps, roadway exits and intersections. The overarching goal of this project is to identify unsafe and inefficient locations of Texas state highways, where driving behaviors often reveal excessive abnormities (e.g., hard brakes, control stops and/or missing of road entrances/exits). Problematic locations are due to misleading roadway designs or signage configurations in many cases. In the past, the Receiving Agency could not identify such locations until either a driver called to complain, or crashes occurred frequently. The emerging telematics data from connected vehicles (CVs) will enable such possibility to identify and fix problematic locations proactively. Applying the state-of-the-art big data analytics and Artificial Intelligence (AI) techniques on the emerging vehicle telematics data (delivered by Wejo and INRIX), the Performing Agencies shall demonstrate how to identify problematic locations within the selected area. The Performing Agencies shall also integrate multiple advanced computing techniques (e.g., high-performance computing, cloud-computing

etc.) to cost-effectively streamline the process of traffic big data fusion, cleaning, and reduction for the Receiving Agency' future practices.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7200

TTI / Structures and Hydraulics

Project Number	Project Name	Status
0-7203	Evaluate the Effectiveness of Dowels for Lateral Restraint of Prestressed Concrete Beams	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $452,754.00
TTI Total Budget: $452,754.00
TTI FY25 Budget: $145,243.00
TTI Total Proj Spend: $165,872.89
TTI FY25 Spend: $158,091.61

Project description: The Receiving Agency has utilized dowels in bents to provide lateral restraint of prestressed concrete beams., These dowels are often misplaced, which creates various construction issues, while their presence complicates bearing pad replacement. The Performing Agency shall provide research findings to the Receiving Agency to make informed decisions on stopping the use of such dowels, the Performing Agency shall perform a thorough literature review to: (i) summarize the state-of-art, state-of–the-practice and key findings, and (ii) address questions relating to unintended consequences from removal of these dowels during erection of the girders, construction of the deck, and long-term performance and stability. The performing agency shall perform an investigation on the state-of-the-practice of all state Department of Transportations (DOTs) throughout the country, focusing on practices from DOTs with similar hazard exposure. The performing agency shall perform a parametric finite element (FE) study on multiple the Receiving Agency bridge (and girder) designs to investigate the performance under all major load combinations and limit states (from service to ultimate conditions) over the lifetime of the bridge accounting for Texas-related exposure conditions. The performing agency shall perform six (6) large-scale tests on girder-to-bent/abutment connections to quantify the contribution of dowels in the performance of the connections.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7203

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7205	Evaluation of Adhesive Anchors in Concrete Pavement Applications	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $731,540.50
TTI Total Budget: $731,540.50
TTI FY25 Budget: $357,779.25
TTI Total Proj Spend: $275,337.05
TTI FY25 Spend: $268,668.15

Project description: The Performing Agency shall perform a comprehensive evaluation of adhesive anchors used in concrete pavement applications, particularly full-depth repairs. The Performing Agency shall investigate the effects of sustained and cyclic loading on long term stiffness of the bond between the concrete, the adhesive grout, and the steel anchor. The potential benefits will lie in the suitability of adhesive anchors to perform in concrete pavement applications in addition to the development of recommendations for the use of adhesive anchors to minimize premature failures and to extend pavement service life by maintaining the stiffness of a repair made using drilled adhesive anchors.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7205

TTI / Structures and Hydraulics

Project Number	Project Name	Status
0-7207	Determine Feasibility and Efficacy of Hollow Precast Straddle Bents	Active

Project Start Date: 10/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: UTSA
Project Status: Active
Total Project Budget: $1,298,699.50
TTI Total Budget: $998,927.00
TTI FY25 Budget: $210,080.00
TTI Total Proj Spend: $225,776.47
TTI FY25 Spend: $218,676.38

Project description: Bent caps provide a critical load path between girder reactions and bent columns. Supporting considerable reactions over long spans, bent cap cross-sections grow substantial, necessitating robust cast-in-place designs that have stood the test of time. However, the considerable weight and time required for their construction present challenges that undermine their apparent simplicity.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract to revise the budget and schedule due to delays in the subcontractor constructing the precast concrete test specimen. Performing Agency 1: The FY 2025 budget is decreased by $80,000.00 from $290,080.00 to $210,080.00. The FY 2026 budget is increased by $80,000.00 from $434,329 to $514,329.00. The FY 2027 budget remains $274,518.00. The Performing Agency 1 Total Project Budget remains $998,927.00. Performing Agency 2: The FY2025 Budget is decreased by $43,242.50 from $73,781.25 to $30,538.75. The FY2026

Budget remains $141,558.75. The FY2027 Budget is increased by $43,242.50 from $84,432.50 to $127,675.00. The Performing Agency 2 Total Project Budget remains $299,772.50. The Itemized Project Budget Estimate remains $1,298,699.50.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7207

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7208	Evaluating Minimum Virgin Binder Contents for Durable Recycled Asphalt Pavement (RAP) Mixes	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: CTR
Project Status: Active
Total Project Budget: $793,403.62
TTI Total Budget: $495,048.25
TTI FY25 Budget: $151,829.50
TTI Total Proj Spend: $140,493.27
TTI FY25 Spend: $129,427.29

Project description: Economic factors and environmental sustainability are driving the use of more reclaimed asphalt pavement (RAP); however, durability of those mixes has been a concern. Various approaches (e.g. limiting RAP usage, increasing lab-molded density, or balanced mix design (BMD)) have been tried to improve mix durability. All the approaches point to one essential factor for durable RAP mixes: minimum virgin binder content. Thus, the Performing Agency shall determine the minimum virgin binder content(s) for durable RAP mixes. The Performing Agencies shall review the literature to identify critical factors affecting RAP mix durability. Considering all those critical factors, the Performing Agencies shall develop and execute a statistically sound laboratory experimental design to develop the relationships between cracking properties measured by Overlay test and Ideal cracking test and mix components (e.g. virgin binder content) and their characteristics. Furthermore, the Performing Agencies shall assess field performance of RAP mixes and delineate the correlation between field performance and laboratory mix cracking properties. Subsequently, the Performing Agencies shall recommend minimum virgin binder contents based on the relationships among field performance, mix cracking properties, and mix components and their characteristics, and develop guidelines, update specifications, and organize training sessions.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7208

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7210	Evaluation of Low-Speed Profiler for Network-Level Pavement Management	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $504,752.00
TTI Total Budget: $504,752.00
TTI FY25 Budget: $249,275.50
TTI Total Proj Spend: $167,264.65
TTI FY25 Spend: $157,712.02

Project description: For pavement management and to understand the condition of its network, the Receiving Agency relies on high-speed inertial profilers to gather ride quality. However, a persistent challenge arises when assessing pavement smoothness at low speeds or under stop-and-go conditions (i.e., signalized intersections, stop-control intersections, high driveway density producing turning traffic, and congested roadways during peak-hour traffic) that compromises the accuracy of data collected by conventional profilers. For example, collecting ride quality measurements on a congested roadway with multiple driveways leads to acceleration and deceleration of the collection vehicle, potentially adding "false" dips into the measurements. If these dips are included in network-level measurements, these types of roadways could receive a poor condition score that is not indicative of the true pavement condition. Collecting data on roadways with signalized intersections and slow-moving congested traffic could have the same challenges. The Performing Agency shall explore the potential of low-speed profilers to enhance data collection accuracy in such scenarios. The Performing Agency shall evaluate the effectiveness of low-speed profilers in providing accurate pavement profile data, particularly in areas prone to low-speed or acceleration and deceleration operations. The Performing Agency shall validate the capabilities of low-speed profilers and recommend strategies

for their integration into the Receiving Agency's pavement management practices, ultimately leading to a more accurate condition assessment.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7210

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7212	Incorporating Lab Skid measurements into the Balanced Mix Design process	Active

Project Start Date: 10/18/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: UT-TYLER
Project Status: Active
Total Project Budget: $688,699.00
TTI Total Budget: $668,484.50
TTI FY25 Budget: $208,603.50
TTI Total Proj Spend: $226,947.92
TTI FY25 Spend: $211,452.94

Project description: The Performing Agency 1 shall develop and validate a laboratory test procedure to measure skid resistance of any surface mix. The Performing Agency 1 shall incorporate this test procedure into the Receiving Agency's Balanced Mix Design (BMD) process.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7212

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7215	Predicting Field Performance of Pavement Markings Statewide in Texas	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2028
Lead University: TTI
University #2: CTR, UTSA, TXST
Project Status: Active
Total Project Budget: $908,930.52
TTI Total Budget: $618,537.00
TTI FY25 Budget: $131,646.50
TTI Total Proj Spend: $88,061.61
TTI FY25 Spend: $75,758.20

Project description: Pavement markings and markers are the primary means for an agency to provide longitudinal guidance to drivers. To be effective, markings and markers must be visible during all driving conditions, day, and night. A variety of pavement marking materials (binders and beads) and varying installation specifications (application type, material thickness) create a wide range of initial performance and maintained performance over a markings service life. Currently, markings are evaluated initially to ensure a minimum initial retro-reflectivity performance is obtained, but that initial performance has not been well researched to determine its impact on the overall durability and performance of the marking over its service life. The Performing Agencies shall explore various factors that affect pavement marking performance over the service life of the marking (pavement marking materials, installation specifications, pavement surface, traffic conditions, and geographic and climatic region) to develop performance models for Texas. Performance of a variety of markings and markers shall be evaluated at various field test areas. These same marking materials shall be evaluated through lab testing to explore accelerated weathering and wear tests that correlate with the field performance.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7215

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7218	Revisions for the TxDOT Pavement Management Information System (PMIS) Rater's Manual	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: TECH, TXST
Project Status: Active
Total Project Budget: $729,643.60
TTI Total Budget: $370,555.25
TTI FY25 Budget: $102,410.50
TTI Total Proj Spend: $94,023.78
TTI FY25 Spend: $85,566.57

Project description: The Receiving Agency Pavement Management Information System (PMIS) Rater's Manual is in need of revision. Several distress rating definitions for different pavement types in the current manual are confusing or outdated and can be improved to assess the condition of such pavements more accurately and consistently. The Performing Agencies shall review, analyze, and propose changes to the current distress rating definitions for flexible and concrete (jointed and continuously reinforced) pavements. The Performing Agencies shall hold collaborative workshops to gather input from Receiving Agency's Maintenance Division and districts on pavement condition data collection challenges using the current manual. The Performing Agencies shall assess the impact of the rating changes to the PMIS scores and recommend changes to distress utility curves if needed. In collaboration with the Receiving Agency, the Performing Agencies shall make adjustments to determine acceptable impacts. The Performing Agencies shall develop a revised PMIS Rater's Manual based on the research results and through collaboration between the Performing Agencies and the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7218

TTI / Safety and Operations

Project Number	Project Name	Status
0-7220	Develop Countermeasures to Lower Operating Speeds and Collisions on Arterial Roadways, and Reduce Vulnerable User Injuries	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2: CTR
Project Status: Active
Total Project Budget: $469,775.05
TTI Total Budget: $319,406.75
TTI FY25 Budget: $153,918.00
TTI Total Proj Spend: $160,745.84
TTI FY25 Spend: $151,863.31

Project description: The Performing Agency shall investigate the effectiveness of arterial-focused speed management countermeasures for application across Texas. The Performing Agency shall quantify the costs and benefits of road and vehicle design, operations, enforcement, and other countermeasure types across a range of settings (for uncontrolled-access arterials under different traffic, road type/context, and land use conditions), resulting in a Texas Arterial Speed Management Toolkit and reports.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7220

TTI / Strategy and Innovation

Project Number	Project Name	Status
0-7221	Develop Data Collection Requirements and Strategic Research Roadmap to Support the Digital Delivery Program	Active

Project Start Date: 10/14/2024
Completion Date: 09/30/2026
Lead University: TTI
University #2: TAMUCC
Project Status: Active
Total Project Budget: $1,082,763.75
TTI Total Budget: $785,699.00
TTI FY25 Budget: $399,911.00
TTI Total Proj Spend: $258,365.11
TTI FY25 Spend: $244,527.32

Project description: The Performing Agencies shall aide the Receiving Agency in transitioning from GeoPak to OpenRoads Designer (ORD) by researching how to extract 3D models from multiple data sources, develop and test procedures to extract 3D models, and develop and test automated workflows for change detection, quality control, and 3D model updating. The Performing Agencies shall also develop a strategic research roadmap to support the Receiving Agency's Digital Delivery Section within the Design Division.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7221

TTI / Safety and Operations

Project Number	Project Name	Status
0-7222	Develop Crash Predictive Methods for Frontage Roads Including Ramp Terminals, and Intersections with Crossroads in Texas	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $392,825.00
TTI Total Budget: $322,824.75
TTI FY25 Budget: $158,609.50
TTI Total Proj Spend: $140,507.89
TTI FY25 Spend: $128,212.46

Project description: Currently, no frontage specific intersection or ramp terminal predictive methods are available, and transportation engineers typically apply methods developed for non-frontage road intersections to evaluate their safety. Additionally, no guidelines exist to select the appropriate distance between adjacent ramps and/or intersections, ramp type and their orders, and distance between ramps and driveways. The first objective of this project is to develop Safety Performance Functions (SPFs) and Crash Modification factors (CMFs) for ramp terminals and intersections of frontage roads with crossroads. The second objective of this project is to evaluate the safety impact of weaving on the frontage road versus weaving on the freeway. The Performing Agencies shall collect site characteristics data and develop crash predictive methods for different types of frontage road segments and intersections on frontage roads, including ramp terminals. The Performing Agencies shall develop these models by area type (i.e., large urban, small urban, suburban/fringe, and rural), Receiving Agency's regions, and facility type (one-way and two-way). These models will supplement the generic SPFs developed in the Receiving Agency's 0-7083 project. The Performing Agencies shall incorporate the crash predictive methods into spreadsheet tools to facilitate the analysis and to support project design decisions of frontage

roads. The Performing Agencies shall also develop a framework for selecting an appropriate configuration for frontage road segments and intersections, and as well guidance for the minimum distance from ramp terminal to crossroad intersection and a need for lane additions.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7222

TTI / Safety and Operations

Project Number	Project Name	Status
0-7223	Conduct MASH Test Level 3 (TL-3) Evaluations of Concrete Barriers on Roadside Slopes	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $489,145.25
TTI Total Budget: $489,145.25
TTI FY25 Budget: $179,783.50
TTI Total Proj Spend: $91,422.68
TTI FY25 Spend: $86,810.18

Project description: Concrete barriers are designed and crash tested for placement on flat terrains. In-field installations of concrete barriers are sometimes placed on slopes adjacent to roadways. By placing the barrier on a slope, the effective height of the barrier that engages an errant vehicle may be reduced since the vehicle may be airborne as it contacts the barrier on a downward slope. Consequently, the barrier may not be able to safely contain and redirect the vehicle. The Performing Agency shall evaluate the performance of the Receiving Agency's 32-inch tall F-shape and 42-inch tall single slope barrier when placed on roadside or median slopes of up to 4H:1V. The Performing Agency shall develop guidance for placement of these barriers using finite element simulation analysis and full-scale crash testing. The guidance shall determine the maximum allowable slope for each barrier type and any placement offsets required from the edge of the roadway or from the bottom of the ditch. The Performing Agency shall evaluate the performance of the barriers using the impact conditions and evaluation criteria specified in the Manual for Assessing Safety Hardware (MASH) for Test Level 3 for longitudinal barriers.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7223

TTI / Strategy and Innovation

Project Number	Project Name	Status
0-7224	Improve Utility Investigations through AI Data Fusion and Reliable Quality Assessments	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $1,033,156.75
TTI Total Budget: $1,033,156.75
TTI FY25 Budget: $602,771.50
TTI Total Proj Spend: $549,925.63
TTI FY25 Spend: $504,535.09

Project description: Identifying and documenting existing utility facilities within the proposed right-of-way (ROW) is crucial for successful project delivery. There is a need to leverage data collection technology's strengths and minimize weaknesses for a more robust and reliable determination of utility locations and develop and test metrics to assess the utility investigation quality levels in ways that make sense to project design teams. Improvements shall lead to a better stakeholder understanding to communicate the quality levels commonly used by the SUE industry (D, C, B, and A), the basis for assessing utility investigation deliverable quality, and would be able to tie quality levels to quantifiable performance metrics such as positional accuracy, error, and completeness, which are common in engineering and surveying when collecting field data for a project

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7224

TTI / Safety and Operations

Project Number	Project Name	Status
0-7226	Analyze Operational and Safety Improvements Associated with Implemented Innovative Intersections in Texas	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $417,931.00
TTI Total Budget: $381,931.00
TTI FY25 Budget: $188,678.00
TTI Total Proj Spend: $93,975.67
TTI FY25 Spend: $90,473.91

Project description: Innovative intersection designs (e.g., diverging diamond interchanges [DDIs], displaced left turns [DLTs], median U-turns [MUTs], and restricted crossing U-turns [RCUTs]) and modern roundabouts are increasingly used in Texas and throughout the country to remove conflict points and redistribute turning traffic from traditional intersections, improving operational efficiency and promoting increased safety. While their use is growing and their benefits have been demonstrated, Texas still has a limited number of innovative intersections, and there is a need to increase the use of these intersections throughout the state. Because many of these intersection types and their design elements are not commonly used in Texas, there is a natural tendency to be cautious about their use. Providing information to help promote these treatments for use in appropriate locations will be important to their successful adoption and implementation. The Performing Agency shall build on recent research to document the benefits of innovative intersections, develop case studies of successfully implemented intersections in Texas, and provide resources for practitioners to use in support of new implementations across the state.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7226

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7227	Exploring the Use of Antioxidants to Substantially Increase Cracking Life of Asphalt Pavements	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: CTR
University #2: TTI
Project Status: Active
Total Project Budget: $800,330.85
TTI Total Budget: $314,135.75
TTI FY25 Budget: $90,907.75
TTI Total Proj Spend: $47,624.93
TTI FY25 Spend: $41,195.39

Project description: Cracking dictates the service life of asphalt pavements. Oxidative aging of the asphalt binder renders the binder brittle and susceptible to cracking. Higher number of high temperature days further exacerbates rate of oxidation and reduction in the service life of an asphalt pavement. Recent coordinated studies by a global consortium of researchers have identified generic chemicals that can act as antioxidants to significantly reduce the oxidative aging of asphalt and increase its cracking resistance and service life. Similarly, commercial additive manufacturers are also exploring the development and deployment of antioxidant additives. In this project the Performing Agencies shall review the literature and interface with existing national and international studies to identify the most promising antioxidant(s) for use with asphalt binders as a modifier. The Performing Agencies shall conduct laboratory studies on asphalt binders and mixtures to evaluate the efficacy of these antioxidants. The Performing Agencies shall also conduct workshops with stakeholders and conduct cost-benefit analysis to develop plans for pilot test sections and facilitate the deployment of such sections with districts and industry partners. Finally, the Performing Agencies shall also present metrics that can be used for specification and quality control purposes by the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7227

