

# University Handbook • 2025

The Research and Technology Implementation  
Division

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# Chapter 1 - Introduction

## TxDOT Research and Implementation Program

The Texas Department of Transportation's (TxDOT) Research and Implementation Program (Research Program) is managed by the Research and Technology Implementation Division (RTI). The Research Program provides the framework for TxDOT to contract with Texas state-supported institutions of higher education or other qualified research agency (University or Performing Agency) through a competitive process to improve Texas transportation.

Products from the Research Program include novel devices, analytical tools, new materials, new or improved specifications, improved testing methods, as well as increased institutional knowledge, best practices and/or other guidance. Research products impact virtually every area of TxDOT's core operations. Dividends may be realized in terms of lives saved, increased operational efficiency, improved services, or cost savings. To guide the research efforts, the Research Program draws upon the expertise of department personnel from across the state. This ensures that the conducted research closely aligns with the goals and priorities of TxDOT.

Research and Implementation projects are managed by RTI's Project Managers (PMs). The PMs work with TxDOT subject matter experts to form TxDOT Project Monitoring Committee (PMC). This team works closely with the University Principal Investigator to guide and support the research.

## TxDOT Values, Vision, Mission, Goals, and Priorities

### Values

- People  
People are the Department's most important customer, asset, and resource. The well-being, safety, and quality of life for Texans and the traveling public are of the utmost concern to the Department. We focus on relationship building, customer service, and partnerships.
- Accountability  
We accept responsibility for our actions and promote open communication and transparency at all times.
- Trust  
We strive to earn and maintain confidence through reliable and ethical decision-making.
- Honesty  
We conduct ourselves with the highest degree of integrity, respect, and truthfulness.

### Vision

A forward-thinking leader delivering mobility, enabling economic opportunity, and enhancing quality of life for Texas.

### Mission Statement

Connecting You with Texas.

## Goals and Objectives

**Deliver the Right Projects** – Implement effective planning and forecasting processes that deliver the right projects on-time and on-budget.

- Analyze and improve post-delivery effectiveness metrics to validate and calibrate project prioritization while addressing the diverse needs of the state.
- Optimize project programming, development, and management to ensure projects are delivered on time, on budget, and with high quality.
- Leverage public engagement to drive improved project selection and increase public buy-in.

**Focus on the Customer** – People are at the center of everything we do.

- Utilize innovative approaches to further improve TxDOT culture and delivery of services to the public.
- Encourage a customer-centric culture at TxDOT that focuses on customer needs across all agency operations, services, and internal support functions.
- Improve transparency and promote information sharing by increasing public access to information, data analysis and visualization tools.

**Foster Stewardship** – Ensure efficient use of state resources.

- Identify efficiencies and develop innovative ideas to optimize our use of resources to improve the transportation system, operations, and internal support functions.
- Continue to improve asset management and resiliency planning activities.
- Leverage two-way public engagement to create visibility and accountability for TxDOT as a good steward of State and Federal resources.

**Optimize System Performance** – Develop and operate an integrated transportation system that provides reliable and accessible mobility and enables economic growth.

- Invest in transportation solutions, including exploring collaboration opportunities, to increase the throughput of people and goods, and improve the economic competitiveness of Texas.
- Work with partners to develop capabilities that facilitate and maximize the use of all mobility options.
- Employ data and innovative tools to improve transportation safety, mobility, and performance.

**Preserve our Assets** – Deliver preventive maintenance for TxDOT's system and capital assets to protect our investments.

- Advance innovative asset management practices for the state transportation system and equipment and continue resiliency planning activities.
- Educate leaders, TxDOT employees, the public, and partners on the benefits of designing for the optimal life cycle of transportation infrastructure.
- Promote resiliency for transportation infrastructure, equipment, and facilities to mitigate risks and to identify how to maximize availability, system uptime, and redundancy.

**Promote Safety** – Champion a culture of safety.

- Adopt a system safety approach that implements data-driven and innovative solutions throughout project development and design that have the highest rate of return for reducing fatal and serious injury crashes.
- Implement proven and innovative methods for safety outreach and education.
- Promote equipment, technologies, and training that protects the traveling public and workers through partnership, research, and implementation.

**Value our Employees** – Respect and care for the well-being and development of our employees.

- Foster a culture of open communication and professionalism where employees feel comfortable expressing their concerns, ideas, and feedback.
- Champion and provide career development, training, and education opportunities for all employees to be successful at their work.
- Develop a future-ready workforce that is equipped with emerging skillsets.

### **TxDOT Priorities**

- Safety - Design, build, operate, and maintain our transportation system with safety as our #1 priority
- Delivery – Responsible program execution throughout the transportation life cycle (planning, design, construction, maintenance, and operations)
- Innovation – Forward-thinking, technology-focused, fostering a culture of continuous improvement
- Stewardship – Professional, responsible stewards of resources

## **Conduct**

### **Non-Discrimination**

As stated in TxDOT's Research Manual, TxDOT's policy is that no person shall on the grounds of race, color, religion, sex, national origin, genetic information, disability, military status, or age be excluded from participation in or be denied the benefits of, or otherwise be subjected to discrimination, under any TxDOT program, including the research program. This policy is reflected in the Cooperative Research and Implementation Agreement (CRIA) established with each University.

### **Gratuities and Lobbying**

By signing the CRIA, the University, or University system, agrees to not offer gifts to TxDOT employees or to influence (lobby) Federal employees. These provisions are contained in Articles of each CRIA.

### **Conflict of Interest**

Members of TxDOT Project Teams may have no direct or indirect financial interest in any project they are evaluating or managing. Nor may they have family, personal, or business relationships with University employees that would create a conflict of interest, or the appearance of a conflict of

interest, between their duties as a member of a research committee and their personal or business interests.

A University shall only assign an employee responsible for the design, conduct or reporting of research to a project funded under the terms of a CRIA who is in full compliance with the University's Financial Conflicts of Interest Policy.

Each Project Team member and all RTI employees are expected to disclose any potential conflicts of interest. Any such disclosures will be evaluated and structured to avoid true or apparent conflicts of interest.

Project advisors brought in to provide feedback from external agencies (private companies, trade associations, etc.) are expected to follow the same standards of conduct and conflict of interest policies as university and TxDOT project members. External advisors are required to complete the External Project Advisor Agreement (Form 1688) and comply with all requirements. TxDOT is under no obligation to adhere to the recommendations given by external advisors.