TTI / Safety and Operations

Project Number	Project Name	Status
0-7230	Improve Safety and Decrease Vehicle Fatalities by Improving Pavement Markings	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $499,998.00
TTI Total Budget: $425,705.50
TTI FY25 Budget: $140,698.25
TTI Total Proj Spend: $129,928.88
TTI FY25 Spend: $114,125.08

Project description: The Receiving Agency's "End the Streak" goal is to end all fatalities on Texas roads by 2050 as there has not been a day without a death on Texas roadways since November 7, 2000. New strategies must be implemented, such as increasing the efficacy of pavement striping and retroreflective pavement markers in several Receiving Agency districts and monitoring the crash statistics before and after pavement marking and marker improvements over time. The Performing Agency shall target pavement marking retroreflectivity and contrast and shall include the development and implementation of an experimental study design to assess their safety and economic effectiveness.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7230

TTI / Strategy and Innovation

Project Number	Project Name	Status
0-7232	Improve Safety of Vehicles and Vulnerable Road Users at Intersections Integrating C-V2X and LiDAR Sensing Technologies	Active

Project Start Date: 09/03/2024
Completion Date: 10/31/2026
Lead University: TTI
University #2: UTA
Project Status: Active
Total Project Budget: $621,404.75
TTI Total Budget: $391,382.75
TTI FY25 Budget: $194,185.25
TTI Total Proj Spend: $184,796.58
TTI FY25 Spend: $174,330.19

Project description: Crash risks associated with permissive left turns (PLTs), vulnerable road users (VRUs), and wrong way driving (WWD) appear to be among the top attributing factors for fatal and incapacitating crashes at signalized intersections, raising alarming safety concerns. The cellular vehicle-to-everything (C-V2X) communication and innovative traffic detection technologies such as light detection and ranging (LiDAR) sensing have the potential to reduce crashes related to these factors and enhance intersection safety. The Performing Agencies shall develop, test, and demonstrate a prototype system integrating C-V2X communication and innovative traffic detection technologies to improve safety of all road users at signalized intersections. Another objective is to provide the Receiving Agency with guidelines for statewide implementation of the integrated system for intersection safety improvement. The Performing Agencies shall: (1) Review the literature on safety improvement systems utilizing C-V2X and innovative traffic detection systems; (2) Assess user needs and design a system architecture that satisfies user requirements; (3) Develop, test, demonstrate, and evaluate a prototype system that integrates C-V2X communication, LiDAR and other advanced traffic detection technologies to detect and mitigate crash risks involving PLTs, VRUs, and WWD at signalized intersections; and (4)

Develop guideline documents containing implementation procedures and use case scenarios.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7232

TTI / Structures and Hydraulics

Project Number	Project Name	Status
0-7234	Address Knowledge Gaps in Scour Analyses for Cohesive and Other Challenging Channel Materials	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $559,829.50
TTI Total Budget: $559,829.50
TTI FY25 Budget: $276,339.00
TTI Total Proj Spend: $290,304.44
TTI FY25 Spend: $287,167.40

Project description: The Performing Agency shall address two gaps in scour knowledge: pressure scour for cohesive soils and cohesive soils/rocks characterization for scour analyses. Pressure scour occurs when the water reaches the bridge's low chord; this increases the scour depth. Guidelines exist for cohesionless soils but not for cohesive soils. The Performing Agency shall perform a series of Computational Fluid Dynamics (CFD) simulations and/or flume tests to generate the input necessary and expand the SRICOS method to the pressure flow situation in cohesive soils. The Performing Agency shall perform advanced testing on cohesive soils/rocks characterization for scour analyses. Advanced testing examples include the Erosion Function Apparatus (EFA) (Performing Agency) and Scour Testing devices (Federal Highway Administration (FHWA)). The Performing Agency shall determine if the Slake Durability Test (SDT) can be a reasonable surrogate for input in scour depth calculations by collecting samples at a maximum of up to 20 bridges around Texas, and by conducting parallel testing on cohesive soils/rocks such as shale, caliche, and sandstone.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Amend the contract to revise the Work Plan and budget to adjust the number of locations and testing capabilities for Borehole Erosion tests. The FY 2025 budget is increased by $39,075.00 from $237,264.00 to $276,339.00. The FY 2026 budget is increased by $39,075.00 from $244,415.50 to $283,490.50. The Itemized Project Budget Estimate is increase by $78,150.00 from $481,679.50 to $559,829.50.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7234

TTI / Planning and Environmental

Project Number	Project Name	Status
5-6674-03	Implementation of Asphalt Mixture Automated Testing System with Zero Intervention (AMAZE)	Active

Project Start Date: 12/01/2024	Completion Date: 08/31/2026
Lead University: TTI	University #2:
Project Status: Active	Total Project Budget: $430,000.00
TTI Total Budget: $430,000.00	TTI FY25 Budget: $200,000.00
TTI Total Proj Spend: $179,357.04	TTI FY25 Spend: $165,190.05

Project description: The Performing Agency shall assist the Receiving Agency with implementing Asphalt Mixture Automated Testing System with Zero Intervention (AMAZE) developed in research project 0-6674-03, "Automated IDEAL Cracking and Rutting Tests'. The Performing Agency shall write test procedures tailored for AMAZE. Working with the Receiving Agency, the Performing Agency shall enhance AMAZE to measure specimen dimension and handle field cores with various thickness. The Performing Agency shall then use the findings and data generated from this implementation project to develop and teach implementation workshop for the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-6674-03

TTI | Construction, Maintenance & Materials

Project Number	Project Name	Status
5-7025-01	Pilot Implementation of Surface Aggregate Classification of Reclaimed Asphalt Pavement	Active

Project Start Date: 02/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $660,716.00
TTI Total Budget: $660,716.00
TTI FY25 Budget: $199,061.00
TTI Total Proj Spend: $338,886.08
TTI FY25 Spend: $197,919.01

Project description: The Performing Agency shall assist the Receiving Agency with implementing the surface aggregate classification (SAC) for reclaimed asphalt pavement (RAP) developed in research project 0-7025, Develop Surface Aggregate Classification of Reclaimed Asphalt Pavement. The Performing Agency shall implement and verify the methodology of SAC-A RAP classification in a minimum of four (4) Receiving Agency Districts. In each selected Receiving Agency District, the Performing Agency shall work with lab and pavement engineers and their staff to characterize the RAP in terms of SAC, design surface mixtures with the RAP, evaluate the friction and skid resistance of mixtures, and construct and monitor the selected test sections in each Receiving Agency District. The Performing Agency shall then use the data generated in these test sections to develop and teach implementation workshops for Receiving Agency Districts.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-7025-01

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
5-7027-01	Implementation and Performance Monitoring of Accelerating Mix Designs for Cement Treated Base	Active

Project Start Date: 09/01/2024
Completion Date: 05/31/2027
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $626,247.00
TTI Total Budget: $626,247.00
TTI FY25 Budget: $244,958.00
TTI Total Proj Spend: $124,150.95
TTI FY25 Spend: $110,796.75

Project description: The Performing Agency shall apply the accelerated mix design procedure to real pavement designs, encouraging utilization of the new test procedure, enabling the identification of potential areas of improvement, and demonstrating the mechanistic design check. The Performing Agency shall work with a minimum of three (3) Receiving Agency Districts to conduct demonstration projects with performance monitoring. The Performing Agency shall conduct initial performance monitoring on the constructed projects. This monitoring aims to assess the effectiveness of the accelerated design, validate the stability of the designed pavement by evaluating pavement conditions, and enhance the estimated resilience modulus.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-7027-01

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
5-7188-01	Implementation of Pavement Widening Best Practices	Active

Project Start Date: 07/10/2025
Completion Date: 08/31/2026
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget:
TTI Total Budget: $115,000.00
TTI FY25 Budget: $15,430.00
TTI Total Proj Spend: $14,019.15
TTI FY25 Spend: $6,364.67

Project description: Premature pavement failures have occurred on several widening projects, including shoulder widenings, conversion of two-lane roadways to Super 2 sections, and other safety enhancements. Repairing these early failures is time-consuming, expensive, disrupts traffic, and poses safety hazards. Key contributing factors include poor-quality materials, poor joint construction, and inadequate drainage which could have been avoided through proper pavement condition assessment, design, and construction practices. The Performing Agency shall develop detailed guidance to document and implement better widening practices across the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-7188-01

TTI | Safety and Operations

Project Number	Project Name	Status
9-1531	Development and Evaluation of Roadside Safety Systems for Motorcyclists	Closed

Project Start Date: 09/01/2021
Completion Date: 08/31/2025
Lead University: TTI
University #2:
Project Status: Closed
Total Project Budget: $900,000.00
TTI Total Budget: $900,000.00
TTI FY25 Budget: $120,000.00
TTI Total Proj Spend: $768,181.02
TTI FY25 Spend: $80,843.74

Project description: This pooled fund study shall provide a cooperative approach to conducting research addressing roadside safety issues specifically related to improving motorcyclist safety. The study shall provide participating states an opportunity to collaborate on best practices, new regulatory issues, risk management strategies, and other research pertaining to roadside safety improvements for motorcyclists. The research activities shall include the identification, development, and evaluation of strategies and devices for mitigating the frequency and severity of roadway departure motorcyclist crashes.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=9-1531

TTI / Construction, Maintenance & Materials

Project Number	Project Name	Status
9-1533	Designing Roadside Safety Hardware for Emerging Vehicle Types	Active

Project Start Date: 08/15/2025
Completion Date: 05/31/2028
Lead University: TTI
University #2:
Project Status: Active
Total Project Budget: $1,537,500.00
TTI Total Budget: $1,537,500.00
TTI FY25 Budget: $38,764.25
TTI Total Proj Spend: $4,432.18
TTI FY25 Spend: $4,432.18

Project description: Emerging vehicle types are rising in sales and comprising a larger share of the total vehicle fleet. The characteristics of these emerging vehicle types pose many challenges to our transportation system moving forward. For example, their effect on roadside safety hardware has the potential to be significant based on their increased weight, lower center of gravity, and different crush stiffness. Given a set of impact conditions (i.e., impact speed and impact angle), the impact severity associated with an emerging vehicle will increase linearly with the weight of the vehicle. This raises significant concern related to vehicle compatibility with some categories of roadside hardware, such as various types of longitudinal barriers (e.g., guardrail, median barriers, portable concrete barrier, transitions, bridge rails), terminals, crash attenuators, breakaway support structures, and other devices. Many roadside safety features are optimized for the currently prescribed design impact conditions and may have little or no factor of safety for accommodating more severe impacts. The Performing Agency shall address these issues to prevent experiencing a potentially significant increase in roadway departure crash fatalities. The Performing Agency shall focus on providing a coordinated program of safety research for emerging vehicles that shall develop solutions to meet identified needs. The research findings will

benefit the Participating States in numerous ways, not the least of which is enhanced safety.

Approved Work Program Revisions

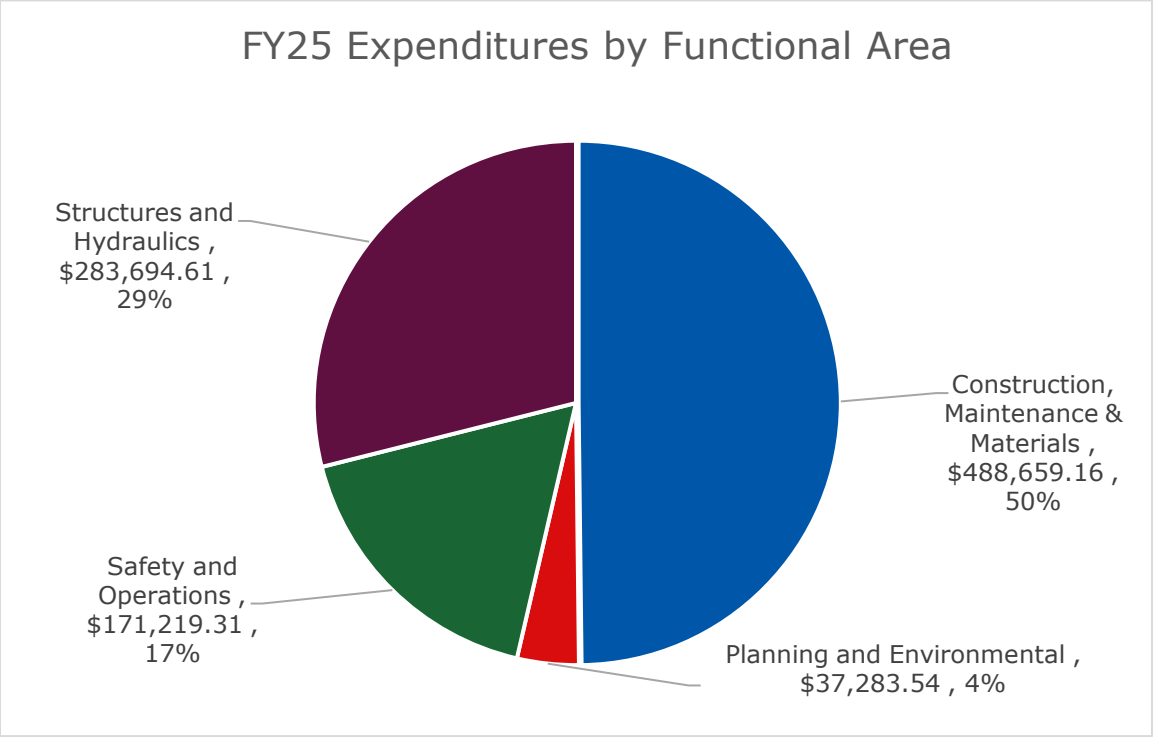
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=9-1533

2.11 TXST – Texas State University – San Marcos

Figure 13 – Pie chart of TXST expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Safety and Operations	0-7144	Develop a Real-time Decision Support Tool for Urban Roadway Safety Improvement	Closed
Construction, Maintenance & Materials	0-7150	Artificial Intelligence for Pavement Condition Assessment from 2D/3D Surface Images	Active
Safety and Operations	0-7171	Barrier Striping for the Reduction of Accidents	Active

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7172	Developing a Performance-Based Concrete Overlay Mix Design for Improved Resistance to Early-Age Cracking and Increased Durability	Active
Construction, Maintenance & Materials	0-7178	Use Network Level Texture to Enhance Pavement Management	Closed
Safety and Operations	0-7183	Develop Crash Modification Factors for Super 2 Highways	Closed
Planning and Environmental	0-7187	Exploring and Developing Innovative Methods for Estimating VMT on Local Roads in Texas	Closed
Planning and Environmental	0-7189	Safety Assessment of Shared Use Paths at Roadway Crossings using Exposure-Based Models	Active
Construction, Maintenance & Materials	0-7191	Develop Systematic and Quantitative Approach to Assess the Probability of Extreme Weather and Resilience Risks for TxDOT Highways and Bridges	Closed
Construction, Maintenance & Materials	0-7206	Develop Optimum 2-Mat Reinforcement Design in Continuously Reinforced Concrete Pavement (CRCP)	Active
Construction, Maintenance & Materials	0-7211	Determine Hydroplaning Potential Using Existing Pavement Asset Data	Active

Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-7215	Predicting Field Performance of Pavement Markings Statewide in Texas	Active
Construction, Maintenance & Materials	0-7218	Revisions for the TxDOT Pavement Management Information System (PMIS) Rater's Manual	Active
Safety and Operations	0-7222	Develop Crash Predictive Methods for Frontage Roads Including Ramp Terminals, and Intersections with Crossroads in Texas	Active
Safety and Operations	0-7226	Analyze Operational and Safety Improvements Associated with Implemented Innovative Intersections in Texas	Active
Safety and Operations	0-7230	Improve Safety and Decrease Vehicle Fatalities by Improving Pavement Markings	Active

TXST | Safety and Operations

Project Number	Project Name	Status
0-7144	Develop a Real-time Decision Support Tool for Urban Roadway Safety Improvement	Closed

Project Start Date: 01/09/2023
Completion Date: 06/30/2025
Lead University: TXST
University #2: TTI
Project Status: Closed
Total Project Budget: $465,010.00
TXST Total Budget: $359,018.50
TXST FY25 Budget: $67,613.50
TXST Total Proj Spend: $347,760.44
TXST FY25 Spend: $65,249.75

Project description: Due to the complex nature of urban roadways, conventional crash prediction models are limited as these models omit operating speed, short-duration volume, and weather data. To mitigate this research gap, the following three national databases can be utilized: (1) National Performance Management Research Data Set (NPMRDS) with passenger and freight speed data, (2) Travel Monitoring Analysis System (TMAS) data with both temporary traffic counting and continuous traffic counting programs, and (3) real-time weather data from the National Oceanic and Atmospheric Administration (NOAA). The fatality rate on Texas roadways for 2020 was 1.50 deaths per hundred million vehicle miles traveled, which is an 18.94% increase from 1.26 in 2019. From 2011 to 2020, the fatalities on rural roadways increased by 19%, and this increase on urban roadways is disproportionately high (31%). Research and a supporting decision support tool are necessary to improve urban safety. The Performing Agencies shall leverage ongoing staff leadership and engagement in several national and state Department of Transportation (DOT) speed-safety projects. The Performing Agencies shall provide updated safety performance functions (SPFs) for urban roadways and a real-time decision

support tool on risk scoring with the applicability of new data input and model updating pipeline.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7144

TXST | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7150	Artificial Intelligence for Pavement Condition Assessment from 2D/3D Surface Images	Active

Project Start Date: 09/01/2022
Completion Date: 12/31/2025
Lead University: TXST
University #2:
Project Status: Active
Total Project Budget: $451,875.00
TXST Total Budget: $451,875.00
TXST FY25 Budget: $166,589.41
TXST Total Proj Spend: $416,967.69
TXST FY25 Spend: $164,834.56

Project description: While manual quality assurance is inefficient and expensive, the proprietary data storing and processing methods have prevented the Receiving Agency from developing automated methods for data validation. Recently, with the national initialization of standard format for two-dimensional/three-dimensional (2D/3D) pavement surface images and the development of Artificial Intelligence (AI)/Machine Learning (ML) in Computer Vision, the Receiving Agency sees the opportunity of developing new methods for automated pavement condition assessment, with more independence from vendors and their equipment. The main objective of this research is to develop ML-based application software to assess pavement conditions using the standard format 2D/3D pavement surface images. The three main components of this research include the development of a standard format 2D/3D pavement surface image library, a set of ML models for pavement distress measurement, and application software for pavement condition evaluation. The proposed project will assist the Receiving Agency to enhance the quality of the automated pavement condition data, which would eventually help the State of Texas improve its pavement performance.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