## **Research Product Disclosures**

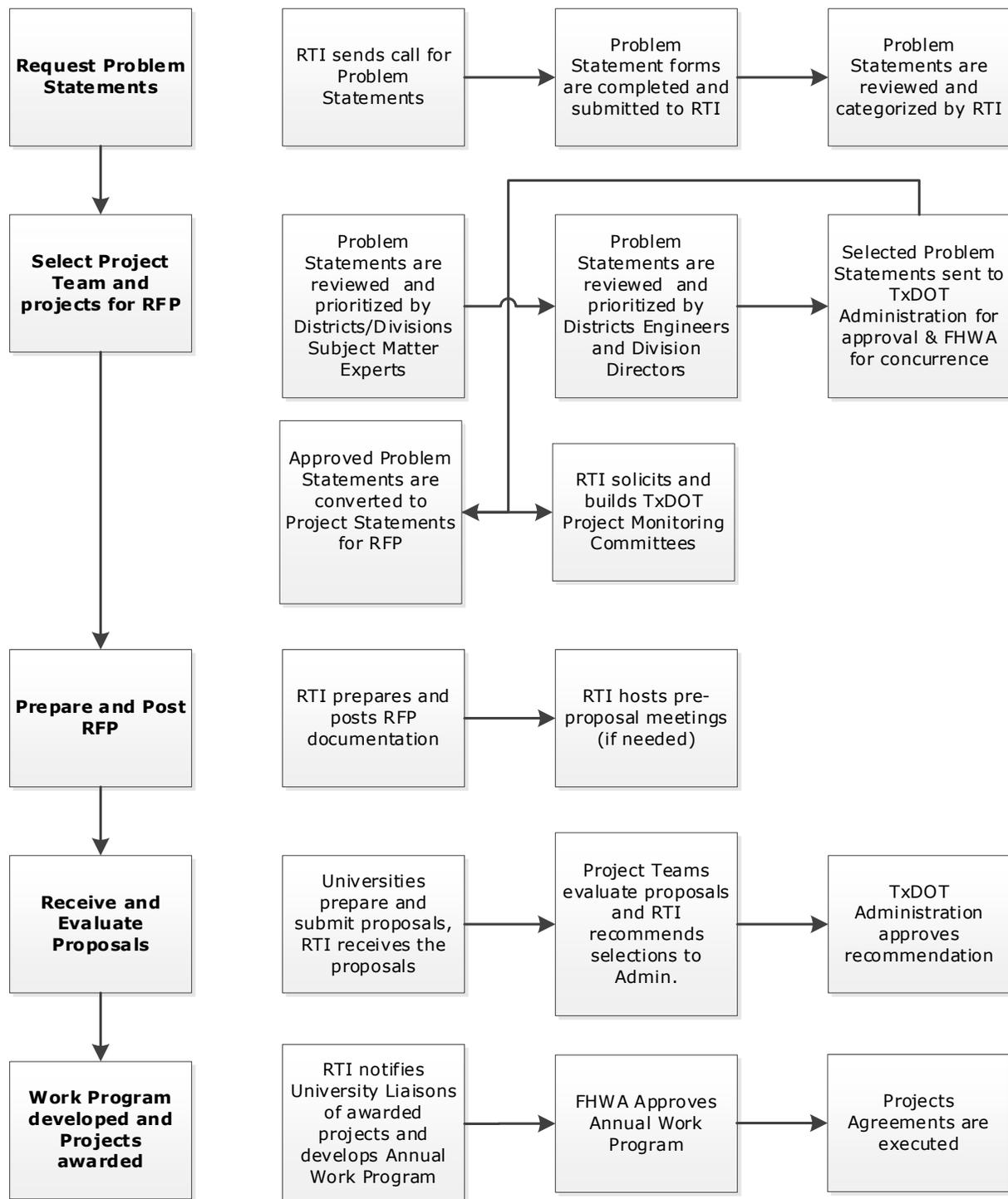
Final data generated or produced in the course of executing the Research Program (Research Products) may not be disclosed by the University research team to any parties outside of the TxDOT Project Team if TxDOT reasonably determines that the disclosure of such data would adversely affect public safety, the protection of intellectual property, rights of the University, publication rights in professional scientific publications, valuable confidential information of the University or a third party, or may otherwise have negative ramifications on TxDOT's stated mission, goals and objectives.

## **Using This Handbook**

This handbook, TxDOT's Research Manual, and the CRIA agreed to with each University, provide an overview and governs certain aspects of the Research Program. Other sources of contractual guidance include individual Project Agreements and Federal Law. Federal Law shall be considered the highest authority should any conflicts arise between these documents.

This handbook provides the framework and policies under which Universities may participate in the Research Program and establishes the procedures that implement the policies expressed in the Research Manual. By signing a CRIA, each University, or University system, agrees to TxDOT procedures related to the Research Program, and this handbook presents some of those procedures.

## RTI – Program Overview



# Chapter 2 - Request for Proposals

## Process and Requirements

### Process

The following information details TxDOT's Research Program through the Request for Proposal (RFP) process. The University Liaison is the point of contact for RFP information and for submitting proposals to RTI.

#### Request and Receive Problem Statements

- RTI sends call for Problem Statements.
- Problem Statement forms are completed.
- Problem Statement forms are submitted to RTI.

#### Select Project Team and Projects for RFP

- RTI categorizes Problem Statements and submits to Districts/Divisions (DD).
- TxDOT DD develops and prioritizes Problem Statements.
- DD proposes Project Teams for each prioritized problem statement.
- RTI receives list of Project Teams and prioritized problem statements.
- RTI prepares list of prioritized problem statements for Executive Committee review.
- Various committees recommend which problem statements to go forward in an RFP.

#### Prepare and Post RFP

- RTI prepares RFP documentation.
- RTI posts RFP.
- RTI may host Pre-Proposal meetings, when applicable.

#### Receive and Review Proposals

- University prepares and submits proposals online.
- The online portal will confirm receipt of proposals.
- TxDOT receives and reviews proposals.

#### Award Projects

- RTI prepares evaluation documentation.
- Project Teams review and score proposals.
- RTI compiles proposal scores and submits for final approval.
- RTI notifies University Liaisons and TxDOT stakeholders of awarded projects.

## **Proposal Requirements**

Proposals are only accepted from eligible proposers following a RFP. Each proposal must be submitted prior to the deadline listed within the RFP.

Each proposal must meet the following requirements to be accepted for evaluation:

Submittal via online portal to RTI prior to the RFP deadline.

- Proposal requirements (see Proposal Requirements section).
- Proposal should meet requirements contained in the Project Statement.
- Use of current RTI Forms (see the University Liaison for current forms).

## **Eligible Proposers**

Proposals are only accepted from Texas state-supported universities. Proposals that include partnerships with other entities will be considered when the appropriate expertise is not available from a Texas state-supported University. Unless authorized by the RTI Director, proposals are not accepted which include Research Team members with overdue deliverables shall not be accepted.

## **Joint Proposals with Texas State Supported Universities**

Joint proposals include two or more state-supported universities and must have a researcher (or principal investigator) designated by the team as the Principal Investigator. Further, one University must be identified as the lead agency.

## **Subcontracting**

If an entity other than a Texas state-supported university joins the Research Team, such as an out-of-state university or private entities, they may do so in a subcontractor role. However, contractual relationships with RTI will be held only with a University and the University will be responsible for the subcontractor performance. See Subcontracts section for more information.

## **Communications with TxDOT**

### **TxDOT Project Team Non-Disclosure Agreement**

Each member of the TxDOT Project Team signs a Non-Disclosure Agreement (NDA), agreeing not to respond to researcher questions during the open period of the RFP.

### **During the RFP**

During the open period of the RFP (from issuance to the due date), questions about RTI's policies, procedures, and project scope associated with the RFP may ONLY be posed in the manner specified in the solicitation.

### **Announcement of Awards**

RTI announces the project awards, after proposals are evaluated and approved, to University Liaisons and TxDOT stakeholders.

### **Proposal Review Comments**

RTI will forward the reviewer comments and scores for each proposal to each University's Liaison after all contracts are executed.

# Chapter 3 - Proposal Requirements

## Submission Format and Deadline

### Required Forms for Submission

The following forms are required for proposal submission. Proposal forms will be available via the online portal for download and dissemination by the University Liaisons.

- Project Agreement
  - Exhibit A, Project Abstract and Work Plan
    - Project Abstract
    - Implementation
    - Work Plan
    - Assistance or Involvement by Receiving Agency
  - Exhibit B, Itemized Project Budget Estimate
  - Exhibit C, Project Schedule
  - Exhibit D, Information Resources and Security Requirements
  - Background and Significance of Work
  - Research Staff and Facilities

**Delivery Method** – All proposals are required to be submitted electronically as specified in the solicitation.

Critical Aspects:

- The University Liaison must submit only one (1) response for each project statement.
- Revisions to a submitted proposal are allowed until the close date and time of the solicitation.
- All proposals must be submitted via the online portal, proposals sent to any email address at TxDOT will not be accepted.
- The date and time proposals are due is set by RTI and is stated in the RFP instructions.

**Confirmation of Receipt** – The online portal will send an automatic email receipt once the proposal has been submitted.

## Document Requirements

### Formatting and Extra Documentation

Incomplete proposals will not be accepted by the online portal. Documents other than those on the online portal will not be accepted. Examples (not all inclusive) of additional documents that will not be accepted on a standalone basis include:

- Reference Lists – If submitted, include it in Background and Significance of Work.
- Resumes – Include all relevant information on the Research Staff and Facilities form.

# Project Agreement

## Elements of the Project Agreement

The Project Agreement should always be prepared using the current RTI form in the online portal. Do not make revisions to the standard template language on the RTI form. Each Project Agreement must include the following:

- Header:
  - Project Number - is the Project Statement number included in the RFP.
  - DUNS # - The Performing Agency's unique ID Number.
  - CFDA Name - The Catalog of Federal Domestic Assistance title name (Highway Planning and Construction, which is included in the template).
  - CFDA # - The Catalog of Federal Domestic Assistance (ex:20.205).
  - FAIN # - The Federal Award ID Number (RTI will provide this information after award).
  - Federal Award Date - The date the federal award was approved by the Federal Agency (RTI will provide this information after award).
  - Federal Funds Obligated - The total proposed project budget amount.
  - Federal Funds to Performing Agency - Total amount proposed for each Performing Agency, also known as Sub-recipient.
- Research or Implementation Project - Check the appropriate box to indicate the type of project.
- Project Title - The project title from the Project Statement included in the RFP.
- Paragraph 1 "This Agreement" - identifies the Performing Agency(s), with the lead agency listed first. Note that under RTI contractual language, the Performing Agency is the University and the Receiving Agency is TxDOT.
- "This Project Agreement is in accordance with..." the CRIA Statement - Specifies the general terms and conditions under which the Project Agreement is made, identifies the contracting parties, and identifies the project as included in an Annual Program, or as an Independent Project. Check the appropriate box. Typically the top box is checked for Research and Implementation projects.
- Period of the Agreement (section 1) - Insert the proposed Project Termination Date. This date sets the proposed project duration. No work should be performed, for any fiscal year, until RTI issues either an initial or continuation Activation Letter to the university.
- Project Abstract and Work Plan, and Project Schedule (section 2) - Do not make changes to this language. This section incorporates Exhibit A, Project Abstract and Work Plan, as well as Exhibit C, Project Schedule.
- Project Supervision (section 3) - List the Principal Investigator (the lead performing agency), and any other primary researchers on the project (include at least one researcher from each performing agency). Information about each researcher, including contact information, is also required here.
- Uses of Funds (section 4) - Do not make changes to this language. Incorporates Exhibit B, Itemized Project Budget Estimate into the Agreement as an estimated total project budget by

proposed fiscal year. This detailed budget (by agency, fiscal year) is the total of the proposed annual project budgets for all deliverables, for all performing agencies.

- Information Technology (IT) Deliverables to the Receiving Agency (section 5) - Incorporates Exhibit D, Information Resources and Security Requirements - All data used and generated under the contract must comply with these terms. Do not make changes to this language. This will be revised depending on TxDOT IT division requirements.
- Termination and Amendments (section 6 & 7) – Do not make any changes to these sections.
- Notices (section 8) – Insert the name and address of where notices should be delivered.
- Signatory (section 16) - A signature block for each university on the project, including each agency name.
- Footer – This area includes the template name, page numbering, and template version. Do not make revisions to the template name or version.

## **Exhibit B, Itemized Project Budget Estimate**

### **Overview**

Each proposal will include an Exhibit B, Itemized Project Budget Estimate for each performing agency(s) on a project. "Total Project Cost" on each Itemized Budget sets the maximum contract amount between TxDOT and that Performing Agency for the specified project. Expenditures for each fiscal year must be in accordance with Article 9 of the University's CRIA.

### **Estimating Individual Cost Items**

Each cost item billed to the project must be included in, or otherwise reasonably cataloged under, a specific budget line item. Each Itemized Budget should include the best estimates available for individual cost items for each fiscal year.

### **Heading Elements on an Itemized Budget**

The elements discussed below are included at the top of each Exhibit B, Itemized Project Budget Estimate. Some of the information is available from the project document in the RFP, and other information must be developed by the University(s).

### **Completing Exhibit B**

- Project # (change Proposal # to Project # after award)
- Agency 1 - Insert name of Performing Agency
- Project Name – Insert title of project
- Revision # (enter the revision being presented to the PM or RTI Change Review Board (CRB)), when applicable for amendments
- Revision Date (enter the date presented to the CRB)
- Do not change the template "Name" or "Rev." date on the top right corner

### **Direct Costs**

Include only those costs specifically identifiable for each fiscal year.