It has become necessary to amend the contract to extend the termination date, the Project Budget and the Project Schedule due to the need to have the Receiving Agency test the functionality of the AI based distress detection software. Based on the assessment, Receiving Agency will be able to determine the length and scope of a possible further extension of the project to reach the goal of developing an implementable product for the Receiving Agency. The FY23 Budget remains at $108,883.19; the FY24 Budget remains at $148,057.50; the FY25 Budget is decreased by $28,344.90 from $194,934.31 to $166,589.41; the FY26 Budget is established at $28,344.90. The Itemized Project Budget Estimate remains at $451,875.00.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7150

TXST | Safety and Operations

Project Number	Project Name	Status
0-7171	Barrier Striping for the Reduction of Accidents	Active

Project Start Date: 09/01/2023
Completion Date: 11/30/2025
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $303,741.50
TXST Total Budget: $70,493.75
TXST FY25 Budget: $19,177.50
TXST Total Proj Spend: $68,370.02
TXST FY25 Spend: $20,347.32

Project description: The Traffic Safety Division (TRF) of the Receiving Agency drafted a special specification (SS) for the vertical application of a retroreflective solid stripe on concrete barriers, approximately six (6) inches below the barrier's top. During the phase of new product approval, this SS describes an application similar to three (3) locations already installed on Texas roadways in previous years. Barrier striping increases motorist awareness of the roadway's edge and the barrier itself, particularly in low-visibility conditions (i.e., heavy rain and snow). These existing implementation sites have not been formally evaluated. Furthermore, the short-term effectiveness of the treatments has not been investigated; therefore, there is a need for long-term and short-term safety effectiveness evaluation of these treatments. The Performing Agencies shall collect before-and-after collision data from Crash Record Information System (CRIS) and near-collision data from connected vehicle data vendor (e.g., Wejo) to evaluate the effectiveness of vertical application of a retroreflective solid stripe on concrete barriers. Furthermore, the Performing Agencies shall install these treatments at six (6) high crash locations with different barrier types including, but not limited to concrete barriers and metal beam guard fences to evaluate their short-term effectiveness using non-traditional safety

evaluation approaches. The Performing Agencies shall utilize the findings to update the drafted SS for the future use across the state and beyond.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #3:

It has become necessary to amend the contract to extend the termination date, and revise the budget and the Project Schedule due to the delays in installing barrier striping at all six new sites identified by the Performing Agency and Receiving Agency. TTI's Budget: The FY 2024 budget remains $179,630.75; the FY 2025 budget is decreased by $7,617.75 from $53,617.00 to $45,999.25; the FY 2026 budget is established at $7,617.75. TTI's Total Project Budget remains $233,247.75. TXST's Budget: The FY 2024 budget remains $48,753.75; the FY 2025 budget remains $19,177.50; the FY 2026 budget is established at $2,562.50; TXST's Total Project Budget is increased by $2,562.50 from $67,931.25 to $70,493.75. The Itemized Project Budget is increased by $2,562.50 from $301,179.00 to $303,741.50.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7171

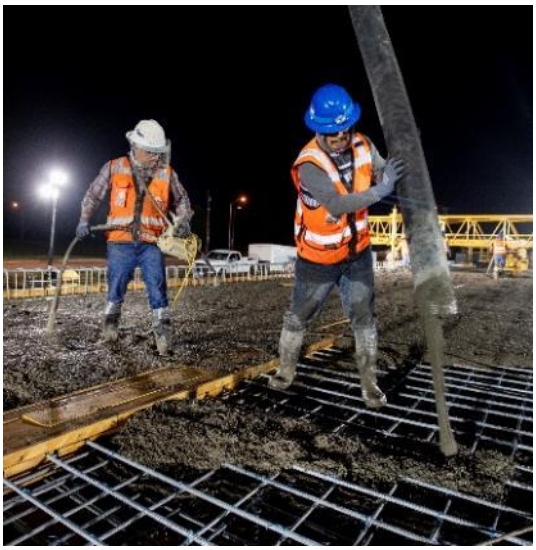
TXST | Structures and Hydraulics

Project Number	Project Name	Status
0-7172	Developing a Performance-Based Concrete Overlay Mix Design for Improved Resistance to Early-Age Cracking and Increased Durability	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: TXST
University #2:
Project Status: Active
Total Proj Budget: $700,370.51
TXST Total Budget: $700,370.51
TXST FY25 Budget: $283,633.11
TXST Total Proj Spend: $477,988.19
TXST FY25 Spend: $283,694.61

Project description: Concrete bridge decks are exposed to a wide range of environmental and mechanical distress that can lead to severe deterioration. Typical bridge deck deterioration starts with shrinkage cracks, and additional cracks may occur due to traffic loads and effects such as temperature and moisture fluctuations. Cracking can lead to water and chloride ingress, causing corrosion of the reinforcement and further damage to the structure. In Texas, several concrete overlay mix design options are available, however, they are prescriptive-based. Although convenient, prescriptive-based designs have led to inconsistencies between mixtures and batches during placement, especially when mobile mixers are used. Additionally, as individual materials in prescriptive concrete overlay mix designs evolve and newer or alternative materials become available; e.g., Type IL cements and alternative supplementary cementitious materials (SCMs), unexpected and unanticipated behavior can occur. Furthermore, as bridge decks age there will be a need to preserve service life and ensure long-term performance of concrete overlay mix designs through performance-based specifications. This project aims at developing a robust performance-based, non-UHPC, mix design specification for concrete overlays to achieve low cracking and

superior long-term durability. Developing such a specification that is adaptable to shifts in material technology will ensure long-term success in practice.



Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Amend the contract to revise the budget to reallocate funds due to changes in student support. The FY 2024 budget is decreased by $61,461.49 from $242,464.38 to $181,002.89; the FY 2025 budget is increased by $56,337.65 from $227,295.46 to $283,633.11; the FY 2026 budget is increased by $5,123.83 from $230,610.68 to $235,734.51. The Itemized Project Budget Estimate remains $700,370.51.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7172

TXST | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7178	Use Network Level Texture to Enhance Pavement Management	Closed

Project Start Date: 09/01/2023
Completion Date: 08/31/2025
Lead University: CTR
University #2: TXST
Project Status: Closed
Total Project Budget: $399,814.26
TXST Total Budget: $96,890.89
TXST FY25 Budget: $50,059.64
TXST Total Proj Spend: $86,591.00
TXST FY25 Spend: $43,114.15

Project description: The Performing Agencies shall evaluate the use of texture data currently available in the Receiving Agency Pavement Analyst software as collected by the Receiving Agency's third-party vendor (the vendor), and shall assess the accuracy of data (mean profile depth (MPD) and raw profile used to calculate MPD) and provide guidance on applications and uses of the data.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7178

TXST | Safety and Operations

Project Number	Project Name	Status
0-7183	Develop Crash Modification Factors for Super 2 Highways	Closed

Project Start Date: 09/01/2023
Completion Date: 11/30/2024
Lead University: TTI
University #2: TXST
Project Status: Closed
Total Project Budget: $236,029.68
TXST Total Budget: $68,964.43
TXST FY25 Budget: $4,010.00
TXST Total Proj Spend: $63,956.44
TXST FY25 Spend: $691.85

Project description: Super 2 highways have been used across Texas for over 20 years, providing operational and safety benefits to rural two-lane highways at lower cost than widening to four-lane, and more are planned as the demand increases on the state highway system. Previous Super 2 research has provided insights on safety improvements, but the Receiving Agency would benefit from an updated crash modification factor (CMF) based on a rigorous review and analysis of recent crash data from the state's many Super 2 highways. This CMF would provide additional support for installing Super 2 corridors throughout the state and complement existing guidance. The Performing Agencies shall use their existing database of Super 2 highways and site characteristics, combined with additional data on traffic volumes, crashes, and other relevant factors, to develop a comprehensive Super 2 dataset for analysis and identification of relationships between crashes and other characteristics. Using the results of this analysis, the Performing Agencies shall define one (1) or more CMFs or crash modification functions (CMFunctions) that the Receiving Agency and other practitioners can use to make decisions on installing future Super 2 corridors. The Performing Agencies shall disseminate these CMFs to the Federal Highway Administration's (FHWA's) CMF Clearinghouse for inclusion in their database.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7183

TXST | Planning and Environment

Project Number	Project Name	Status
0-7187	Exploring and Developing Innovative Methods for Estimating VMT on Local Roads in Texas	Closed

Project Start Date: 09/05/2023
Completion Date: 08/31/2025
Lead University: TTI
University #2: TXST
Project Status: Closed
Total Project Budget: $399,269.95
TXST Total Budget: $40,165.45
TXST FY25 Budget: $15,147.25
TXST Total Proj Spend: $38,682.15
TXST FY25 Spend: $14,368.78

Project description: State agencies must report vehicle miles traveled (VMT) estimates for local roads compiled in the statewide summaries dataset of the Highway Performance Monitoring System (HPMS) database. While the VMTs for higher functional class roads are the product of annual average daily traffic (AADT) with the corresponding roadway segment length (L); the states produce the VMT estimates for local roads as an aggregate measure using a variety of methods. Currently, the local road network accounts for more than two-thirds (67%) of the total roadway mileage in Texas and is the largest in the United States. Conducting short-term counts (STCs) (e.g., for a few hours up to a few weeks) on an extensive local road network to develop VMT is financially challenging; hence, the Receiving Agency uses statistical methods to obtain aggregated VMT. Although the current methods are statistically verified, they are yet to be revised and validated. The Performing Agencies shall investigate and develop data-driven methods for VMT estimation that can be implemented in Texas and provide significant savings to the Receiving Agency. The developed methods shall also reduce any bias in the estimation of VMTs on local roads that can lead to the overestimation or underestimation of travel demand.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7187

TXST | Planning and Environment

Project Number	Project Name	Status
0-7189	Safety Assessment of Shared Use Paths at Roadway Crossings using Exposure-Based Models	Active

Project Start Date: 09/01/2023
Completion Date: 04/30/2026
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $489,073.35
TXST Total Budget: $76,944.60
TXST FY25 Budget: $23,273.05
TXST Total Proj Spend: $53,957.87
TXST FY25 Spend: $22,914.76

Project description: Shared or multiuse paths invite a wide range of users, including pedestrians, bicyclists, and other wheeled users, with a range of transportation purposes such as commuting, exercise, and recreation. Although shared use path (SUP) users are physically separated from traffic, they remain vulnerable at roadway crossings. In the absence of roadway cross-section designs for accommodating pedestrians and bicyclists, SUP crossings can present users with complex tasks including gap selection, scanning for turning vehicles, and interacting with other path users. Ensuring safe crossings for all users at these locations is essential. Pedestrian and bicycle treatments have been developed and their safety effectiveness has been assessed in several studies and practices. Although technically these designs can be applied to SUPs, it is not clear how to integrate treatments for different types of path users, road classifications, land-use contexts, and crossing geometries. With the increasing implementation practices of SUPs across Texas, there is a need to assess the potential safety concerns involving pedestrians, bicyclists, micromobility users, and people with disabilities at these locations and develop guidance for treatment selection, including for paths next to railroads. The Performing Agencies shall explore

the pedestrian and bicyclist crashes at the vicinity of SUPs and develop design and planning guidance for implementation purposes.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

Amend the contract to extend the termination date, and to revise the Project Budget, the Project Schedule, and the Work Plan, due to the need to identify additional on-system shared user path (SUP) roadway sites to collect and analyze data. TTI: The FY 2024 budget remains $185,614.25; the FY 2025 budget is increased by $37,432.75 from $110,071.75 to $147,504.50; the FY 2026 budget is established at $79,010.00; TTI's Total Project Budget is increased by $116,442.75 from $295,686.00 to $412,128.75. TXST: The FY 2024 budget remains $31,040.30; the FY 2025 budget remains $23,273.05; the FY 2026 budget is established at $22,631.25; TXST's Total Project Budget is increased by $22,631.25 from $54,313.35 to $76,944.60. The Itemized Project Budget is increased by $139,074.00 from $349,999.35 to $489,073.35.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7189

TXST | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7191	Develop Systematic and Quantitative Approach to Assess the Probability of Extreme Weather and Resilience Risks for TxDOT Highways and Bridges	Closed

Project Start Date: 12/05/2023
Completion Date: 08/31/2025
Lead University: TTI
University #2: CTR, UTSA, TXST
Project Status: Closed
Total Project Budget: $796,520.38
TXST Total Budget: $70,639.58
TXST FY25 Budget: $35,625.54
TXST Total Proj Spend: $48,954.02
TXST FY25 Spend: $18,408.67

Project description: Climate stressors pose a significant threat to transportation infrastructure. Recognizing this, Federal Highway Administration (FHWA) requires State Departments of Transportation (DOTs) to consider extreme weather and resilience in life cycle planning and risk management analyses within a State's Transportation Asset Management Plan (TAMP). The 2022 Texas TAMP identified risk categories that could impact the Receiving Agency's infrastructure (specifically, highways and bridges). Extreme weather and resilience were discussed extensively, but the 2022 TAMP lacked a systematic and quantitative approach to assess climate-related risks to infrastructure and in life cycle planning analysis. The objective of this research is to develop a robust quantitative risk framework that can be implemented in subsequent Texas TAMPs. To successfully accomplish this objective, the Performing Agencies shall:

1. Manage the project scope, budget, and timeline.
2. Conduct an extensive review of the literature.
3. Identify climate stressors to the Receiving Agency's pavements and bridges.

4. Assess the probability of such climate stressors and extreme weather events.
5. Quantify the impact on bridges.
6. And pavements.
7. Develop an asset risk and resilience assessment framework.
8. Develop and quantify adaptation strategies.
9. Conduct scenario analysis.
10. Identify proxy indicators that can be tracked to monitor high-priority risks.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7191

TXST | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7206	Develop Optimum 2-Mat Reinforcement Design in Continuously Reinforced Concrete Pavement (CRCP)	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TECH
University #2: TXST
Project Status: Active
Total Project Budget: $737,885.85
TXST Total Budget: $209,726.25
TXST FY25 Budget: $70,862.50
TXST Total Proj Spend: $77,570.63
TXST FY25 Spend: $70,502.40

Project description: The Performing Agencies shall develop optimum designs for longitudinal steel, including the amount of steel as well as the depths of each layer of steel. The Performing Agencies shall obtain detailed CRCP structural responses from field experiments, analyze the data, and develop the optimum steel designs for thick CRCP. The Performing Agencies shall develop and present field experimental plans to the Receiving Agency for its feedback and concurrence. Once the Receiving Agency approves, the Performing Agencies shall conduct field testing per the approved experimental plans and present the data and its analysis results as well as its implications to the Performing Agency. The Performing Agencies shall also provide any technical assistance that might be needed for the implementation of the findings.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7206

TXST | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7211	Determine Hydroplaning Potential Using Existing Pavement Asset Data	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: CTR
University #2: TXST
Project Status: Active
Total Project Budget: $496,746.67
TXST Total Budget: $230,000.00
TXST FY25 Budget: $126,112.50
TXST Total Proj Spend: $129,724.30
TXST FY25 Spend: $125,776.82

Project description: To accurately assess hydroplaning potential at the network-level, the following pieces of information are essential: transverse profile and rutting, macro- and micro-texture, pavement width, radius of curvature, superelevation, cross slope, and grade. To date, the Receiving Agency possesses all these pieces of information except for cross slope, which is one of the most important variables. Therefore, the Performing Agencies shall gather those data elements and compile a comprehensive project database. The Performing Agencies shall also identify critical data gaps and develop both a system and methodology for determining cross slope. The Performing Agencies shall: • Develop a set of two alternative models to calculate hydroplaning potential: (i) a model to predict water film thickness (WFT), and (ii) a model to predict hydroplaning speed (HS). • Determine hydroplaning potential at the network level across all 25 TxDOT Districts for all PMIS sections. • Establish correlations between hydroplaning potential and wet-weather crashes. • Generate heatmaps that illustrate hydroplaning potential and wet-weather crash occurrences highlighting areas where hydroplaning potential and wet-weather crashes intersect. • Establish correlations between highway geometry and the occurrence of crashes under both wet and dry conditions. • Develop recommendations to be incorporated into TxDOT's Wet Weather Accident Reduction Program.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7211

TXST | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7215	Predicting Field Performance of Pavement Markings Statewide in Texas	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2028
Lead University: TTI
University #2: CTR, UTSA, TXST
Project Status: Active
Total Project Budget: $908,930.52
TXST Total Budget: $85,178.76
TXST FY25 Budget: $33,750.00
TXST Total Proj Spend: $33,469.26
TXST FY25 Spend: $33,469.26

Project description: Pavement markings and markers are the primary means for an agency to provide longitudinal guidance to drivers. To be effective, markings and markers must be visible during all driving conditions, day, and night. A variety of pavement marking materials (binders and beads) and varying installation specifications (application type, material thickness) create a wide range of initial performance and maintained performance over a markings service life. Currently, markings are evaluated initially to ensure a minimum initial retro-reflectivity performance is obtained, but that initial performance has not been well researched to determine its impact on the overall durability and performance of the marking over its service life. The Performing Agencies shall explore various factors that affect pavement marking performance over the service life of the marking (pavement marking materials, installation specifications, pavement surface, traffic conditions, and geographic and climatic region) to develop performance models for Texas. Performance of a variety of markings and markers shall be evaluated at various field test areas. These same marking materials shall be evaluated through lab testing to explore accelerated weathering and wear tests that correlate with the field performance.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7215

TXST | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7218	Revisions for the TxDOT Pavement Management Information System (PMIS) Rater's Manual	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: TECH, TXST
Project Status: Active
Total Project Budget: $729,643.60
TXST Total Budget: $142,390.00
TXST FY25 Budget: $40,926.25
TXST Total Proj Spend: $32,553.30
TXST FY25 Spend: $32,553.30

Project description: The Receiving Agency Pavement Management Information System (PMIS) Rater's Manual is in need of revision. Several distress rating definitions for different pavement types in the current manual are confusing or outdated and can be improved to assess the condition of such pavements more accurately and consistently. The Performing Agencies shall review, analyze, and propose changes to the current distress rating definitions for flexible and concrete (jointed and continuously reinforced) pavements. The Performing Agencies shall hold collaborative workshops to gather input from Receiving Agency's Maintenance Division and districts on pavement condition data collection challenges using the current manual. The Performing Agencies shall assess the impact of the rating changes to the PMIS scores and recommend changes to distress utility curves if needed. In collaboration with the Receiving Agency, the Performing Agencies shall make adjustments to determine acceptable impacts. The Performing Agencies shall develop a revised PMIS Rater's Manual based on the research results and through collaboration between the Performing Agencies and the Receiving Agency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7218

TXST / Safety and Operations

Project Number	Project Name	Status
0-7222	Develop Crash Predictive Methods for Frontage Roads Including Ramp Terminals, and Intersections with Crossroads in Texas	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $392,825.00
TXST Total Budget: $70,000.00
TXST FY25 Budget: $39,641.25
TXST Total Proj Spend: $39,641.25
TXST FY25 Spend: $39,641.25

Project description: Currently, no frontage specific intersection or ramp terminal predictive methods are available, and transportation engineers typically apply methods developed for non-frontage road intersections to evaluate their safety. Additionally, no guidelines exist to select the appropriate distance between adjacent ramps and/or intersections, ramp type and their orders, and distance between ramps and driveways. The first objective of this project is to develop Safety Performance Functions (SPFs) and Crash Modification factors (CMFs) for ramp terminals and intersections of frontage roads with crossroads. The second objective of this project is to evaluate the safety impact of weaving on the frontage road versus weaving on the freeway. The Performing Agencies shall collect site characteristics data and develop crash predictive methods for different types of frontage road segments and intersections on frontage roads, including ramp terminals. The Performing Agencies shall develop these models by area type (i.e., large urban, small urban, suburban/fringe, and rural), Receiving Agency's regions, and facility type (one-way and two-way). These models will supplement the generic SPFs developed in the Receiving Agency's 0-7083 project. The Performing Agencies shall incorporate the crash predictive methods into spreadsheet tools to facilitate the analysis and to support project design decisions of frontage

roads. The Performing Agencies shall also develop a framework for selecting an appropriate configuration for frontage road segments and intersections, and as well guidance for the minimum distance from ramp terminal to crossroad intersection and a need for lane additions.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7222

TXST / Safety and Operations

Project Number	Project Name	Status
0-7226	Analyze Operational and Safety Improvements Associated with Implemented Innovative Intersections in Texas	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $417,931.00
TXST Total Budget: $36,000.00
TXST FY25 Budget: $18,000.00
TXST Total Proj Spend: $17,165.73
TXST FY25 Spend: $17,165.73

Project description: Innovative intersection designs (e.g., diverging diamond interchanges [DDIs], displaced left turns [DLTs], median U-turns [MUTs], and restricted crossing U-turns [RCUTs]) and modern roundabouts are increasingly used in Texas and throughout the country to remove conflict points and redistribute turning traffic from traditional intersections, improving operational efficiency and promoting increased safety. While their use is growing and their benefits have been demonstrated, Texas still has a limited number of innovative intersections, and there is a need to increase the use of these intersections throughout the state. Because many of these intersection types and their design elements are not commonly used in Texas, there is a natural tendency to be cautious about their use. Providing information to help promote these treatments for use in appropriate locations will be important to their successful adoption and implementation. The Performing Agency shall build on recent research to document the benefits of innovative intersections, develop case studies of successfully implemented intersections in Texas, and provide resources for practitioners to use in support of new implementations across the state.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7226

TXST | Safety and Operations

Project Number	Project Name	Status
0-7230	Improve Safety and Decrease Vehicle Fatalities by Improving Pavement Markings	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: TXST
Project Status: Active
Total Project Budget: $499,998.00
TXST Total Budget: $74,292.50
TXST FY25 Budget: $33,792.50
TXST Total Proj Spend: $28,123.41
TXST FY25 Spend: $28,123.41

Project description: The Receiving Agency's "End the Streak" goal is to end all fatalities on Texas roads by 2050 as there has not been a day without a death on Texas roadways since November 7, 2000. New strategies must be implemented, such as increasing the efficacy of pavement striping and retroreflective pavement markers in several Receiving Agency districts and monitoring the crash statistics before and after pavement marking and marker improvements over time. The Performing Agency shall target pavement marking retroreflectivity and contrast and shall include the development and implementation of an experimental study design to assess their safety and economic effectiveness.

Approved Work Program Revisions

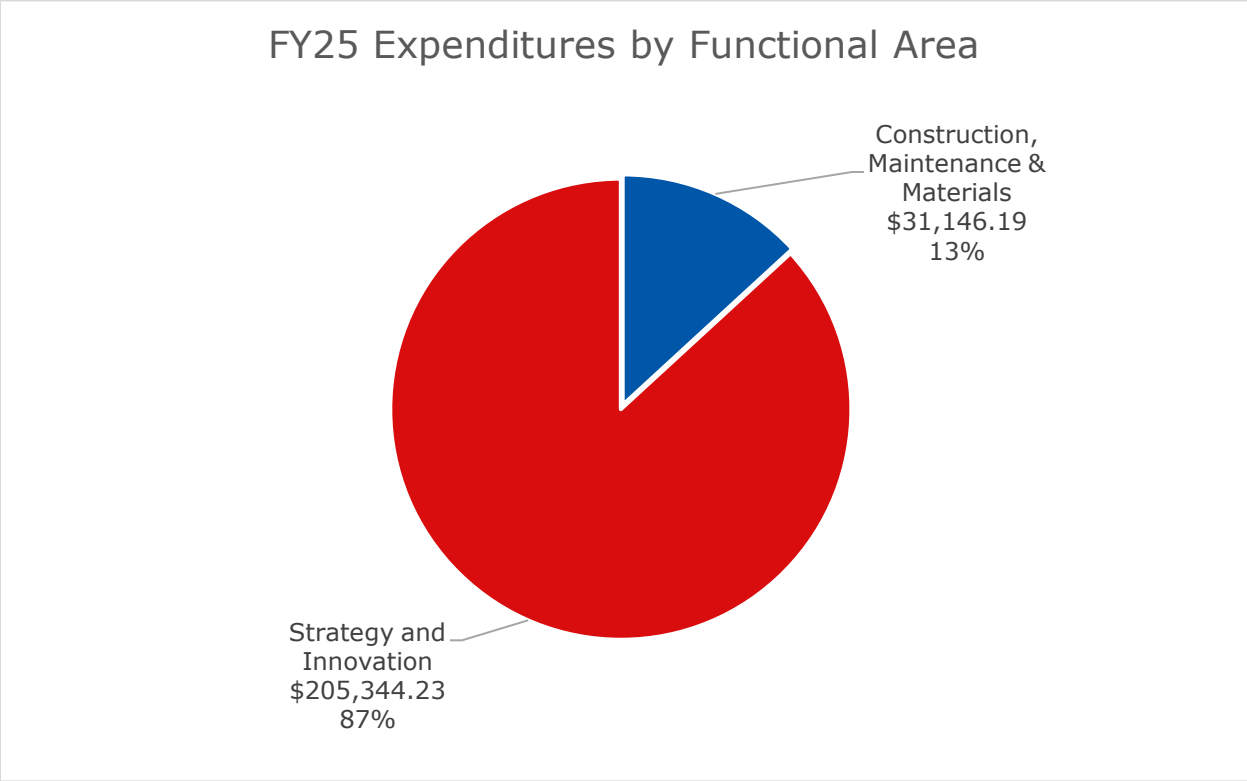
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7230

2.12 UH – University of Houston

Figure 14 – Pie chart of UH expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-7177	Identifying Pavement Improvement Projects for Enhanced Safety	Active
Strategy and Innovation	0-7181	Development of Digital Twins for Texas Bridges	Active
Strategy and Innovation	0-7235	Leverage AI for Asset Inventories & Management	Active

UH | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7177	Identifying Pavement Improvement Projects for Enhanced Safety	Active

Project Start Date: 09/18/2023
Completion Date: 02/28/2026
Lead University: TTI
University #2: UH
Project Status: Active
Total Project Budget: $478,160.00
UH Total Budget: $109,668.75
UH FY25 Budget: $49,850.00
UH Total Proj Spend: $77,851.97
UH FY25 Spend: $31,146.19

Project description: The Performing Agencies shall develop a method and tool for analyzing safety-related pavement data to identify candidate pavement safety projects, such as cross-slope improvement projects and flushing treatment projects. The Performing Agencies shall assemble a dataset containing comprehensive data on the pavement, site condition, and crashes for a representative sample of on-system roadways. The Performing Agencies shall conduct a comprehensive analysis of the integrated dataset to identify critical combinations and thresholds of pavement conditions that may pose a safety hazard and use these factors to assess pavement susceptibility to crashes. The Performing Agencies shall quantify the pavement crash susceptibility based on measurable pavement characteristics such as cross-slope, geometrics, distresses (e.g., rutting, flushing), skid resistance, and roughness. Finally, the Performing Agencies shall develop a data analysis and visualization tool for assessing pavement crash susceptibility and recommending solutions to reduce crash risks. The Receiving Agency's districts will be able to use this tool to identify potential site-specific crash contributing factors and proactively select appropriate pavement safety improvement projects.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7177

UH / Strategy and Innovation

Project Number	Project Name	Status
0-7181	Development of Digital Twins for Texas Bridges	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: UH
University #2:
Project Status: Active
Total Project Budget: $505,286.00
UH Total Budget: $505,286.00
UH FY25 Budget: $159,833.75
UH Total Proj Spend: $244,991.23
UH FY25 Spend: $85,557.73

Project description: Bridges are a critical component of transportation infrastructure, providing safe and efficient travel for millions of people every day. However, bridge maintenance can be complex and expensive, and it is challenging to detect problems early before they become more significant and costly to repair. Digital twins offer a solution to this challenge, providing a comprehensive and efficient means of obtaining, integrating, processing, and storing high-fidelity information about the current geometry and condition of a bridge. Developing digital twins of Texas bridges is a significant undertaking, as it requires collecting and integrating data from multiple sources, including sensors and unmanned aerial systems (UASs). Moreover, the resulting data must be complete and usable without overtaxing existing computer systems at TxDOT, which presents challenges related to data compression and redundancy. To address these challenges, this research proposes an outcome-based framework for the development of digital twins of TxDOT bridges. This framework will be extensively validated across real-world conditions through data collection and digital twin construction efforts from 30 (or as many as requested and agreed to) TxDOT bridges. The resulting guidelines and procedures will provide a means for comprehensively and efficiently collecting, integrating, processing, and storing geo-referenced, multi-sensor, and high-fidelity information about the current geometry and condition of a bridge. To enable early identification of bridge maintenance needs, the researchers will

investigate and assess feasibility and requirements for aligning multi-temporal models and detecting and quantifying changes over time both with manual observation and automatically. The prototype routines for alignment and change detection developed will be integrated into the digital twinning framework for direct use by TxDOT. Additionally, the performing agency will prepare and test training materials to teach project managers, maintenance supervisors, and other personnel on field collection and planning of 3D data, digital twin development, and data processing and modeling. These training materials will include operational recommendations and guidance on data collection plans, reviews and approval, and safety. The proposed research will provide a clear path for the digital transformation and integration of TxDOT bridge inspections, design, and maintenance activities, enabling more scientific decision-making and bridge management practices with broad impacts to TxDOT operations.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7181

UH / Strategy and Innovation

Project Number	Project Name	Status
0-7235	Leverage AI for Asset Inventories & Management	Active

Project Start Date: 10/14/2024
Completion Date: 06/30/2026
Lead University: UH
University #2: TSU
Project Status: Active
Total Project Budget: $387,140.65
UH Total Budget: $194,656.25
UH FY25 Budget: $122,840.00
UH Total Proj Spend: $119,786.50
UH FY25 Spend: $119,786.50

Project description: The Performing Agency shall expand the Receiving Agency's Transportation Asset Management Plan (TAMP) which currently only includes pavements and bridges. Other state departments of transportation (DOTs) have already included five additional assets: traffic signals, sign supports, pavement markings, and highway buildings, acknowledging their importance to the safety and integrity of the roadway network. This effort shall increase the value of various data sources to assist in informed procurement decisions.

Approved Work Program Revisions

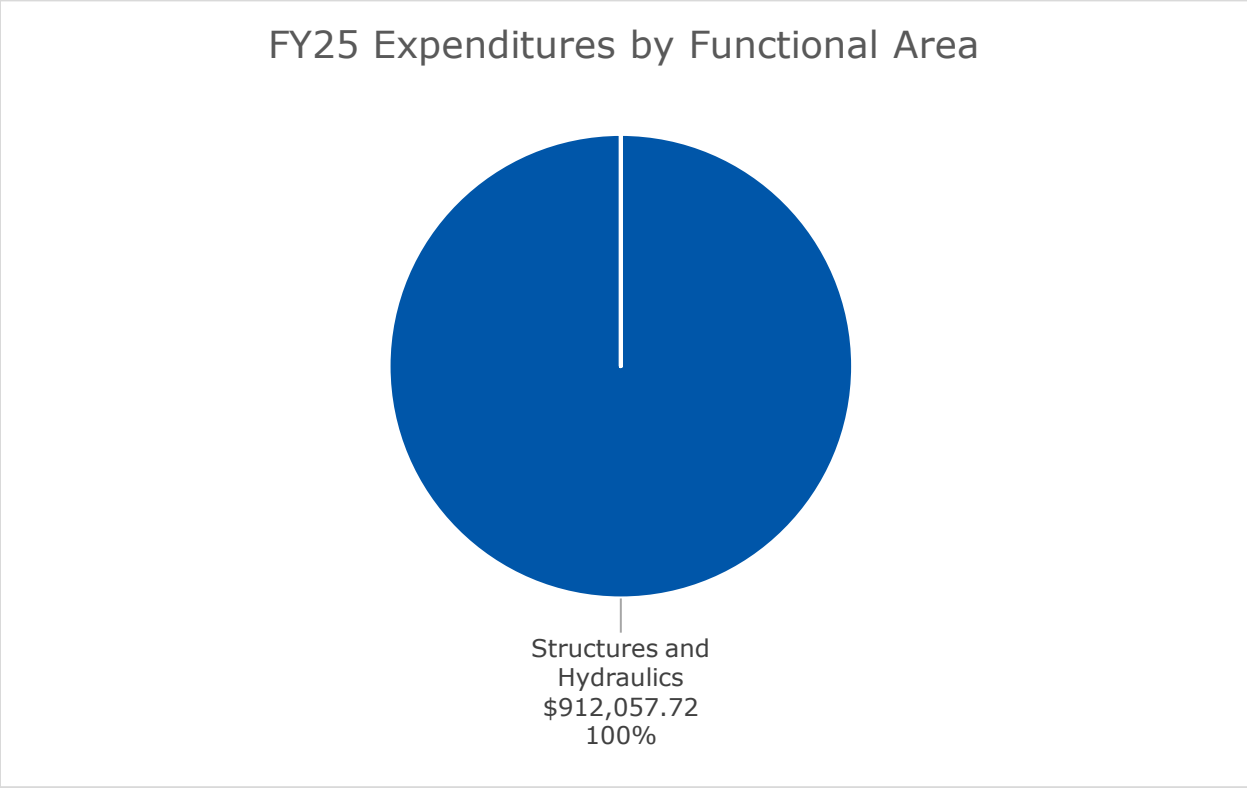
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7235

2.13 USGS – United States Geological Survey

Figure 15 – Pie chart of USGS expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7095-01	Flood Assessment System for TxDOT (FAST)	Active

USGS | Structures and Hydraulics

Project Number	Project Name	Status
0-7095-01	Flood Assessment System for TxDOT (FAST)	Active

Project Start Date: 02/26/2024
Completion Date: 01/31/2027
Lead University: CTR
University #2: USGS
Project Status: Active
Total Project Budget: $5,850,241.20
USGS Total Budget: $2,840,618.45
USGS FY25 Budget: $926,533.43
USGS Total Proj Spend: $1,468,216.95
USGS FY25 Spend: $912,057.72

Project description: The Receiving Agency wishes to move from a reactive to a proactive response during flood emergency operations. Real-time flood map services provide valuable information for the Receiving Agency flood decision making. The National Weather Service initiated the operation of real-time flood inundation maps for Texas in October 2023. Performing Agency 1 shall create a Flood Assessment System for TxDOT (FAST) as an additional set of real-time flood maps to describe flood impact on the road and bridge system. These maps will be distributed to the Receiving Agency Maintenance staff as web services and tested in large scale flood emergency response exercises conducted with The Receiving Agency Districts. Performing Agency 2 shall operate and maintain 80 RQ-30 stream gages to support flood forecasting and decision making. Performing Agency 2 shall refine the targeted approach for RQ-30 velocity sensor calibrations to support timely rating development using velocimetry. As many of the 80 RQ-30 gauges as possible will be added to the Interagency Flood Risk Management (InFRM) Flood Decision Support Toolbox. Combining novel gauging techniques with inundation mapping provides real-time streamflow information and transportation flood impacts that enable scenario planning and proactive actions to flood events. This project will be a continuation of

Project 0-7095 "Evaluating Improved Streamflow Measurement at TxDOT Bridges."