- Salaries, Wages and Fringes – Show estimated budget totals for salaries, wages and fringes for full and part-time personnel under these categories, when applicable:
  - Principal Investigator
  - Professional
  - Sub-professional / Technical / Student
- Subcontracts – A subcontract is as defined in this handbook below. For each expected Subcontractor provide an indexing number, include a brief description of anticipated work with the associated tasks and a total estimated cost per fiscal year.
  - Prior to October 1, 2024, for previously existing project agreements the first \$25,000.00 of each subcontract is subject to indirect costs. However, the amount over \$25,000.00 of each subcontract is excluded from Modified Total Direct Cost (MTDC).
  - Effective October 1, 2024, for newly executed project agreements the first \$50,000.00 of each subcontract is subject to indirect costs. However, the amount over \$50,000.00 of each subcontract is excluded from Modified Total Direct Cost (MTDC).
- Equipment – For equipment meetings certain thresholds, include each item of equipment or system as a separate entry in the Equipment section of the budget. A system is defined as two or more items purchased which will be combined to form a single, functional unit. Include descriptions of specialized features that normally do not come standard on included equipment. Additionally, include the Expected Purchase Date.
  - For Project Agreements executed prior to October 1, 2024, include equipment or equipment systems to be purchased under the project which cost \$5,000.00 or more.
  - For Project Agreements executed after October 1, 2024, include equipment or equipment systems to be purchased under the project which cost \$10,000.00 or more.
  - Equipment is excluded from MTDC.
  - Include associated maintenance and repair costs (including insurance) as a line item in the Operating, Supplies, and Other Expenses category.

Create individual line items for significant equipment costs and assign their costs to be budgeted to the fiscal year the equipment is needed.

- Travel – Travel is categorized as In-State or Out-of-State (includes International). Enter the following information associated with each trip.
  - City/State
  - Purpose
  - Total number of Trips
  - Average number of individual(s) traveling for each trip.
- Operating, Supplies and Other Expenses –Several different types of costs may be included here. Show the expenses as either “included” or “excluded” from Modified Total Direct Costs. This determination is made based on 2 CFR 200, Uniform Administrative Requirements, Cost

Principles, and Audit Requirements for Federal Awards, as noted on Exhibit B, Itemized Project Budget Estimate.

- Total Direct Costs – The total of all cost categories listed above. Using the RTI (Excel) form, the total will be calculated.

## Indirect Costs

Indirect costs include facility and administrative costs of the University that are not specifically identifiable with a particular project. These costs are calculated as a percentage of Modified Total Direct Costs (MTDC), as defined in the Exhibit B, Itemized Project Budget Estimate form.

Exhibit B should show indirect costs calculated by using the University's federally approved Indirect Cost Rate (ICR) and the amount charged to the TxDOT project. Without prior written approval from the RTI Division Director, the maximum net percentage that can be charged to TxDOT on a University project is 25%. The difference between the ICR charged to TxDOT and the ICR agreed to with the University's cognizant agency is shown as the University's contribution to the project. If the University's federally approved ICR changes while a project is in-flight, the University must notify RTI as soon as possible and provide their new F&A Rate Agreement to RTIMAIN@txdot.gov.

The University contribution is not justification for charging normal indirect costs to a project as a direct cost. These charges are considered unallowable.

MTDC covers all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel, and up to the first \$50,000.00 of each subcontract (regardless of the period of performance of the subcontracts under the award). MTDC excludes equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subcontract in excess of \$50,000.00.

## Total Project Costs by Fiscal Year

The total project cost is derived from total direct costs plus total indirect costs charged to each fiscal year of the project. The Exhibit B form provided by RTI calculates each Fiscal Year total, based on costs entered on the form. The University is responsible for reviewing each Fiscal Year total to verify the data was entered correctly on the form, and that the total is calculated correctly.

If there is a discrepancy between line item amounts and "Total Project Cost" on Exhibit B, the amount shown as "Total Project Cost" will be used during evaluation of the proposal. Any discrepancies will be resolved before a Project Agreement is executed. The University is liable for reducing line item amounts so "Total Project Cost" does not exceed the annual funding approved.

## Examples of Common Indirect Costs and their Appropriate Categorization

Normal Indirect Costs include, but are not limited to, costs associated with tasks to:

Clerical Support

- Provide general support services to project Principal Investigator
- Review incoming correspondence and respond to routine inquiries

- Routine bookkeeping, including personnel time and pay records, faculty records, student records, and financial records
- Maintain current information on policies and programs
- Maintain logs and gather data for various lists and reports maintained by the department
- Manage/Coordinate/Arrange travel: making all reservations and itineraries
- Manage/Coordinate/Arrange conferences, training programs and workshops: making all arrangements for agendas, speakers, food, and facilities
- Monitor set up of training rooms, providing training equipment and supplies
- Assist in scheduling and coordination of training and academic course events
- Assist with logistical arrangements such as meetings, equipment, parking, etc.
- Schedule rooms and support related meetings
- Support for printing, copying, and document imaging
- Production and printing of reports
- Monitor trainees parking coverage
- Liaison between University departments, including personnel, payroll, purchasing, and physical plant

#### Financial Management

- Manage financial and reporting activities: budgeting, contract negotiation, invoicing, planning, implementation, and evaluation
- Prepare budgets and monitor expenditures
- Prepare and maintain financial records, academic, and other administrative reports
- Reconcile hotel and food service invoices and submit to sponsor timely
- Assist with special reconciliation problems
- Approve payments
- Create and maintain billing ledger documenting all invoices sent to administrative department for payment
- Prepare budgets and arrange payment for study patients
- Communicate with individuals regarding billing matters
- Maintain records and back-up financial information
- Maintain expenditures, financial records, budget preparations, and payment approval

#### Procurement of materials and services

- Order materials, supplies, and equipment
- Manage general purchasing
- Coordinate acquisition and provide asset management
- Partner with IT regarding support, standards, and policy, etc.

#### Budget and planning

- Develop and assist with research proposals
- Assist in budget preparation
- Interpret and advise faculty regarding funding source guidelines and requirements

- Identify and manage all operational aspects of targeted proposals, program development, and evaluation
- Develop internal administrative policies and procedures

#### Personnel management

- Manage project payroll
- Manage general Human Resources (HR) activities
- Process changes in employee or student records
- Coordinate and schedule workflow and personnel activities
- Coordinate training for faculty and staff on the use of desktop technology
- Act as office manager, coordinating the work of support staff
- Interview, hire, train, and direct clerical support staff
- Oversee personnel transactions of the unit.
- Develop and oversee maintenance of all unit and personnel records.
- Hire, develop, coach, train, supervise, and evaluate personnel and program staff.