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

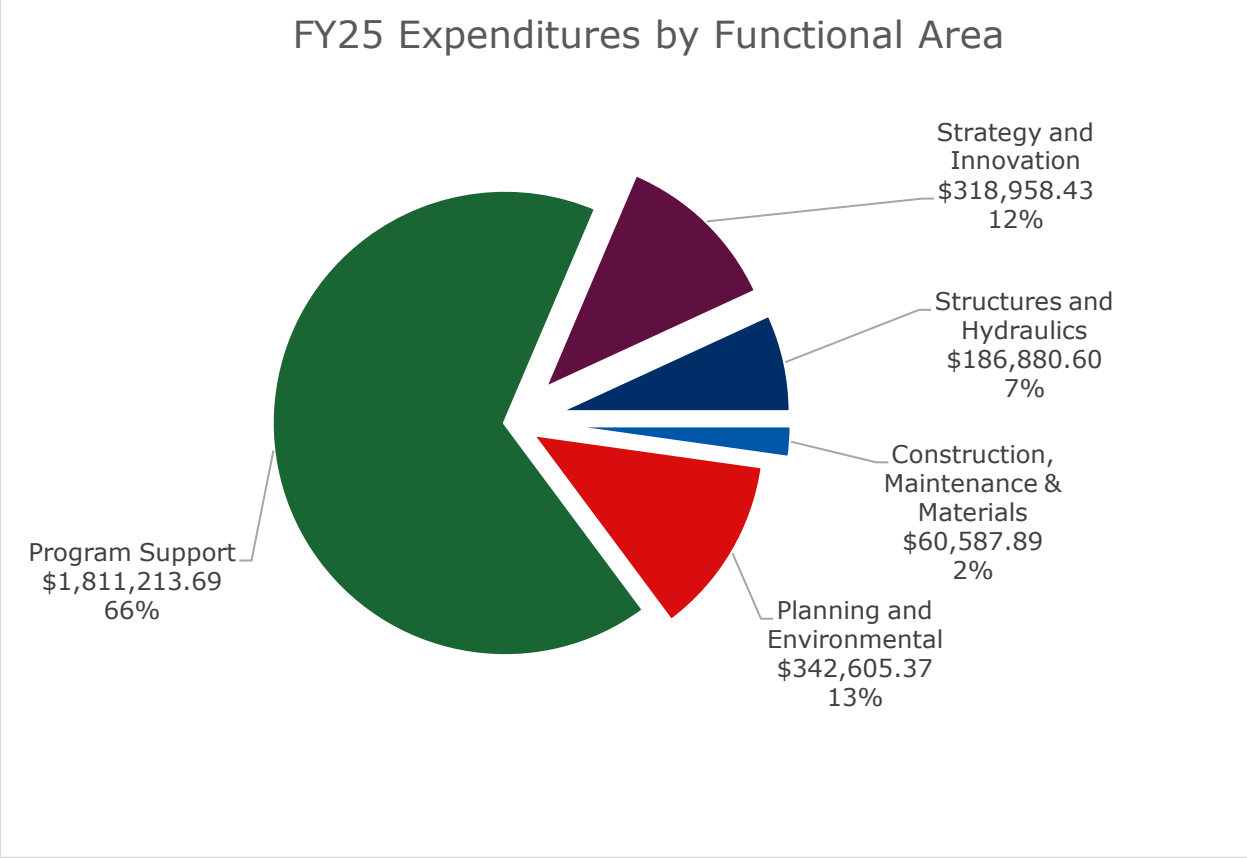
Amend the contract to revise the budget to move funds to allow the subcontractors to continue their tasks into FY2026. CTR Budget: The FY 2024 Budget remains $663,649.65. The FY 2025 Budget is decreased by $130,000.00 from $1,053,413.55 to $923,413.55. The FY 2026 Budget is increased by $ 130,000.00 from $994,396.82 to $1,124,396.82. The FY 2027 Budget remains $298,162.71. CTR Total Project Budget remains $3,009,622.74. USGS FY 26 budget remains unchanged. The Total Itemized Project Budget Estimate remains $5,850,241.20.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7095-01

2.14 UTA – University of Texas – Arlington

Figure 16 – Pie chart of UTA expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Planning and Environmental	0-7184	Develop an Interactive Unit Price Estimation and Visualization Tool	Closed
Planning and Environmental	0-7196	Data-Driven Prioritization of Roadway Segments for Treatment during Severe Weather Events	Cancelled
Strategy and Innovation	0-7200	Utilizing Telematics to Understand Driving Behavior During Missed Exits and Wrong Turns	Closed

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7201	Synthesis of Hydrologic Approaches to Playa Lakes, Areas of Significant Karst Geology, and Arid Regions	Closed
Structures and Hydraulics	0-7214	Develop Concrete Girder Splice Details with Application of Ultra-High-Performance Fiber-Reinforced Concrete (UHP-FRC)	Active
Construction, Maintenance & Materials	0-7217	Synthesis: Commercial Air-Coupled Ground Penetrating Radar Systems to Be Used for Pavement Evaluations in Texas	Closed
Planning and Environmental	0-7229	Develop an Intelligent Digital Assistant for Project Planning	Active
Strategy and Innovation	0-7232	Improve Safety of Vehicles and Vulnerable Road Users at Intersections Integrating C-V2X and LiDAR Sensing Technologies	Active
Planning and Environmental	0-7233	Incorporating Resilience Considerations in Transportation Asset Management Planning and Project Selection Process	Active
Program Support	5-7097-24	Texas Local Technical Assistance Program (TxLTAP)	Active

Functional Area	Project Number	Project Name	Status
Strategy and Innovation	5-7160-01	Implementing the ATSPM-In-The-Loop Simulation Solution with the TxDOT State-Wide ATSPM System Deployment Plan	Active

UTA | Planning and Environment

Project Number	Project Name	Status
0-7184	Develop an Interactive Unit Price Estimation and Visualization Tool	Closed

Project Start Date: 09/01/2023
Completion Date: 08/31/2025
Lead University: UTA
University #2:
Project Status: Closed
Total Project Budget: $193,747.00
UTA Total Budget: $193,747.00
UTA FY25 Budget: $94,141.50
UTA Total Proj Spend: $183,076.39
UTA FY25 Spend: $95,683.40

Project description: The unit prices could be significantly different for various Receiving Agency's districts considering several factors (e.g., soil conditions, weather conditions, urban vs. rural conditions, regional construction market conditions) impacting construction costs in these districts. The objectives of this project are to (1) conduct an overview analysis of factors affecting unit prices, (2) identify factors affecting unit prices in Texas, (3) create a unit price estimation database, (4) create a geospatial statistical unit price estimation model considering the factors affecting unit prices, the interactions between factors, and the factors' spatial variability, (5) develop the GIS-based visualization tool with color-coded map, and automatic data updating function, and (6) implement, demonstrate, and validate the interactive unit price estimation and GIS-based visualization tool on five ongoing Receiving Agency's projects (located in 5 different districts in North, South, East, West, and Center of Texas) to cover for different project-specific factors (e.g., urban vs. rural conditions, geotechnical site conditions, weather conditions) and external factors (e.g., regional construction market conditions). The deliverables shall provide the Receiving Agency with implementation details of the interactive unit price estimation and visualization tool, enabling their workforce to quickly and

accurately estimate unit prices based on the estimation and visualization tool.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #2:

It has become necessary to amend the contract to remove Task 9, Project Budget, and Project Schedule due to change in the project direction. The FY24 Budget remains $99,605.50. The FY25 Budget is decreased by $6,250.00 from $100,391.50 to $94,141.50. The Total Project Budget is decreased by $6,250.00 from $199,997.00 to $193,747.00.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7184

UTA | Planning and Environment

Project Number	Project Name	Status
0-7196	Data-Driven Prioritization of Roadway Segments for Treatment during Severe Weather Events	Cancelled

Project Start Date: TBD
Completion Date: 08/31/2025
Lead University: UTA
University #2:
Project Status: Cancelled
Total Project Budget: $365,727.10
UTA Total Budget: $365,727.10
UTA FY25 Budget: $186,951.62
UTA Total Proj Spend: $0.00
UTA FY25 Spend: $0.00

Project description: Effective maintenance is critical to ensure mobility, equity, and safety when roadways are experiencing severe weather events. Conventional approaches for prioritizing road segments for treatment (i) are empirical, (ii) are mostly based on static data about weather, traffic, road users, and road conditions, and (iii) do not account for important mobility, equity, and safety concerns. Therefore, conventional approaches (i) can lead to suboptimal road treatment effectiveness during extreme events, (ii) fail to prioritize the mobility of vulnerable populations and first responders, and (iii) may not guarantee a desired level of safety during extreme weather. To fill these gaps, the Performing Agency shall develop a risk-informed data-driven optimization (RIDDO) framework (Fig. 1) to enhance the effectiveness of the prioritization of road segments for treatment in response to weather extremes, accompanied by case studies that transportation authorities can use to improve their future road treatment prioritization. The Performing Agency shall leverage previous efforts on the Snowplow Operations Management System and Population Vulnerability Map to develop a software tool for the prioritization of roads for treatment during extreme weather events. This project will support the big data initiative by TxDOT to explore emerging data to improve traffic mobility, equity, and safety.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7196

UTA | Strategy and Innovation

Project Number	Project Name	Status
0-7200	Utilizing Telematics to Understand Driving Behavior During Missed Exits and Wrong Turns	Closed

Project Start Date: 09/01/2023
Completion Date: 08/31/2025
Lead University: TTI
University #2: UTA
Project Status: Closed
Total Project Budget: $403,695.31
UTA Total Budget: $149,894.81
UTA FY25 Budget: $114,739.77
UTA Total Proj Spend: $115,703.81
UTA FY25 Spend: $78,896.42

Project description: Texas is currently experiencing its largest population growth in decades. More and more lands are being urbanized and complex design methods are often adopted. As a result, drivers are likely confused at certain locations such as ramps, roadway exits and intersections. The overarching goal of this project is to identify unsafe and inefficient locations of Texas state highways, where driving behaviors often reveal excessive abnormities (e.g., hard brakes, control stops and/or missing of road entrances/exits). Problematic locations are due to misleading roadway designs or signage configurations in many cases. In the past, the Receiving Agency could not identify such locations until either a driver called to complain or crashes occurred frequently. The emerging telematics data from connected vehicles (CVs) will enable such possibility to identify and fix problematic locations proactively. Applying the state-of-the-art big data analytics and Artificial Intelligence (AI) techniques on the emerging vehicle telematics data (delivered by Wejo and INRIX), the Performing Agencies shall demonstrate how to identify problematic locations within the selected area. The Performing Agencies shall also integrate multiple advanced computing techniques (e.g., high-performance computing, cloud-computing

etc.) to cost-effectively streamline the process of traffic big data fusion, cleaning, and reduction for the Receiving Agency' future practices.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7200

UTA | Structures and Hydraulics

Project Number	Project Name	Status
0-7201	Synthesis of Hydrologic Approaches to Playa Lakes, Areas of Significant Karst Geology, and Arid Regions	Closed

Project Start Date: 09/01/2023
Completion Date: 12/31/2024
Lead University: UTA
University #2:
Project Status: Closed
Total Project Budget: $54,322.00
UTA Total Budget: $54,322.00
UTA FY25 Budget: $26,611.31
UTA Total Proj Spend: $55,293.44
UTA FY25 Spend: $26,584.90

Project description: Hydrology of karst terrains, playas, and arid zones is complex, and designing transportation infrastructure in these regions is challenging and requires a deep understanding of the unique hydrologic processes in these areas. In absence of consistent, scientifically based standards for hydrologic design of transportation infrastructures in these regions, designers consider the specific conditions in each region and adopt design measures and management strategies based on their judgment. The Performing Agency shall develop a summary of the state of knowledge, the state of practice, and approaches and models for flood forecasting and design of drainage structures in these regions. By adopting the outcomes of this project, the Receiving Agency can better understand the hydrological behavior of these regions and make informed decisions toward developing hydrological design guidance and standards of practice for these areas.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7201

UTA / Structures and Hydraulics

Project Number	Project Name	Status
0-7214	Develop Concrete Girder Splice Details with Application of Ultra-High-Performance Fiber-Reinforced Concrete (UHP-FRC)	Active

Project Start Date: 09/01/2024	Completion Date: 08/31/2027
Lead University: UTA	University #2:
Project Status: Active	Total Project Budget: $899,189.85
UTA Total Budget: $899,189.85	UTA FY25 Budget: $171,044.25
UTA Total Proj Spend: $160,295.70	UTA FY25 Spend: $160,295.70

Project description: The project aims to leverage Ultra-High-Performance Fiber-Reinforced Concrete (UHP-FRC) to enhance the flexural and shear strengths, cracking resistance, durability, and bond between concrete and reinforcing bars in girder splices for the Receiving Agency's precast girder bridges. This project shall develop efficient UHP-FRC splice details to connect simply supported precast girders at pier locations, using the Simple for Dead and Continuous for Live Load (SDCL) approach for the splice design. The UHP-FRC girder splice can eliminate bridge expansion joints, reducing maintenance costs and enhancing durability. Objectives include conducting a literature review, developing UHP-FRC mix designs and construction methods, determining splice and girder end reinforcing details, and evaluating connection performance under live load conditions. The project shall provide comprehensive UHP-FRC splice construction guidelines for the Receiving Agency's girder and composite deck bridges, aiming to improve structural integrity, durability, and maintenance efficiency.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7214

UTA / Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7217	Synthesis: Commercial Air-Coupled Ground Penetrating Radar Systems to Be Used for Pavement Evaluations in Texas	Closed

Project Start Date: 09/01/2024
Completion Date: 08/31/2025
Lead University: UTA
University #2:
Project Status: Closed
Total Project Budget: $64,769.00
UTA Total Budget: $64,769.00
UTA FY25 Budget: $64,769.00
UTA Total Proj Spend: $60,587.89
UTA FY25 Spend: $60,587.89

Project description: The Performing Agency shall conduct a literature review, identify the usage requirements and purposes of the current commercial ground penetrating radar (GPR) systems, investigate other transportation agencies' GPR applications, review commercially available GPR systems and analysis software, examine the data formats of commercially available GPR systems for compatibility, and recommend a new system aligned with receiving agency pavement evaluation requirments while minimizing disruptions through necessary software and hardware upgrades.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7217

UTA / Planning and Environmental

Project Number	Project Name	Status
0-7229	Develop an Intelligent Digital Assistant for Project Planning	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2026
Lead University: UTA
University #2:
Project Status: Active
Total Project Budget: $226,172.00
UTA Total Budget: $226,172.00
UTA FY25 Budget: $112,718.00
UTA Total Proj Spend: $115,418.44
UTA FY25 Spend: $108,524.12

Project description: The Receiving Agency manages an extensive repository of electronic and digital data about past projects. An intelligent decision support tool is essential for processing and making sense of the available data to improve the accuracy of estimating project cost and duration as well as supporting management decisions such as resource allocation, project prioritization, risk assessment, and strategic planning. However, special attention should be given to the security of such a tool as it accesses an unprecedented large amount of data and communicates with key Receiving Agency planners. Any unauthorized access could potentially impact the fair bidding process. The overall goal is to develop a Secure Construction Project Planning Digital Assistant (Secure-CPPDA).

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Amend the contract to revise the Project Schedule to correct the deliverable due dates for the TM4 and TM5.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7229

UTA / Strategy and Innovation

Project Number	Project Name	Status
0-7232	Improve Safety of Vehicles and Vulnerable Road Users at Intersections Integrating C-V2X and LiDAR Sensing Technologies	Active

Project Start Date: 09/03/2024
Completion Date: 10/31/2026
Lead University: TTI
University #2: UTA
Project Status: Active
Total Project Budget: $621,404.75
UTA Total Budget: $230,022.00
UTA FY25 Budget: $105,128.50
UTA Total Proj Spend: $104,848.83
UTA FY25 Spend: $99,405.01

Project description: Crash risks associated with permissive left turns (PLTs), vulnerable road users (VRUs), and wrong way driving (WWD) appear to be among the top attributing factors for fatal and incapacitating crashes at signalized intersections, raising alarming safety concerns. The cellular vehicle-to-everything (C-V2X) communication and innovative traffic detection technologies such as light detection and ranging (LiDAR) sensing have the potential to reduce crashes related to these factors and enhance intersection safety. The Performing Agencies shall develop, test, and demonstrate a prototype system integrating C-V2X communication and innovative traffic detection technologies to improve safety of all road users at signalized intersections. Another objective is to provide the Receiving Agency with guidelines for statewide implementation of the integrated system for intersection safety improvement. The Performing Agencies shall: (1) Review the literature on safety improvement systems utilizing C-V2X and innovative traffic detection systems; (2) Assess user needs and design a system architecture that satisfies user requirements; (3) Develop, test, demonstrate, and evaluate a prototype system that integrates C-V2X communication, LiDAR and other advanced traffic detection technologies to detect and mitigate crash risks involving PLTs, VRUs, and WWD at signalized intersections; and (4)

Develop guideline documents containing implementation procedures and use case scenarios.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7232

UTA / Planning and Environmental

Project Number	Project Name	Status
0-7233	Incorporating Resilience Considerations in Transportation Asset Management Planning and Project Selection Process	Active

Project Start Date: 10/01/2024	Completion Date: 08/31/2026
Lead University: UTA	University #2:
Project Status: Active	Total Project Budget: $319,915.92
UTA Total Budget: $319,915.92	UTA FY25 Budget: $155,014.11
UTA Total Proj Spend: $141,362.49	UTA FY25 Spend: $138,397.85

Project description: This project aims to advance resilience-based transportation asset management (TAM) planning and project selection through the systematic integration of resilience for various assets. It encompasses five primary tasks: 1. Collecting asset and hazard datasets and integrating those diverse datasets for accurate disruption scenario analysis and asset condition assessment. 2. Performing vulnerability assessment based on asset conditions and disruption scenario analysis. 3. Developing a resilience-based TAM framework for various assets, which involves synthesizing insights from literature review and interviews with the Resilience Working Group to (i) identify resilience metrics for different asset types, (ii) conduct lifecycle cost analysis, (iii) develop a decision-making model for resource allocation, and (iv) conducting sensitivity analysis to identify critical factors for improving resilience and investment prioritization. 4. Creating a user-friendly tool to operationalize the proposed framework. 5. Conducting pilot studies to demonstrate the resilience-based TAM framework. This project benefits district transportation authorities by improving resource allocation, asset resilience, and project selection. Through structured evaluation of trade-offs between competing TAM objectives like resilience and cost-effectiveness, and investment prioritization, this project ensures efficient resource allocation

and long-term resilience under resource constraints. Ultimately, this project establishes the groundwork for the resilience-based TAM Plan and Statewide Resiliency Plan.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7233

UTA | Program Support

Project Number	Project Name	Status
5-7097-24	Texas Local Technical Assistance Program (TxLTAP)	Active

Project Start Date: 12/21/2023
Completion Date: 09/30/2026
Lead University: UTA
University #2:
Project Status: Active
Total Project Budget: $3,377,917.13
UTA Total Budget: $5,202,466.53
UTA FY25 Budget: $1,713,747.75
UTA Total Proj Spend: $3,204,065.19
UTA FY25 Spend: $1,811,213.69

Project description: The Local Technical Assistance Program (LTAP) is a nationwide effort financed by the Federal Highway Administration and individual state departments of transportation. Its purpose is to translate into understandable terms the best available technology for roadways, bridges, bicycle and pedestrian facilities, and public transportation for city and county roadway and transportation personnel. The TxLTAP, operated by the Performing Agency, is sponsored by the Receiving Agency and the Federal Highway Administration. TxLTAP is focused on preserving and enhancing the local road system by delivering quality training and technical assistance to local city and county road agencies in Texas. The training provided through this program will increase the performance of the transportation workers in Texas by ensuring they conduct their duties in a safe, efficient, environmentally sound, and cost-effective manner. This program will also allow city and county agencies to maximize benefits from their often limited fiscal and staffing resources. Through training geared to local government circumstances, customized technical assistance, advice provided at events, and a library of resources, TxLTAP provides relevant and impactful information focused on road and bridge/culvert maintenance, the use of traffic control devices, and other techniques to promote traffic safety.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-7097-24

UTA / Strategy and Innovation

Project Number	Project Name	Status
5-7160-01	Implementing the ATSPM-In-The-Loop Simulation Solution with the TxDOT State-Wide ATSPM System Deployment Plan	Active

Project Start Date: 09/01/2024	Completion Date: 08/31/2026
Lead University: UTA	University #2:
Project Status: Active	Total Project Budget: $308,597.33
UTA Total Budget: $308,597.33	UTA FY25 Budget: $146,633.20
UTA Total Proj Spend: $140,657.00	UTA FY25 Spend: $140,657.00

Project description: This project shall introduce automated traffic signal performance measures or ATSPM systems to all stages of traffic signal projects in Texas. The benefits of ATSPM systems have been broadly recognized by agencies. Receiving Agency is also in the process of state-wide ATSPM deployment. Nonetheless, the ATSPM system is poised to evaluate the traffic signal performance in the field because all the performance measures are traffic signal data generated by controllers. Therefore, access to the real ATSPM systems is limited to a small portion of traffic signal stakeholders, and these stakeholders may not take advantage of ATSPM during traffic signal planning and design due to a lack of data. In a research project sponsored by Receiving Agency, the Performing Agency demonstrated the use a microscopic traffic simulation engine to generate the needed traffic signal data for real-world ATSPM systems to generate performance measures. With the developed insights and software tools from that project, the Performing Agency will assist and facilitate the Receiving Agency to implement the delivered ATSPM-in-the-loop simulation engine toward a regular task for ATSPM-enhanced traffic signal planning and design. This project shall also expand the developed ATSPM-in-the-loop simulation platform to meet all the practical needs for the Receiving Agency’s ATSPM deployment effort. This project will increase the TRL from 7

to 9 by assisting Receiving Agency to develop a practical solution to increase stakeholders' access to and acceptance of the ATSPM concept in various types of traffic signal projects.

Approved Work Program Revisions

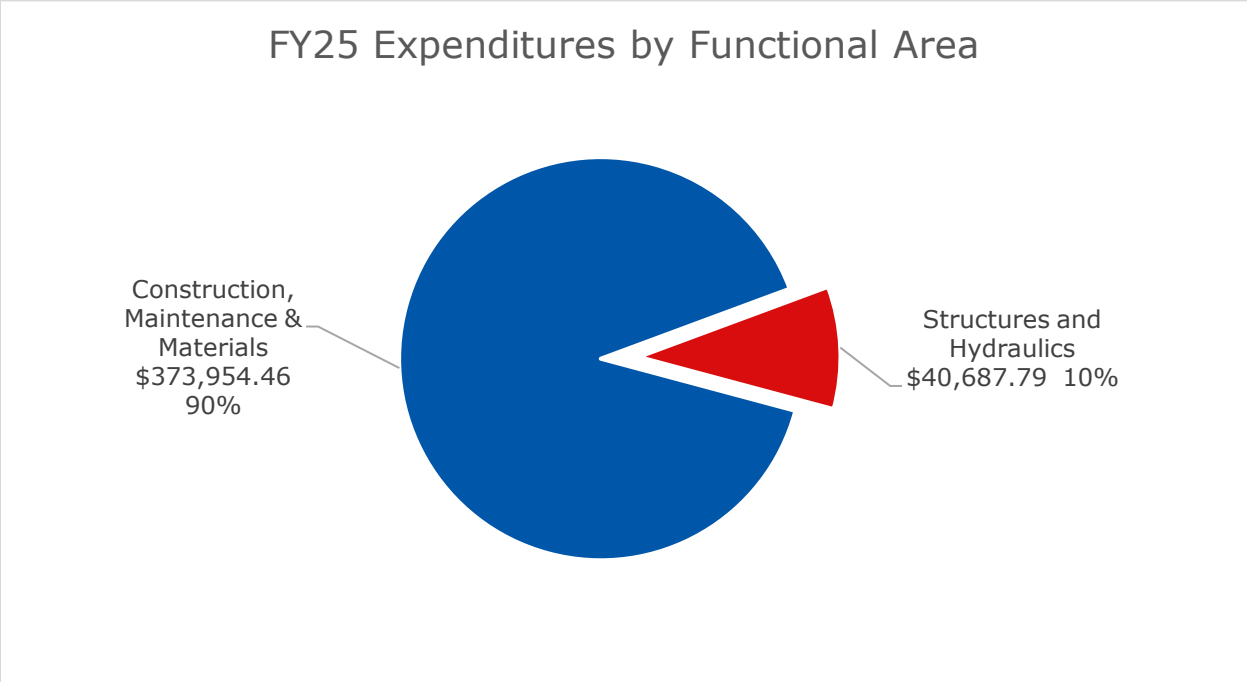
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-7160-01

2.15 UTEP – University of Texas – El Paso

Figure 17 – Pie chart of UTEP expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-7104	Establish Performance-Based Acceptable Lab-Molded Density Range for Mix Design and QC/QA	Closed
Construction, Maintenance & Materials	0-7108	Evaluate the Importance of Fine Aggregates in Achieving Adequate Skid Resistance in TxDOT Hot Mix Asphalt Mixtures	Active
Structures and Hydraulics	0-7192	Develop Performance of Baseplate Connections in COSS and Traffic Signal Structures	Active

Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-7216	Enhancing Texas Mechanistic-Empirical Flexible Pavement Design System (TxME) Practice: Develop Enhanced Mix Aging Model and District-Level Calibration Guidance	Active
Construction, Maintenance & Materials	0-7225	Evaluation of Rapid Mix Design for Lime Treated Materials	Active
Strategy and Innovation	5-9909-25	Utilizing ITS at International Ports to Reduce PM2.5 and NO2 Emissions	Active

UTEP | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7104	Establish Performance-Based Acceptable Lab-Molded Density Range for Mix Design and QC/QA	Closed

Project Start Date: 09/01/2021
Completion Date: 04/30/2025
Lead University: TTI
University #2: UTEP
Project Status: Closed
Total Project Budget: $829,999.25
UTEP Total Budget: $360,000.00
UTEP FY25 Budget: $10,000.00
UTEP Total Proj Spend: $322,326.00
UTEP FY25 Spend: $7,454.01

Project description: Lab-molded density of asphalt mixes is a critical factor for laboratory mix design, plant production, and field performance. Current mix design and production quality control and quality assurance (QC/QA) are developed around a fixed lab-molded density of 96 percent. Adherence to a fixed lab-molded density is not only one of the main factors leading to drier, more crack susceptible mixes where low asphalt binder content is often caused by balancing high lab-molded density values at plant production, but it also impacts the implementation of the Balanced Mix Design approach. Furthermore, various field test sections designed with densities ranging from 96.5 to 98 percent were previously constructed in different areas of Texas, and they performed well in the field with no observed rutting problems. Thus, the objective of this project is to establish an acceptable range of lab-molded densities for laboratory mix design and production QC/QA testing. To achieve the objective, the Performing Agencies shall review the literature, conduct extensive laboratory performance tests, construct test sections and monitor their performance, and finally recommend an acceptable range of lab-molded density based on all the information and data collected.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7104

UTEP | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7108	Evaluate the Importance of Fine Aggregates in Achieving Adequate Skid Resistance in TxDOT Hot Mix Asphalt Mixtures	Active

Project Start Date: 09/01/2021
Completion Date: 08/31/2026
Lead University: UTEP
University #2:
Project Status: Active
Total Project Budget: $863,000.00
UTEP Total Budget: $863,000.00
UTEP FY25 Budget: $172,000.00
UTEP Total Proj Spend: $620,576.72
UTEP FY25 Spend: $165,738.26

Project description: The lack of skid resistance has been an important issue for Receiving Agency pavement as many of them cannot hold adequate skid resistance in the long run, and even some newly constructed roads are observed to have poor skid resistance. Skid resistance is a function of the quality of the aggregate as well as the micro-and macro-texture of the surface. Those textures can be modified by using the appropriate type and amount of fine aggregates and fines in asphalt concrete. The main focus of the research is understanding the effects of fine aggregates and fines on the skid resistance of asphalt concrete since their impacts on the skid resistance and performance. The Performing Agency shall evaluate the current practices and research studies commissioned by Receiving Agency (in particular) and other states (in general) on the use of fine aggregates and fines in asphalt concrete to improve skid resistance. The major objective of this project shall be critical to evaluate the influence of fine aggregates and high-quality fines on the skid resistance of asphalt concrete.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7108

UTEP | Structures and Hydraulics

Project Number	Project Name	Status
0-7192	Develop Performance of Baseplate Connections in COSS and Traffic Signal Structures	Active

Project Start Date: 09/01/2023
Completion Date: 08/31/2026
Lead University: TTI
University #2: UTEP
Project Status: Active
Total Project Budget: $988,604.75
UTEP Total Budget: $111,181.25
UTEP FY25 Budget: $45,991.25
UTEP Total Proj Spend: $90,737.15
UTEP FY25 Spend: $40,687.79

Project description: The Receiving Agency cantilever overhead sign structures (COSS) and traffic signal pole structures have a socketed fillet welded connection between the column and the baseplate. While economical, this connection has a low fatigue-resistance threshold. Some current and past Receiving Agency designs and contractor submitted alternates involving multi-sided bent plate columns were not designed using fatigue provisions. Fatigue provisions did not exist in the design specification of the time. The Receiving Agency is currently updating various ancillary structure standards for Load and Resistance Factor Design - Luminaires and Traffic Signals (LRFD-LTS) specifications, which does include fatigue provisions. Research is needed to ascertain the best connection type and design, while balancing economy and performance for new structures. The Performing Agencies shall identify the fatigue life of existing structures, including critical cases and means of repair and retrofit, in this research. The results of this research will lead to improved ancillary structure details with mitigated fatigue risk, as well as a method of identifying existing inventory with fatigue risks. The objectives of this research are to (1) outline fabrication practices and economic considerations that may affect proposed connection type and design, (2) develop an inventory database of COSS and

traffic signal pole structures that are representative, (3) utilize structural modeling to identify from within the inventory critical cases that should be advanced to a testing program, (4) develop and execute a targeted testing program that isolates critical design parameters for the fatigue performance of both the critical cases found in the inventory and recommended connection types and designs, (5) provide recommendations for connection types and designs based on fatigue provisions, and (6) provide recommendations for identifying fatigue-critical of existing inventory.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7192

UTEP | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7216	Enhancing Texas Mechanistic-Empirical Flexible Pavement Design System (TxME) Practice: Develop Enhanced Mix Aging Model and District-Level Calibration Guidance	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2028
Lead University: UTEP
University #2:
Project Status: Active
Total Project Budget: $660,211.19
UTEP Total Budget: $660,211.19
UTEP FY25 Budget: $32,211.19
UTEP Total Proj Spend: $35,103.30
UTEP FY25 Spend: $32,211.19

Project description: The Performing Agency shall update the Flexible Pavement Design System (FPS) to FPS23, integrating the Texas Mechanistic-Empirical Flexible Pavement Design System (TxME) to enable Districts to compare ong-term performance with the Mechanistic-Empirical (ME) design process. The Performing Agency shall (a) review protocols that accelerate laboratory mix aging process, (b) evaluate test methods that are more accessible to Districts, (c) develop a mix aging model, (d) identify key parameters to input into TxME, (e) conduct comparisons between FPS and TxME designs, and (f) support Districts by providing calibration methods, factors, or means for straightforward determination of parameters representative of local materials, mix designs and traffic conditions.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract to extend the termination date, revise the project scope, schedule, and budget in order to maximize the quality of the end product. The FY 2025 budget is decreased by $156,788.81 from $189,000.00 to $32,211.19. The FY 2026 budget is increased by $1,000.00 from $194,000.00 to $195,000.00. The FY 2027 budget is increased by $18,000.00 from $197,000.00 to $215,000.00. The FY 2028 budget is established at $218,000.00. The Total Project Budget is increased by $80,211.19 from $580,000.00 to $660,211.19.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7216

UTEP | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7225	Evaluation of Rapid Mix Design for Lime Treated Materials	Active

Project Start Date: 09/01/2024	Completion Date: 08/31/2027
Lead University: UTEP	University #2:
Project Status: Active	Total Project Budget: $545,000.00
UTEP Total Budget: $545,000.00	UTEP FY25 Budget: $178,000.00
UTEP Total Proj Spend: $168,551.00	UTEP FY25 Spend: $168,551.00

Project description: The project will develop guidelines for a rapid mix design with small samples for lime-treated materials for TxDOT. The following objectives shall be achieved: 1. Conduct a literature review and summarize state-of-the practice and key findings; 2. Review and summarize mix design methods currently in use for lime treated materials; 3. Conduct a comprehensive lab program comparing existing procedures with small sample methods; 4. Develop a lab mix design method for lime treatment that is similar in methodology, with accelerated methods of mix design currently in use or under development for asphalt-based and cement-based treatments; 5. Demonstrate the procedures for upcoming construction projects; 6. Develop recommended test procedures and updates to specifications. The scope of the work consists of a comprehensive testing and analysis program for a set of carefully selected soils and base course, with a range of plasticity index and clay minerals, and the development of a mix design procedure that shall result in a significant reduction in turnaround time and amount of materials required for mix design. The work shall evaluate and compare physical, chemical and mechanical test properties of the samples designed according to the current method and the selected potential methods, to recommend the most optimum curing, moisture conditioning and testing methods. The conclusions and recommendations will be provided in the form

of specification updates for effective implementation. The results of this study will allow TxDOT to design good performing, durable and long-lasting lime-treated layers, and allow them to harmonize the mix designs for different types of treatments.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7225

UTEP | Strategy and Innovation

Project Number	Project Name	Status
5-9909-25	Utilizing ITS at International Ports to Reduce PM2.5 and NO2 Emissions	Active

Project Start Date: 03/14/2025
Completion Date: 08/31/2026
Lead University: UTEP
University #2:
Project Status: Active
Total Project Budget: $156,101.00
UTEP Total Budget: $156,101.00
UTEP FY25 Budget: $77,604.00
UTEP Total Proj Spend: $0.00
UTEP FY25 Spend: $0.00

Project description: The Performing Agency shall supplement Intelligent Transportation System (ITS) at four ports of entry, by installing low-cost Particulate Matter 2.5 micrometers or less (PM2.5) and Nitrogen Dioxide (NO2) sensors, to support real-time information collection and monitor idling-related emissions from commercial vehicles. The Performing Agency shall not perform any work or incur any cost under Task 1-5 until a Notice to Proceed has been issued by the Receiving Agency for the Task(s). The Performing Agency shall supplement the existing ITS network managed by the City of El Paso by installing low-cost PM2.5 and NO2 sensors at four ports of entry and create a User Interface that monitors and visually represents commercial vehicle activity and emissions in real time. The User Interface will identify congestion points and high-emission zones. The Performing Agency shall complete a pilot deployment of the sensors and User Interface, collecting data from the pilot deployment that is appropriate for presentation to the public, to logistics companies operating commercial vehicles, to policy makers, and funding agencies. The Performing Agency shall produce reports detailing the performance of the sensors and User Interface, including project outcomes, recommendations, and potential scalability to all international ports along the U.S.-Mexico and U.S.-Canada border and in international borders with similar commercial activity.

Approved Work Program Revisions

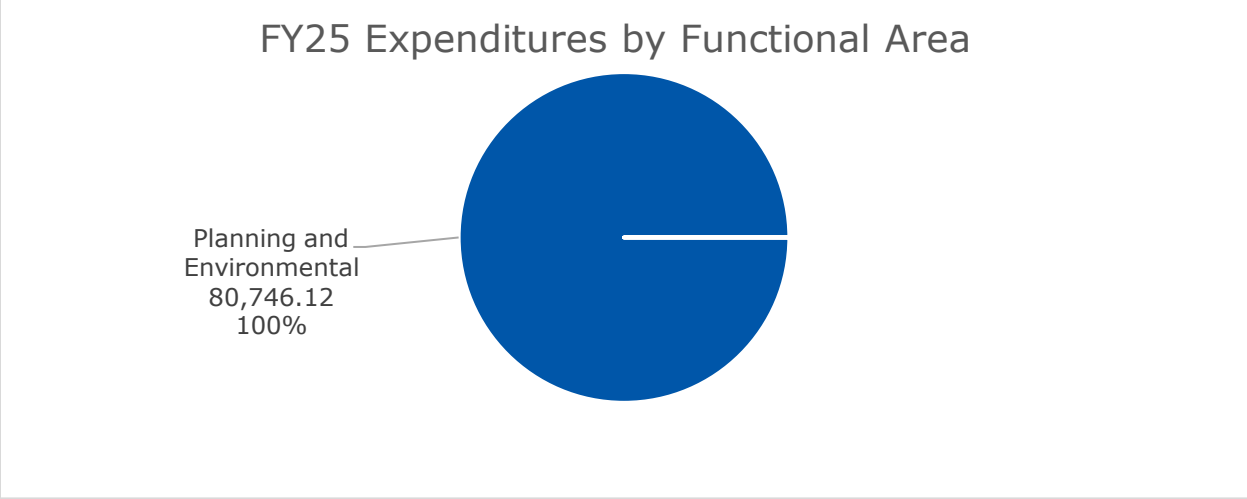
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=5-9909-25

2.16 UTRGV – University of Texas Rio Grande Valley

Figure 18 – Pie chart of UTRGV expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Planning and Environmental	0-7219	Developing and Assessing eDNA Survey Methodology for Protected Mussel Species in Texas	Active

UTRGV | Planning and Environmental

Project Number	Project Name	Status
0-7219	Developing and Assessing eDNA Survey Methodology for Protected Mussel Species in Texas	Active

Project Start Date: 01/10/2025
Completion Date: 08/31/2028
Lead University: UTRGV
University #2:
Project Status: Active
Total Project Budget: $1,452,743.75
UTRGV Total Budget: $1,452,743.75
UTRGV FY25 Budget: $201,633.75
UTRGV Total Proj Spend: $80,746.12
UTRGV FY25 Spend: $80,746.12

Project description: The proposed project shall develop environmental DNA (eDNA) assays to detect 12 target mussel species in Texas waterways from collected water samples. We propose to compare the detection levels of current USFWS mussel survey techniques with the results of the developed eDNA assays. A combination of Unionid multispecies metabarcoding assays and species-specific assays employing nested PCR shall be developed and compared for their detection limits on the 12 mussel species. Seasonal and environmental factors shall be tested, as well as limits of detection and detection by distance from source to determine best practices for eDNA sampling for the 12 species. We propose to directly inform the TXDOT where, when, and how to use eDNA for monitoring freshwater mussels. Fully developed and tested protocols will be delivered to TXDOT in the form of field and laboratory manuals.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