Project criteria that may support the necessity/integrity of administrative and clerical services and direct charging of administrative and clerical personnel on a sponsored program as specified by 2 CFR 200 may include, but are not limited to, costs associated with:

- large, complex program such as a center or program project. This may entails assembling and managing teams of investigators from a number of institutions
- extensive administrative support for data accumulation, analysis and entry, surveying, tabulation, cataloging, searching literature, and reporting (such as epidemiological studies, clinical trials, and retrospective clinical records studies)
- making travel and meeting arrangements for large numbers of participants, such as conferences and seminars (Ex. Peer Exchange)
- a principal focus on the preparation and production of manuals and large reports, books, and monographs (Ex. Technical Writer for Final Reports-excluding routine progress reports)
- geographically inaccessible to standard departmental administrative services, such as research field sites that are remote from campus
- extensive project-specific database management; extensive individualized graphics or manuscript preparation; extensive human or animal protocols
- training others.

## **Project Description – Exhibit A, Project Abstract and Work Plan**

### **Overview**

The Project Description – Exhibit A, Project Abstract and Work Plan is comprised of several sections and defines the work to be completed by the University. All pages in Exhibit A shall display the proposal number in the header (change to project number after award). Use “shall” when describing Performing Agency actions and use “will” when describing Receiving Agency actions.

Taken together, sections in Exhibit A:

- Present the essence of the project.
- Describe the work to be performed.
- Establish the deliverables due to TxDOT.

When preparing Exhibit A:

- Respond clearly, directly, completely, and concisely to the Project Statement distributed in the RFP.
- Communicate how the project will be conducted.
- Explain how the research will be conducted.
- Refer to the submitting agency as the 'Performing Agency' and TxDOT as the 'Receiving Agency.'

## **Project Abstract**

Each proposal shall contain a project abstract that summarizes the project objectives and tasks. The abstract shall be no more than 200 words and be prepared in free form text.

This section of the selected proposal will become part of the Project Agreement. The Abstract shall be direct: use definitive contractual language, with phrases such as – “the Performing Agency shall,” rather than “we propose to” or “the proposed project shall”.

Note: Use “shall” when describing Performing Agency actions and use “will” when describing Receiving Agency actions.

The primary value of the abstract is to clearly and succinctly describe the project. The ability to succinctly summarize the work proposed will help demonstrate the understanding of the project.

For awarded proposals, the abstract is used to enter a project description into relevant databases, including.

- TxDOT's research database(s)
- Transportation Research Board's (TRB) Research in Progress system

## **Implementation (Only Completed for Research Projects)**

- The University shall include a free form text section by this title that presents the researcher's assessment of potential areas for application of the research findings, such as changes in specifications, standards, or department policies. This section should also include an assessment of which TxDOT operations would be affected by the implementation. The Technology Readiness Level (TRL) upon completion of the Implementation project and the associated guidance shall result in a product consistent with a TRL of 8.

For projects expected to produce results which could be implemented either during the progress of the project or shortly after completion, material in this section might include an assessment of several issues, such as:

The form in which the findings would be most effectively reported mathematical model or formula laboratory test procedure design techniques. The organization logically responsible for application of the results American Association of State Highway and Transportation Officials (AASHTO, Federal Highway Administration (FHWA), Texas Department of Transportation (TxDOT) Division or District.

The specific medium of practice that would be changed or developed by the findings are AASHTO Standard Specifications, TxDOT Standard Specifications, and or Special Specifications. The best method to convey the research findings to operating personnel for use are the:

- circulation of a written report
- field manuals
- personal contact with operating personnel
- demonstrations
- movie, slide, or videotape presentations
- training classes

## Work Plan

The Work Plan is a free form text section that should fully describe the approach researchers intend to use and specify how the project will be structured and performed.

Ideally, each task in the work plan is separate and distinct. A well written Work Plan will also describe dependencies and relationships between the tasks, including the project's critical path.

At a minimum, The Work Plan for a research or implementation project shall contain the following information:

- How the project and each deliverable/ tasks will be managed.
- Principles and methods to be used (Not included in implementation projects).
- Possible solutions to the problem.
- The device, process, material, or system to be developed or enhanced, when applicable.
- Critical experiments to test the applicability of the theory or the item developed.
- The final Technology Readiness Level (TRL) of the project is set in the project statements. For more detail, see the TxDOT Research TRL [PDF](#) and [explanatory video](#)

Proprietary techniques owned by the University can and should be discussed in a way that demonstrates the researchers' knowledge and skill without revealing any proprietary information owned by the university.

The work plan should not include additional information about the background and significance of the project, or the researchers' qualifications. That information belongs in other sections of the proposal. The ability to describe a clear, complete and concise work plan helps demonstrate the researchers' management skills and knowledge of the project.

If the budget includes a subcontractor, describe the work done in the related tasks. If the budget includes out-of-state travel

Each task in the work plan should highlight the expected deliverable or outcome from the work performed in the task and be cross referenced to the Project Schedule. The deliverables can take on many different forms, such as white papers, work products (Excel spreadsheets, instructor manuals, models, enhanced or developed systems, devices), seminars, close out meeting, and technical reports. Some deliverables are mandatory, and these are described below.

Technical Memos shall be numbered sequentially by task number.

<b>Tech Memo Numbering Example:</b>	<b>Multiple Tech Memos Example:</b>
<b>Task 1 - Tech Memo 1</b>	TM1A, TM1B
<b>Task 2 - Product 1, Product 2</b>	P1, P2
<b>Task 3 - Tech Memo 3</b>	TM3

## Project Deliverables and Documentation

The research team shall document all research findings from this project, submit monthly progress reports, and attend project progress meetings as scheduled by the Receiving Agency. The research team shall be responsible for providing the meeting PowerPoint or presentation 3 days in advance of any project meeting and written meeting minutes within 3 days following any project meeting. The research team is responsible for actively supporting production of a Video Summary Report (VSR) by the assigned video team. Support includes making a representative available for interviews, alerting the video team to opportunities for filming project activities and supplying project images or videos taken by the research team during the project.

Some of the documentation/deliverables/meetings will include, but are not limited to:

- A Kick-Off Meeting
- A Close-Out Meeting (CO)
- Monthly Progress Reports (MPR)
- Technical Memoranda documenting project progress and findings for each task as defined in the Project Deliverables table Schedule (TM).
- A draft research report (R1A) that completely documents the work performed, methods used, and results achieved at a minimum of two months before the Project Termination Date for review and revision.
- A final research report (R1B) incorporating revisions to R1A requested by TxDOT.
- A project summary report that highlights the key findings and recommendations from the research (PSR)
- A Draft Specification, if warranted
- A Draft Manual/Guidebook, if warranted
- Training Sessions, if warranted

- Value of Research (VOR) included with deliverable R1. Working in conjunction with the Project Team, the Performing Agency shall determine the project's Value of Research (VoR) based on the development of the qualitative and economic benefit areas designated by the Receiving Agency during the course of the project. Benefit Areas for the Receiving Agency and/or the State will be defined by the Project Team in the Midpoint Survey. The Performing Agency shall calculate the VoR using Receiving Agency's VoR form and include the information within the Research Report (R1).