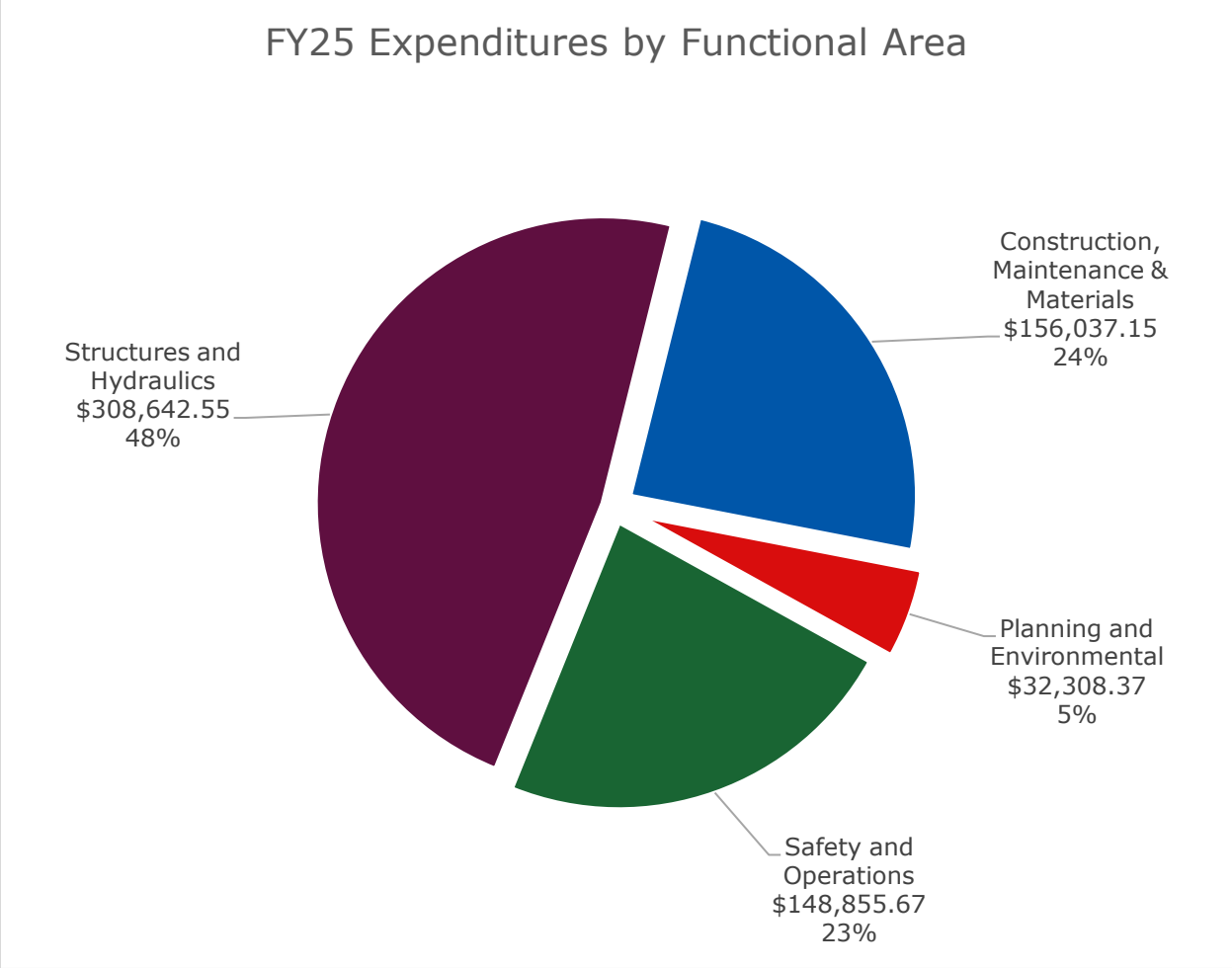
Amend the contract to revise the termination date, the project budget and the project schedule due to delays by Performing Agency in hiring staff as a result of a later than anticipated project start date. The FY2025 Budget is decreased by $141,532.50 from $343,166.25 to $201,633.75; the FY2026 Budget remains $545,161.25; the FY2027 Budget remains $455,562.50; the FY2028 Budget is increased by $141,532.50 from $108,853.75 to $250,386.25. The Itemized Project Budget remains $1,452,743.75.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7219

2.17 UTSA – University of Texas at San Antonio

Figure 19 – Pie chart of UTSA expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7154	Evaluate Use of 300ksi Strands for TxDOT Prestressed Girders	Active
Structures and Hydraulics	0-7155	Develop/Refine Design Provisions for Headed and Hooked Reinforcement	Active

Functional Area	Project Number	Project Name	Status
Structures and Hydraulics	0-7158	Calibration of Bridge Performance Models Using Element Data	Closed
Safety and Operations	0-7180	Select High Risk Pedestrian Midblock Crossings and Perform Safety Evaluations for Developing Pedestrian Crossings Countermeasures	Closed
Construction, Maintenance & Materials	0-7191	Develop Systematic and Quantitative Approach to Assess the Probability of Extreme Weather and Resilience Risks for TxDOT Highways and Bridges	Closed
Planning and Environmental	0-7194	Evaluating the Risks that Erosion Control Products Pose to Protected Species and Other Wildlife	Active
Construction, Maintenance & Materials	0-7195	Quantify Bridge and Pavement Consumption Due to Permitted Overweight/Oversized (OW/OS) Vehicles	Active
Structures and Hydraulics	0-7207	Determine Feasibility and Efficacy of Hollow Precast Straddle Bents	Active
Construction, Maintenance & Materials	0-7215	Predicting Field Performance of Pavement Markings Statewide in Texas	Active

UTSA | Structures and Hydraulics

Project Number	Project Name	Status
0-7154	Evaluate Use of 300ksi Strands for TxDOT Prestressed Girders	Active

Project Start Date: 09/19/2022
Lead University: UTSA
Project Status: Active
UTSA Total Budget: $932,045.25
UTSA Total Proj Spend: $775,933.47

Completion Date: 08/31/2026
University #2:
Total Proj Budget: $932,045.25
UTSA FY25 Budget: $237,391.25
UTSA FY25 Spend: $175,161.26

Project description: Advances in material and fabrication processes have allowed the prestressing-strand industry to increase the strength of strands from 270 ksi to 300 ksi. Several state DOTs around the nation are already considering incorporating higher strength strands into their designs. The impetus is to obtain longer bridge span lengths for a given section depth. The main goal of this research project is to update the designs of standard Texas DOT prestress girders to incorporate 300 ksi 0.6 inch diameter strands. The main concern for upgrading to 300 ksi strands revolves around the increased spalling and bursting stresses associated with higher prestressing forces. Such increases in stresses can cause increased cracking in girders at prestress transfer. The Performing Agency will conduct tests on full-scale prestressed girders for all standard TX girder section sizes. These tests will allow the research team to hone in on optimal detailing for girders using 300 ksi strands. As a result, new designs for all TX girder sections shall be produced for 300 ksi strands. Updates to design specifications shall also be proposed to reflect research findings. The expected benefits are more economical bridges that can span longer distances for a given section depth.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #3:

It has become necessary to amend the contract to revise the project duration and budget due to regulatory delays and sourcing issues which has impacted the ability to purchase 300ksi strands needed for tests, as well as changes in scope based on research findings to date. The FY2025 budget is decreased by $28,500.00 from $265,091.25 to $236,591.25. The FY2026 is established at $110,500.00.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7154

UTSA | Structures and Hydraulics

Project Number	Project Name	Status
0-7155	Develop/Refine Design Provisions for Headed and Hooked Reinforcement	Active

Project Start Date: 09/01/2022
Completion Date: 08/31/2026
Lead University: TTI
University #2: UTSA
Project Status: Active
Total Project Budget: $999,401.25
UTSA Total Budget: $319,213.75
UTSA FY25 Budget: $91,230.00
UTSA Total Proj Spend: $302,243.39
UTSA FY25 Spend: $85,999.02

Project description: The usefulness of reinforced concrete is dependent on sufficient anchorage between concrete and reinforcing steel. Sufficient anchorage occurs when reinforcing steel is embedded into the concrete a distance referred to as the development length. When this length of embedment is achieved the reinforcing steel is expected to reach or exceed stresses beyond yield. Geometric constraints within structural members may prevent straight lengths of reinforcement from developing their yield strength, such as straight bars being terminated within a beam-column joint. In these cases, the addition of a hook or headed bar attachment provides a more efficient anchorage mechanism compared to straight bars. Both hooked and headed bars have shorter development lengths than straight bars. However, the current American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design Bridge Design Specifications (LRFD) Bridge Design Specification (9th edition) has not developed standard details for headed reinforcement in bridge structures. In addition, current AASHTO LRFD design provisions for hooked bars are adapted from the American Concrete Institute (ACI) 318-14 Building Code Requirements for Structural Concrete. Considerable revisions

to the current ACI 318-19 specification for the design of hooked reinforcement, which require increased lengths (50 to 70 percent longer) relative to previous code cycles, necessitates the Receiving Agency to revisit its current design practice for hooked reinforcement. This research seeks to provide the Receiving Agency with clear and concise design guidance for engineers to use both hooked and headed bar attachments in Receiving Agency bridge structures. The Performing Agencies shall accomplish this through large-scale experimental testing of specimens with hooked and headed bars representative of Receiving Agency bridge structures and current design practice.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7155

UTSA | Structures and Hydraulics

Project Number	Project Name	Status
0-7158	Calibration of Bridge Performance Models Using Element Data	Closed

Project Start Date: 09/02/2022
Lead University: UTSA
Project Status: Closed
UTSA Total Budget: $393,835.00
UTSA Total Proj Spend: $383,205.94

Completion Date: 12/31/2024
University #2:
Total Proj Budget: $393,835.00
UTSA FY25 Budget: $17,500.00
UTSA FY25 Spend: $17,381.50

Project description: The Performing Agency shall develop element deterioration models covering all bridge elements, including culverts, known as National Bridge Elements (NBEs) and Bridge Management Elements (BMEs), which shall forecast the probabilities that each statistically validated family of bridge elements and culverts will deteriorate to lower condition states within certain time frames. The Performing Agency shall also develop, test and validate Element Health Indices (EHIs), and aggregate them into a Texas Bridge Health Index (TxBHI) representing the entire bridge or culvert, ensuring that it prioritizes at-risk structures while balancing overall maintenance needs. These products shall have a Technology Readiness Level (TRL) of 8 or higher, and be easily implementable into AASHTOWare BrM software and/or other desired Receiving Agency software. The project shall also use the deterioration forecasts in conjunction with the historical inspection database to identify and recommend structural details that warrant further improvements on design and construction specifications at TRL 2 or 3. All products shall be based on statistical analyses of a historical database with combined NBE, CoRe, NBI, climatic and environmental data.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

Amend the contract to extend the termination date and revise the budget and project schedule due to the Principal Investigator and lead Researcher experiencing hospitalization and a long recovery time. The FY 2023 budget remains $198,205.00. The FY 2024 budget is decreased by $17,500.00 from $195,630.00 to $178,130.00. The FY 2025 budget is established at $17,500.00. Itemized Project Budget Estimate remains $393,835.00.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7158

UTSA | Safety and Operations

Project Number	Project Name	Status
0-7180	Select High Risk Pedestrian Midblock Crossings and Perform Safety Evaluations for Developing Pedestrian Crossings Countermeasures	Closed

Project Start Date: 09/14/2023
Completion Date: 08/31/2025
Lead University: UTSA
University #2:
Project Status: Closed
Total Project Budget: $393,865.00
UTSA Total Budget: $393,865.00
UTSA FY25 Budget: $195,723.75
UTSA Total Proj Spend: $331,303.17
UTSA FY25 Spend: $148,855.67

Project description: In 2018, there were 6,227 pedestrian fatalities in the United States. Of those, 4,612 (74%) occurred outside of intersections, including midblock locations. This means that nearly 3 out of every 4 pedestrian deaths in the U.S. occur at midblock locations. Midblock pedestrian crashes are often more severe than crashes that occur at intersections. This is because drivers are not expecting pedestrians to cross at midblock locations, and they may not be paying as close attention. San Antonio, Houston, and Dallas have historically had the highest number of pedestrian crashes annually; consequently, there is a need to identify the high-risk locations within these cities and their optimal countermeasures. Several pedestrian midblock treatments can be implemented to improve pedestrian safety; however, there is a need to better understand the safety effects of some of the more promising treatments on pedestrian crashes in Texas. There is a need to develop crash modification factors (CMFs) specific to Texas for appropriate types of treatments at midblock crossings to guide the development of countermeasures. The goal of this research is to develop a system for Texas Department of Transportation districts to help identify high-risk pedestrian midblock crossings and select the most effective

treatments for them. The project tasks include an information search on midblock pedestrian crossing safety, the collection and analysis of safety and operational data, the identification of high-risk locations for occurrence of midblock crossings and appropriate treatments, the development of crash modification factors for midblock crossings, including benefit-cost ratios.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7180

UTSA | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7191	Develop Systematic and Quantitative Approach to Assess the Probability of Extreme Weather and Resilience Risks for TxDOT Highways and Bridges	Closed

Project Start Date: 12/05/2023
Completion Date: 08/31/2025
Lead University: TTI
University #2: CTR, UTSA, TXST
Project Status: Closed
Total Project Budget: $796,520.38
UTSA Total Budget: $82,840.00
UTSA FY25 Budget: $41,396.00
UTSA Total Proj Spend: $76,216.66
UTSA FY25 Spend: $41,329.62

Project description: Climate stressors pose a significant threat to transportation infrastructure. Recognizing this, Federal Highway Administration (FHWA) requires State Departments of Transportation (DOTs) to consider extreme weather and resilience in life cycle planning and risk management analyses within a State's Transportation Asset Management Plan (TAMP). The 2022 Texas TAMP identified risk categories that could impact the Receiving Agency's infrastructure (specifically, highways and bridges). Extreme weather and resilience were discussed extensively, but the 2022 TAMP lacked a systematic and quantitative approach to assess climate-related risks to infrastructure and in life cycle planning analysis. The objective of this research is to develop a robust quantitative risk framework that can be implemented in subsequent Texas TAMPs. To successfully accomplish this objective, the Performing Agencies shall:

1. Manage the project scope, budget, and timeline.
2. Conduct an extensive review of the literature.
3. Identify climate stressors to the Receiving Agency's pavements and bridges.

4. Assess the probability of such climate stressors and extreme weather events.
5. Quantify the impact on bridges.
6. Quantify the impact on pavements.
7. Develop an asset risk and resilience assessment framework.
8. Develop and quantify adaptation strategies.
9. Conduct scenario analysis.
10. Identify proxy indicators that can be tracked to monitor high-priority risks.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7191

UTSA | Planning and Environment

Project Number	Project Name	Status
0-7194	Evaluating the Risks that Erosion Control Products Pose to Protected Species and Other Wildlife	Active

Project Start Date: 09/26/2023
Completion Date: 08/31/2026
Lead University: TARL
University #2: UTSA
Project Status: Active
Total Project Budget: $310,621.25
UTSA Total Budget: $70,332.50
UTSA FY25 Budget: $35,608.75
UTSA Total Proj Spend: $56,519.29
UTSA FY25 Spend: $32,308.37

Project description: Although many erosion control products (ECPs) are marketed as wildlife friendly, few assessments of the risk of such products to wildlife exist. Current knowledge focuses primarily on reptiles, specifically snakes, thus, the effects on other species such as terrestrial arthropods, mammals, or birds remains unknown. This research would provide evaluations on wildlife friendly ECPs from the Approved Product List (APL) based on their risk of wildlife entanglement. Our objectives are to (1) determine entanglement potential for different sizes and categories of animals in different products on APL, (2) evaluate the temporal window in which an erosion control blanket poses a risk to wildlife entanglement from pre-vegetative growth through post-vegetative growth, (3) determine which types of materials pose greater and lesser risk to protected species and other wildlife, (4) determine if weaving type or mesh size impacts entanglement, and (5) identify which products contain non-biodegradable materials. We shall address these objectives through the integration of wildlife camera trapping, surveys of construction workers for observational data, and controlled field experiments. We shall cross-reference species of concern within TxDOT districts with our study results, to produce a region-

specific list of rankings of ECPs and risk to wildlife specific to each district's ecological region.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract to extend the termination date, revise the budget, project schedule, and Scope in Task 4 due to delays in obtaining data and site access. TARL Budget: FY 2024 is decreased by $45,949.34 from $129,820.00 to $83,870.66. The FY 2025 is decreased by $8,920.00 from $110,468.75 to $101,548.75. FY 2026 is established at $54,869.34. TARL Total Project Budget remains $240,288.75. UTSA: FY 2024 budget remains $34,723.75. The FY 2025 budget remains $35,608.75. The FY 2026 budget remains $0.00. UTSA Total Project Budget remains at $70,332.50. Itemized Total Project Budget remains $310,621.25.

CTR Library Project Link:

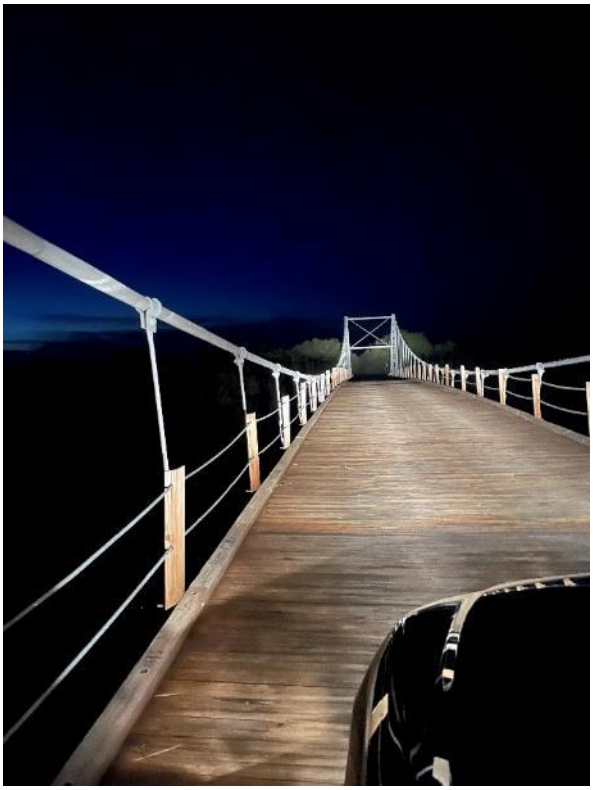
https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7194

UTSA | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7195	Quantify Bridge and Pavement Consumption Due to Permitted Overweight/Oversized (OW/OS) Vehicles	Active

Project Start Date: 09/01/2023
Completion Date: 02/28/2026
Lead University: CTR
University #2: TTI, UTSA
Project Status: Active
Total Project Budget: $828,584.25
UTSA Total Budget: $300,178.00
UTSA FY25 Budget: $120,019.00
UTSA Total Proj Spend: $225,190.47
UTSA FY25 Spend: $114,707.53

Project description: In 2012, the Rider 36 study indicated that damage caused to bridges and pavements by overweight (OW) vehicles surpassed the revenue collected by permit fees by approximately $200 million annually. This finding was corroborated by a recent 2022 study mandated by House Bill 2223, which quantified this gap at $168 million. Besides the revenue shortage to cover bridge and pavement maintenance and rehabilitation costs due to the damage cause by OW vehicles, the 2022 study also identified additional shortcomings that need to be urgently addressed. These shortcomings include: 1) lack of a methodology for periodically adjusting permit fees to account for changes in traffic patterns and configurations and higher inflation rates; 2) lack of accurate data and process for calculating annual vehicles-miles-travelled (VMT) by each permit type; 3) uncertainty in the identification of routes and number of trips for monthly, quarterly, or annual permits; 4) absence of a method and process to assess the damage caused by OW vehicles to the off-system bridges and highways. The Performing Agencies shall develop, recommend, and provide the Receiving Agency a well-established and documented step-by-step method to periodically update the permit fee structure.



Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7195

UTSA | Structures and Hydraulics

Project Number	Project Name	Status
0-7207	Determine Feasibility and Efficacy of Hollow Precast Straddle Bents	Active

Project Start Date: 10/01/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: UTSA
Project Status: Active
Total Project Budget: $1,298,699.50
UTSA Total Budget: $299,772.50
UTSA FY25 Budget: $30,538.75
UTSA Total Proj Spend: $30,100.77
UTSA FY25 Spend: $30,100.77

Project description: Bent caps provide a critical load path between girder reactions and bent columns. Supporting considerable reactions over long spans, bent cap cross-sections grow substantial, necessitating robust cast-in-place designs that have stood the test of time. However, the considerable weight and time required for their construction present challenges that undermine their apparent simplicity.

Approved Work Program Revisions

No. of FY25 Amendments: One

Amendment #1:

It has become necessary to amend the contract to revise the budget and schedule due to delays in the subcontractor constructing the precast concrete test specimen. Performing Agency 1: The FY 2025 budget is decreased by $80,000.00 from $290,080.00 to $210,080.00. The FY 2026 budget is increased by $80,000.00 from $434,329 to $514,329.00. The FY 2027 budget remains $274,518.00. The Performing Agency 1 Total Project Budget remains $998,927.00. Performing Agency 2: The FY2025 Budget is decreased by $43,242.50 from $73,781.25 to $30,538.75. The FY2026

Budget remains $141,558.75. The FY2027 Budget is increased by $43,242.50 from $84,432.50 to $127,675.00. The Performing Agency 2 Total Project Budget remains $299,772.50. The Itemized Project Budget Estimate remains $1,298,699.50.

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7207

UTSA | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7215	Predicting Field Performance of Pavement Markings Statewide in Texas	Active

Project Start Date: 09/01/2024
Completion Date: 08/31/2028
Lead University: TTI
University #2: CTR, UTSA, TXST
Project Status: Active
Total Project Budget: $908,930.52
UTSA Total Budget: $180,657.00
UTSA FY25 Budget: $33,600.00
UTSA Total Proj Spend: $11,719.78
UTSA FY25 Spend: $0.00

Project description: Pavement markings and markers are the primary means for an agency to provide longitudinal guidance to drivers. To be effective, markings and markers must be visible during all driving conditions, day, and night. A variety of pavement marking materials (binders and beads) and varying installation specifications (application type, material thickness) create a wide range of initial performance and maintained performance over a markings service life. Currently, markings are evaluated initially to ensure a minimum initial retro-reflectivity performance is obtained, but that initial performance has not been well researched to determine its impact on the overall durability and performance of the marking over its service life. The Performing Agencies shall explore various factors that affect pavement marking performance over the service life of the marking (pavement marking materials, installation specifications, pavement surface, traffic conditions, and geographic and climatic region) to develop performance models for Texas. Performance of a variety of markings and markers shall be evaluated at various field test areas. These same marking materials shall be evaluated through lab testing to explore accelerated weathering and wear tests that correlate with the field performance.

Approved Work Program Revisions

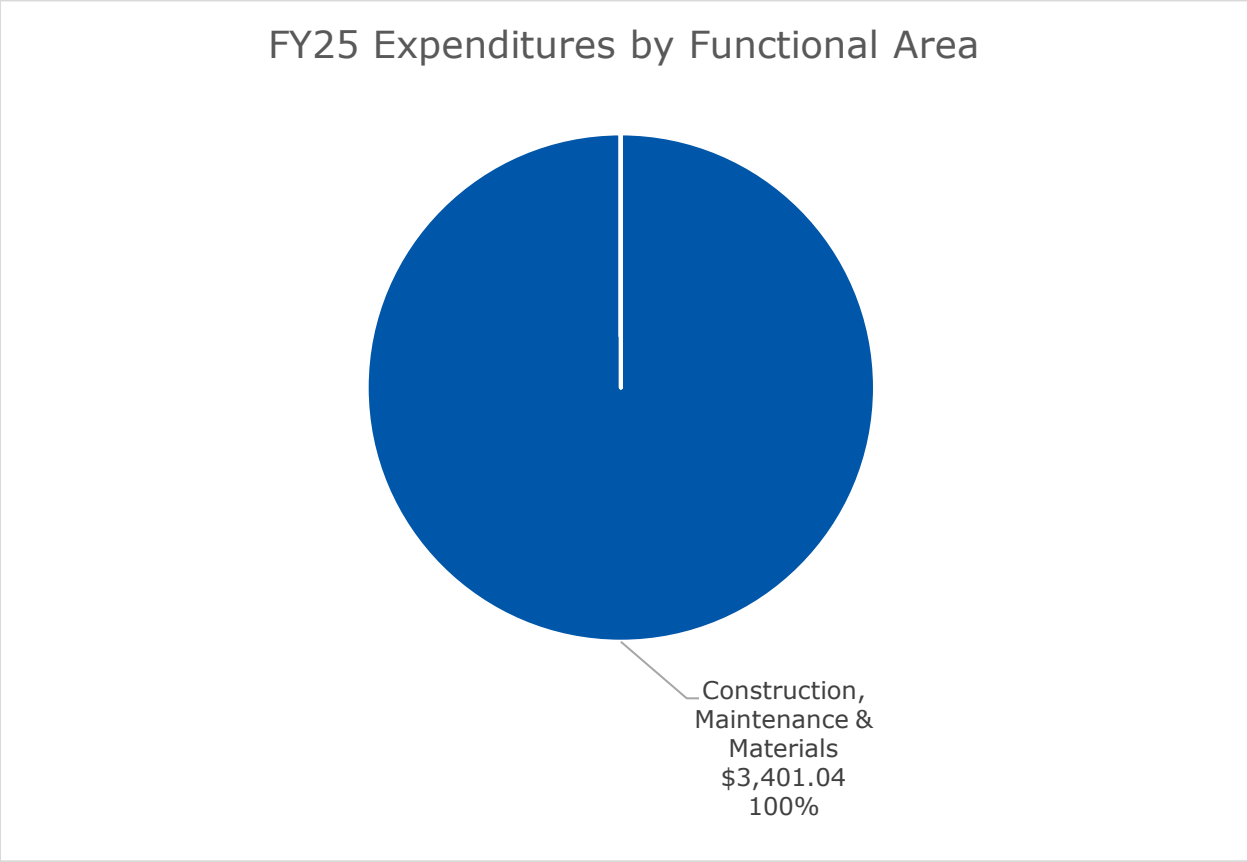
No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7215

2.18 UT-TYLER – University of Texas – Tyler

Figure 20 – Pie chart of UT-TYLER expenditures by Functional Area



Functional Area	Project Number	Project Name	Status
Construction, Maintenance & Materials	0-7151	Develop Recommendations for Evaluating Surface Types and Aggregate Properties to Minimize Wet Weather Crashes	Active
Construction, Maintenance & Materials	0-7212	Incorporating Lab Skid measurements into the Balanced Mix Design process	Active

UT-TYLER | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7151	Develop Recommendations for Evaluating Surface Types and Aggregate Properties to Minimize Wet Weather Crashes	Active

Project Start Date: 11/10/2022
Completion Date: 02/28/2026
Lead University: TTI
University #2: UT-TYLER
Project Status: Active
Total Project Budget: $599,992.25
UT-TYLER Total Budget: $45,276.25
UT-TYLER FY25 Budg: $21,968.75
UT-TYLER Total Proj Spd: $21,867.62
UT-TYLER FY25 Spend: $0.00

Project description: The current design methodology for asphalt and seal coat surfaces is limited when considering safety aspects like friction and surface texture, also known as skid resistance. The only requirement for asphalt or seal coats placed on high demand areas is that they use surface aggregate classification (SAC) A coarse aggregates. This approach has several shortcomings:

- Does not consider the friction and texture of the final surface.
- Does not consider the change in skid resistance versus trafficking.
- SAC system is defined by the acid insolubility test, not a direct measurement of aggregate properties that mechanically generate skid resistance.
- SAC categories are very broad with no distinction of the best and worst performing aggregates in each class. Consequently, some recent resurfacing projects have resulted in unacceptable skid resistance shortly after construction, even when SAC A aggregates were used. As such, there is a serious need to improve the current design process for asphalt and seal coat to ensure that the surfaces will have acceptable long-term skid resistance. The Performing Agencies shall develop a laboratory-

based system to select the pavement surface type and coarse aggregate types that will provide adequate skid resistance over the life of the pavement surface.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7151

UT-TYLER | Construction, Maintenance & Materials

Project Number	Project Name	Status
0-7212	Incorporating Lab Skid measurements into the Balanced Mix Design process	Active

Project Start Date: 10/18/2024
Completion Date: 08/31/2027
Lead University: TTI
University #2: UT-TYLER
Project Status: Active
Total Project Budget: $688,699.00
UT-TYLER Total Budget: $0.00
UT-TYLER FY25 Budget: $20,214.70
UT-TYLER Total Proj Spend: $0.00
UT-TYLER FY25 Spend: $0.00

Project description: The Performing Agency 1 shall develop and validate a laboratory test procedure to measure skid resistance of any surface mix. The Performing Agency 1 shall incorporate this test procedure into the Receiving Agency's Balanced Mix Design (BMD) process.

Approved Work Program Revisions

No. of FY25 Amendments: 0

CTR Library Project Link:

https://library.ctr.utexas.edu/Presto/search/SearchResults.aspx?q=0-7212

2.19 AARB Group Inc.

Functional Area	Project Number	Project Name	Status
N/A	0-9912-25	2021 Accelerated Innovation Deployment Demonstration (AID) – Traffic Speed Deflection Devices Project	Active

AARB Group Inc.

Project Number	Project Name	Status
0-9912-25	2021 Accelerated Innovation Deployment Demonstration (AID) – Traffic Speed Deflection Devices Project	Active

Project Start Date: 12/27/2024
Completion Date: 12/26/2026
Vendor: AARB Group Inc.
Project Status: Active
Total Project Budget: $3,000,000.00
AARB Group Inc. Total Budget: $3,000,000.0.00
AARB Group Inc. FY25 Budget: $1,530,000.00
AARB Group Inc. Total Proj Spend: $1,530,000.00
AARB Group Inc. FY25 Spend: $1,530,000.00

Project description: Utilizing Traffic Speed Deflection Devices for Pavement Structural Condition Assessment. Deploy the Traffic Speed Deflection Device technology in the selected TxDOT Districts to Collect Data on the Pavement Structural conditions using non-contact doppler laser technology, without the need for traffic control. The data collected as part of the project is expected to enhance TxDOT's Annual Treatment Planning Program.

Approved Work Program Revisions

No. of FY25 Amendments: 0

Pooled Fund Projects

Pooled-fund projects are for planning, research, development, or technology transfer project activities administered by FHWA and are supported by two or more participants. These projects address an issue of significant or widespread interest related to highway, public, or intermodal transportation. The research is intended to address a new area or provide information that will complement or advance previous investigations of the subject matter.

As 23 CFR 420.205 describes, "To promote effective use of available resources, the State DOTs are encouraged to cooperate with other State DOTs, the FHWA, and other appropriate agencies to achieve RD&T objectives established at the national level and to develop a technology transfer program to promote and use those results. This includes contributing to cooperative RD&T programs such as the NCHRP, the TRB, and transportation pooled fund studies as a means of addressing national and regional issues and as a means of leveraging funds."

Pooled-fund projects are a very effective means of leveraging precious research funds. Table 8. shows the pooled-fund projects that Texas participates in.

The following are project descriptions of the pooled-fund projects where Texas is contributing funds:

Table 11. FY 2025 Pooled-Fund Projects

Project	Title	Study No.	Lead Agency	Start-End Date	FY25 Commitment
8-8531	Concrete Bridge Engineering Institute (CBEI)	TPF-5(508)	Texas Department of Transportation	2023-2026	$250,000.00

Project	Title	Study No.	Lead Agency	Start-End Date	FY25 Commitment
8-8491	National Accessibility Evaluation Phase II Access Across America	TPF-5(455)	Minnesota Department of Transportation	2021-2025	$40,000.00
8-8492	Automated Vehicle Pooled Fund Study	TPF-5(453)	Ohio Department of Transportation	2021-2025	$50,000.00
8-8499	Road Usage Charge (RUC) America	TPF-5(451)	Oregon Department of Transportation	2020-2025	$25,000.00
8-8504	Traffic Control Device (TCD) Consortium (3)	TPF-5(447)	FHWA	2020-2025	$25,000.00
8-8506	Pavement Surface Properties Consortium: Phase III - Managing the Pavement Properties for Improved Safety	TPF-5(463)	Virginia Department of Transportation	2021-2025	$20,000.00
8-8508	Soil and Erosion Testing Services for Bridge Scour Evaluations	TPF-5(461)	FHWA	2021-2025	$15,000.00

Project	Title	Study No.	Lead Agency	Start-End Date	FY25 Commitment
8-8510	Demonstration to Advance New Pavement Technologies Pooled Fund	TPF-5(478)	FHWA	2021-2025	$10,000.00
8-8513	Building Information Modeling (BIM) for Infrastructure	TPF-5(480)	Iowa Department of Transportation	2021-2025	$30,000.00
8-8516	Clear Roads Winter Highway Operations Phase III Pooled Fund	TPF-5(479)	Minnesota Department of Transportation	2022-2026	$25,000.00
8-8519	ENTERPRISE-PHASE III (Phase II Continuation)	TPF-5(490)	Michigan Department of Transportation	2022-2026	$30,000.00
8-8520	Safety Service Patrol Standardization and Management Practices	TPF-5(489)	FHWA	2021-2025	$25,000.00
8-8522	Transportation Management Centers Pooled Fund Study Phase II	TPF-5(487)	FHWA	2022-2027	$50,000.00

Project	Title	Study No.	Lead Agency	Start-End Date	FY25 Commitment
8-8523	Roadside Safety Pooled Fund - Phase 3	TPF-5(501)	Washington Department of Transportation	2023-2027	$65,000.00
8-8526	Continuous Bituminous Pavement Stripping Assessment Through Non-destructive Testing	TPF-5(504)	Minnesota Department of Transportation	2023-2027	$25,000.00
8-8527	Emerging Data Streams for Pavement (Asset) Health Monitoring and Management	TPF-5(513)	Virginia Department of Transportation	2023-2028	$30,000.00
8-8529	Standardizing Rigid Inclusions for Transportation Projects – Phase I	TPF-5(503)	Kansas Department of Transportation	2023-2025	$30,000.00
8-8530	Highway Safety Manual 2nd Edition (HSM2) Implementation	TPF-5(516)	FHWA	2023-2028	$16,000.00

Project	Title	Study No.	Lead Agency	Start-End Date	FY25 Commitment
8-8532	National Partnership to Improve the Quality of Preventive Maintenance Treatment Construction & Data Collection Practices (PG Phase III)	TPF-5(522)	Minnesota Department of Transportation	2023-2027	$50,000.00
8-8533	National Hydraulic Engineering Conference	TPF-5(507)	FHWA	2022-2027	$1,000.00
8-8534	Building Information Modeling (BIM) for Bridges and Structures - Phase II	TPF-5(523)	Iowa Department of Transportation	2023-2027	$20,000.00
8-8535	New Performance Approach to Evaluate ASR in Concrete	TPF-5(521)	FHWA	2023-2027	$5,000.00

Project	Title	Study No.	Lead Agency	Start-End Date	FY25 Commitment
8-8536	Consortium for Asphalt Pavement Research and Implementation (CAPRI)	TPF-5(465)	Alabama Department of Transportation	2021-2025	$10,000.00
8-8537	Expansion: Enhanced Traffic Signal Performance Measures	TPF-5(519)	Indiana Department of Transportation	2023-2025	$40,000.00
8-8538	Resiliance Approaches for Pavements and Geotechnical Assets	TPF-5(512)	Virginia Department of Transportation	2023-2027	$20,000.00
8-8540	Work Zone Analytics	TPF-5(514)	Indiana Department of Transportation	2023-2025	$30,000.00
8-8541	Evaluation of Low-Cost Safety Improvements (ELCSI-PFS)	TPF-5(515)	FHWA	2023-2027	$10,000.00
8-8542	Implementation of Structural Data from Traffic Speed Deflection Devices	TPF-5(518)	Virginia Department of Transportation	2024-2028	$149,000.00

Project	Title	Study No.	Lead Agency	Start-End Date	FY25 Commitment
8-8543	Human-Centered Steel Bridge Inspection Enabled by Augmented Reality and Artificial Intelligence		Kansas Department of Transportation	2024-2026	$40,000.00
8-8545	Western Transportation Research Consortium	TPF-5(526)	Utah Department of Transportation	2024-2026	$15,000.00
8-8547	Improving the Quality of Highway Profile Measurement		Illinois Department of Transportation	2024-2028	$30,000.00
8-8548	Ahead of the Curve - Migration from NCHRP to AASHTO Technical Training Solutions (TTS)		Louisiana Department of Transportation	2024-2025	$10,000.00

Project	Title	Study No.	Lead Agency	Start-End Date	FY25 Commitment
8-8549	Accelerated Performance Testing on the 2024 NCAT Pavement Test Track with MnROAD Research Partnership		Alabama Department of Transportation	2024-2026	$266,667.00

Section 3 - SPR Administrative Activities

3.1 Research Management and Administration

RTI performs the following management and administrative activities.

Project Number: 0-50

Project Title: Research Management and Administration

Project Objectives: RTI provides administrative oversight for support functions including budgeting, purchasing, contract administration, legislative analysis, mapping, and the SPR Work Program.

Planned Activities: Develop, implement, and monitor the division's biennium budget.

1. Develop, implement, and monitor the SPR Work Program, ensuring that all requirements of 23 CFR 420, 2 CFR 200, and other applicable federal and state statutes and regulations are followed.
    a. Prepare and submit the proposed Fiscal Year 2026 SPR Work Program to FHWA.
    b. Prepare and submit the 2024 Annual Performance and Expenditures Report (APER) to FHWA.
    c. Hold quarterly status meetings with FHWA to report on the 2025 SPR Work Program.
    d. Prepare and submit amendments to the 2025 SPR Work Program as needed.
2. Administer and ensure that all the division's agreements/contracts are approved, procured, monitored, and closed out in accordance with the

provisions of 2 CFR 200. In addition, this function ensures that program monitoring and reporting requirements of FHWA planning and research funds are in compliance with 23 CFR 420.117.

Financials	Budget	Expended	Balance
Division Travel	$50,000.00	$38,511.71	$11,488.29
Salary	$2,352,939.00	$2,178,555.06	$174,383.94
Total RTI Division Program Management	$2,402,939.00	$2,217,066.77	$185,872.23

Summary Statement

The Texas State Planning and Research (SPR), Subpart B activities identified within the work program demonstrates the states commitment to addressing transportation challenges within the state and those common across the nation. The innovative ideas for meeting those challenges have been thoroughly vetted by the research committees within TxDOT to ensure only the best ideas are submitted with success in mind.

Our continued partnership and collaboration with FHWA Texas Division, university researchers, Metropolitan Planning Organizations, and other state DOTs, positions Texas to remain at the forefront for advancing new and innovative technologies and solutions. Many of the solutions will meet both near term and future surface transportation challenges and aid with meeting the aim of the Infrastructure Investment and Jobs Act.

TxDOT Research and Technology Implementation (RTI) Division will continue to manage and foster good stewardship of the federal State Planning and Research (SPR), Subpart B - Research, Development and Technology Transfer Program, for the state of Texas. RTI will submit amendments to this work program by way of Round Templates throughout the fiscal year to address new project start dates, project modifications, and any cancelled projects as needed.