All deliverables, MPRs, R1, and PSR shall be submitted via email to [RTIMAIN@txdot.gov](mailto:RTIMAIN@txdot.gov), copying the RTI Project Manager.

Following the Project Team review, the research team shall revise all documents to incorporate the suggestions of the reviewers.

The assigned RTI PM has the ability to modify the language of these tasks, during the negotiation period. Please review Chapter 6 for more information on the Value of Research and Project Management deliverables.

### **Assistance or Involvement by TxDOT**

In this section, describe any TxDOT assistance the University(s) expects, other than project oversight normally provided by the Project Team of advisors. Include the relevant task number(s) in the description. If no assistance will be needed, other than that normally provided by the Project Team, state "none" in this section.

Be specific so TxDOT can realistically estimate the cost of assistance requested. To be approved, the cost of this assistance must be found to be affordable and feasible for the project.

TxDOT assistance may include items such as core drilling, traffic control, testing, materials and supplies, and providing data files or maps. The cost of this assistance is covered by TxDOT directly and is not included in the University's budget.

TxDOT assistance does not include purchasing equipment or large quantities of materials. Such purchases should be included in the University's project budget. Reasonable TxDOT assistance would not include building or operating a test facility or a commitment of significant TxDOT staff time for data analysis or direct participation in work tasks.

If the University(s) expects to use and/or operate TxDOT equipment on the project, the following language must be included in this section before a Project Agreement can be executed:

"If it becomes necessary under this agreement for any agent or employee of the Performing Agency to operate a vehicle owned by TxDOT, the Performing Agency shall assume all risks of operation, including the risks of damage to the vehicle, damage to any other vehicle, and injury to any person. To the extent permitted by law, the Performing Agency shall indemnify and hold harmless TxDOT for any liability that may accrue from the Performing Agency's operation of the vehicle. The Performing Agency shall maintain worker's compensation insurance and any other insurance necessary to meet its obligations under this provision."

## Exhibit C, Project Schedule

The Principal Investigator ensures that the project adheres to the Exhibit C, Project Schedule. All deliverables anticipated or required from the project should be shown on the Exhibit C, Project Schedule. Each Project Schedule should be prepared on RTI's provided form, available on the RTI [Research Form](#) page of the TxDOT.gov website.

On the Exhibit C, Project Schedule, for each task, the task schedule is indicated by marking ("X") in cells breaking out each fiscal year into months.

Complete the following on the Exhibit C, Project Schedule:

- Project #: initially the Proposal # before award
- Project Name
- Agency 1, Agency 2: Primary, secondary Agency Abbreviation(s), when applicable
- Revision #
- Task #: from Exhibit A, Project Abstract and Work Plan
- Task Description: from Exhibit A, Project Abstract and Work Plan
- Task Begin Date
- Task End Date
- Agency #: agency responsible for the task
- Deliverable: A deliverable is as assigned in Exhibit A.
- Due Date: Date that a deliverable is due; All deliverables are due on the last day of the month, but monthly progress reports have a three (3) business day grace period.
- Comments: include any associated comments of a task.
- FY/ Months: mark the month(s) corresponding to the Task.
- Deliverables: list each deliverable beneath the FY/Month corresponding to the deliverable due date.

Once a specified month's deliverables have been received, an invoice for that month shall be submitted to [RTI\\_Invoices@txdot.gov](mailto:RTI_Invoices@txdot.gov). When scheduling deliverables, keep the issues below in mind:

- Schedule for Tasks –An assumed start date is shown in the proposal. The work will start only after the project is activated by RTI.
- Due Date – The due date should be a clear indicator of when a task will be completed and its associated deliverable is sent to RTI.

The Exhibit C, Project Schedule, will be requested by TxDOT before the Project Agreement is executed. The RTI form's legend distinguishes between the original, revised and completed work on the Exhibit C, Project Schedule.

## Background and Significance of Work

### Contents

This section should include at least the following topics.

- Discussion sufficient to demonstrate the researcher's understanding of the underlying principles involved in the problem that TxDOT needs solved, and in the work proposed.
- Background findings of a literature search or other description of existing technology on the subject should be included. A search should be made of the Technology Requirements Integration Division (TRID) or other relevant databases to ensure that previous work is considered in the new project. Include a list of references if it would enhance the proposal.

### Length and Format

This section should include at least the following topics.

- Discussion sufficient to demonstrate the researcher's understanding of the underlying principles involved in the problem that TxDOT needs solved, and in the work proposed.
- Background findings of a literature search or other description of existing technology on the subject should be included. A search should be made of the Technology Requirements Integration Division (TRID) or other relevant databases to ensure that previous work is considered in the new project. Include a list of references if it would enhance the proposal.

### Background and Significance of Work: What it is and What it is Not

- It is – The place to demonstrate that the subject of the proposed project is understood, and to briefly describe the overall approach to the project.
- It is – The place to summarize the results of any literature search performed to prepare the proposal, as each is relevant to the proposed project.
- It is not – The place to describe details of the proposed work. Put that information in the Work Plan.
- It is not – A place to detail the background and experience of the proposed research team. Put that information in the Research Staff and Facilities section of the proposal.
- It is not – The place to list every document reviewed during the preparation of the proposal. Use the (up to) 10 pages for information that is more meaningful during proposal review.

## **Research Staff and Facilities**

### **Contents**

This section, 1) explains the qualifications of each research team member and why he/she should be a part of the proposed research team, and 2) the capabilities of the facilities to be used in the Research. Include the roles of each member and what their particular skillset offers to enhance the research.

Do not send resumes, or an exhaustive list of every report the researcher has written. This section should describe past experience that is directly applicable to the Project. Proposal evaluators must make judgments based on the concise information in the proposal and clearly described relevant experience is preferred.

### **Format**

This section should be prepared on RTI's Research Staff and Facilities form, or in a document containing equivalent information.

### **Relevance to Project Agreement**

This information is used only during the evaluation of proposals. It is not included in the Project Agreement.

# Chapter 4 - Project Agreements

## Approval

### Proposal Selection

Proposals received are initially evaluated through an administrative review. During this review, RTI staff determines whether:

- All researchers on the proposed teams are eligible to participate in the program.
- Each proposal is complete enough to be deemed responsive.
- Each proposal meets any specific constraint or limitation specified in the project statement.

Proposals that pass the initial review are sent to the TxDOT Project Teams to have their technical criteria evaluated. Proposals are then rated by the TxDOT Project Teams against the RFP criteria and described needs in the Project Statement.

### Executive Committee Approval

After proposal scores are compiled, they are presented to a TxDOT Executive Committee, made up of senior TxDOT staff. The TxDOT Executive Committee makes the final determination of which proposals are awarded for funding.

### Revisions to the Proposal

The awarded proposal will require modifications and enhancements to become a Project Agreement. Revisions requested can be administrative and/or technical. The previously submitted proposal should be put into contractual language before sending to RTI. Revisions to the working documents will be coordinated through the University Liaison and a RTI Contract Specialist and should include the following:

- Reword contractually with definitive language using "Performing Agency shall" and "Receiving Agency will".
- Remove or reword proposal type language such as:
  - Goal, objective, endeavor, proposal, propose, etc.
  - Descriptions of past work or experience
  - References to prior or other projects
- Remove citations, graphs, and pictures
- Working Documents need to be on the current templates and page numbering must mirror the document footers
- Tasks, including task numbers, should mirror what is in the Work Plan by a Performing Agency or Agencies and correspond to who is listed to perform the work in the Project Schedule
- Exhibit B-C, Budget and Project Schedule:
  - DO NOT copy and paste pictures of budget and schedule until the budget and schedule has been finalized.
  - Submit as Excel documents

- If needed, you may add a column for additional fiscal year budgets.
- For wages- the roles should be broken down by "Principal Investigator, Professional Technical, Sub/Professional/Technical/Student"
- Deliverable due dates should not extend past the termination date of the project
- Deliverables in the project schedule need to match the deliverables listed in the Work Plan by tasks
- Task titles in the Work Plan should match the Task Descriptions in the Project Schedule
- DO NOT include the following:
  - Background and Significance
  - Research Staff and Facilities

After all revisions have been approved by TxDOT, RTI will coordinate obtaining signatures of the Project Agreement from the lead University Liaison.

## **Activation**

### **Initial Activation**

Once a Project Agreement has been executed by TxDOT, the University Liaison for each university will receive an Activation Letter from RTI. The Activation Date is the first day that work can be performed. Work completed, or purchases made, before the Activation Date or budgeted fiscal year begins will not be reimbursed by TxDOT.

Although the term of the agreement may cover several fiscal years, the initial activation covers only the fiscal year specified in the activation letter, or on attachments to the Activation Letter.

### **Continued Activation**

Approval for project work for a specific fiscal year does not guarantee that future years of the project will be funded and approved. No work may continue on a project in a fiscal year for which RTI has not issued an Activation Letter.

For projects that extend beyond an initial fiscal year, RTI will issue a separate Activation Letter for each year. If there are no issues pending resolution on a project, the project will be included on an annual activation letter issued for the fiscal year to the University. The Annual Activation Letter will be dated to start in the new fiscal year, allowing approved projects to continue without interruption.

### **Activation Lists**

Activation Lists accompany an Activation Letter and show the termination date and budget amount activated for each project. With each Annual Activation Letter, the total amount shown on the Activation List for each program (research or implementation) shows the amount that Article 9 of the CRIA refers to as "Total Program Funding" for that annual program. This amount may change throughout the year as new projects or modifications are activated.

## Amendments

### Project Agreement Amendments

The terms of a Project Agreement may be changed by executing an Amendment. Amendments address agreed changes to the scope, schedule or budget or any other Project changes. The RTI PM will facilitate the Amendment of the terms of a Project Agreement, and the PM will communicate the possibility of Project changes to the appropriate team members. Researchers should discuss a potential Amendment with the Project Team members and the RTI PM before submission.

### Requirements for an Amendment

Utilizing the most recent forms available on the [Research Forms page](#) of TxDOT.gov, submit a Change Request (2547), Exhibits B and C (PA Forms) and Project Amendment (Amend) to the project's PM when an Amendment of a Project Agreement is required. Enough information must be provided to enable TxDOT to make an effective and realistic initial evaluation of the request. Examples of reasons for an Amendment are needed changes to the project's scope, schedule, budget or Principal Investigator.

The explanation of why the agreement needs to be modified should answer the following:

- Why can project work not be completed within the terms of the current agreement?
- How do the proposed changes relate to any previous Amendments to the project?
- Is the information provided consistent with previous status information submitted for the project in Monthly Progress Reports, Tech Memos, or project meetings?
- How will the recommended changes preserve or enhance the value of the project to TxDOT?

### Changing the Principal Investigator

When a Principal Investigator leaves a project, finding a replacement is critical to continued project work. As soon as possible the Principal Investigator or University Liaison shall notify the RTI PM that the Principal Investigator is departing the project, along with an estimated date of departure.

The University shall develop a Continuation Plan to continue the project and submit the Plan to the RTI PM. At a minimum, the Continuation Plan shall include the following information:

- Expected impacts to meeting the project schedule.
- Professional background of a nominated replacement Principal Investigator and how their background qualifies them to lead the project.
- The nominee's existing relationship to the project.

The RTI PM and the Project Team will review the Continuation Plan and decide whether the agreement will be modified to accept the new Principal Investigator, renegotiated or terminated. The Project Team will consider:

- the status of project work and identify all outstanding issues and concerns,
- the status of deliverables due on the project,
- the qualifications and past performance of the researcher nominated as the new Principal Investigator, and
- any other relevant information.

## **Amendment Activation**

Once an Amendment has been executed by TxDOT, the University Liaison for each University will receive an Activation Letter and updated Activation List from RTI. The Activation date is the first day that work can be performed. Work completed, or purchases made, before the activation date or budgeted fiscal year begins will not be reimbursed by TxDOT.

## **Subcontracts**

### **What is a Subcontract?**

In general, subcontracts include services provided by someone who is not part of the University. This definition is intended to cover the types of work that are integral to a project but that University researchers and staff might not typically perform or be qualified to perform; and not all service purchases. For instance, copier services, or automotive repair maintenance and repair, printing or similar services that administratively support research and specialized testing would not typically fall under this definition.

The definition of a subcontract is dependent on the type of service to be provided, not on the University's method of procurement.

### **Purpose of RTI Review**

RTI will review the proposed use of a subcontractor to ensure there is a real need for someone other than a Texas state-supported university to do that work. RTI relies on the University to see that subcontracts meet the requirements in the CRIA, federal law, state law and the University's own contracting standards.

- When a University plans to subcontract, they shall make a realistic assessment of whether the work can be done by another Texas state-supported university or by another department in the researcher's university. There are occasions when the private sector or an out-of-state university may be needed to provide a service that is critical to a project but is not readily available in the Texas university community. Specialized testing services are an example.

### **Evidence of RTI Concurrence**

RTI's concurrence in a subcontract may be evidenced by the execution of a Project Agreement that adequately discloses the subcontract. Adequate disclosure of a subcontract in a Project Agreement includes showing an estimated budget for the subcontract on each Itemized Budget affected and clearly describing in the Work Plan what work the subcontractor is expected to perform. Once a specific subcontractor has been selected, the name of the subcontractor shall be disclosed to the RTI PM and the Contract Specialist.

# Chapter 5 - Managing the Project

## Project Agreement

Project work shall start once RTI has notified the University Liaison that the agreement has been executed and the Project is active for the fiscal year in which the work will be completed.

Verbal discussions do not obligate the University or TxDOT unless the results of those discussions were incorporated into the written Project Agreement prior to signature.

## Updating the Itemized Project Budget Estimate

See Project Budget Estimate.

## Principal Investigator Responsibilities

### Project Work

The Principal Investigator has the primary responsibility for the conduct and completion of all project tasks and work. The Principal Investigator manages and oversees the entire research team, including all researchers on joint university projects, and all subcontractors, to ensure project work is consistent with the Work Plan in the Project Agreement.

### Deliverables

The Principal Investigator is responsible for ensuring all required deliverables meet TxDOT's standards and are delivered in a timely manner. Deliverables shall be submitted electronically to [RTIMAIN@txdot.gov](mailto:RTIMAIN@txdot.gov), copying the RTI PM. RTI encourages the Principal Investigator to seek assistance from other University personnel, including professional editors, to help meet TxDOT's standards for quality and timeliness of deliverables. All outputs from projects, including but not limited to draft, interim and final deliverables such as Tech Memos, R1A, R1B and the PSR shall conform to the Web Content Accessibility Guidelines ([WCAG](#)) requirements to meet [Section 508](#) compliance.

### Status Reports and Tech Memos

The Principal Investigator is responsible for providing project status reports and findings, as requested or required by the Project Agreement or as otherwise agreed with the PM, Project Team or RTI. There are different types of status reports to fill different needs. They all help TxDOT monitor project work and help manage and demonstrate progress on the project.

- **Monthly Progress Reports (MPR)** – Monthly Progress reports are due on the last day of the month and have a three (3) business day grace period.
- **Technical Memorandums (TM)** – Tech Memos describe work completed during a task and document the results of the work.

## Project Meetings

Several meetings are typically scheduled by TxDOT on each project. The Principal Investigator may request a project meeting through an informal request to the Project Team, PM and/or RTI.

## Communications with TxDOT

RTI coordinates all program matters through University Liaisons. Expect to receive information from the liaison about program requirements, RFPs, proposal selections, revisions needed to agreements before they are executed, deliverables, and other matters.

The Principal Investigator will communicate directly with the Project Team, generally on technical issues related to a specific ongoing project, and with the RTI PM assigned to the project. The Principal Investigator or University Liaison may also receive communication from the RTI Contract Specialist.

Communication with RTI will be project specific and may involve a wide range of issues.

## Request for TxDOT Assistance

When the Research Team requires TxDOT's assistance for work on a RTI project, the Research team will:

- coordinate with TxDOT district(s) or division(s) to define and schedule the needed work,
- complete an RTI "Request for Research Fund Authorization (RFA)" form, and
- send the completed form to the University Liaison, at least two (2) weeks before work is to start.

The University Liaison will coordinate with the appropriate RTI Contract Specialist, and let the researcher know if and when the request is approved. If approved, RTI will provide a charge number to the district(s) or division(s).

## Request for Out-of-State Travel

Pre-approval is required prior to out-of-state travel or travel from out-of-state to Texas by university and non-university personnel when the travel will be charged to an RTI project. A [Request for University out-of-state travel](#) shall be submitted to the RTI PM for approval by the RTI Division Director. All out-of-state travel must be clearly identified in the travel line item on Exhibit B, Itemized Project Budget Estimate.

## Roadside Safety

Each university must follow TxDOT's Handbook of Safe Practices, including wearing personal protective equipment (PPE) such as hard hats, safety vest and steel toe shoes and other appropriate safety attire when working within the TxDOT right of way. If the need for PPE is known at the time of proposal, include it in Exhibit B, Itemized Project Budget Estimate.

Ensure appropriate traffic control is used for any lane closures or work adjacent to to an active travel lane. Ensure any work at heights includes required PPE such as an appropriately anchored fall protection harness and safe access such as a bucket truck.

Submit any traffic control request to the RTI PM at least 2 weeks in advance of the planned work. When applicable, coordinate all traffic control needs and plans with the appropriate TxDOT District, Area or Maintenance office.

## Submitting Questionnaires and Surveys for TxDOT Review

A preliminary copy of all questionnaires and surveys expected to be used on a research project shall be submitted to the RTI PM for review and possible approval before being used in the field. RTI will coordinate a review by appropriate TxDOT personnel.

## Submitting Papers and Presentations for TxDOT Review

Prior to publishing or submittal of a paper or presentation documenting work on a TxDOT sponsored project, the Principal Investigator must receive approval from the RTI PM. In this context, publishing includes posting material anywhere accessible to persons outside the project, such as on a public website.

## Technical Memorandum Standards

### Overview

Project Agreements include provisions requiring the Principal Investigator to submit a Technical Memorandum (Tech Memo) to RTI at the end of each task. Tech Memos document project work as it progresses and provide current research results to TxDOT. Tech Memos also benefit the project by facilitating the preparation of project reports. Tech Memos are due on the date listed in the Project Schedule. Typically, this date is the final day of the month at the end of the respective task.

### Contents

Tech Memos shall include detailed information about the work completed and the results obtained under each task reported. For example, if the focus of a task in the Work Plan is to conduct certain types of tests on materials, the Tech Memo submitted for that task would typically discuss several issues, such as:

- How the tests were structured.
- Criteria established for evaluation of test results.
- Types of materials tested.
- How many tests were conducted, and on how many samples of each material.
- Test results – presented in a way that is meaningful, effective and relevant to the objectives of that work task.

Data collected during work on a task should generally be delivered to TxDOT with, or in, the Tech Memo. The data will be delivered in the manner most effectively communicated. Raw data to be analyzed or used by TxDOT is best delivered electronically, as raw data. In other cases, or in addition to the raw data, a chart or graph presenting an analytical view of the data may be most appropriate.

Each Tech Memo will present any conclusions, or preliminary findings, that researchers have drawn from completed work. The preliminary findings or conclusions will facilitate TxDOT utilization and ensures relevance throughout the project, as well as highlight variations in project objectives and methodology from project inception.

The contents appropriate for each Tech Memo are dependent on the work completed. The Principal Investigator uses judgment to determine what should be included or discusses any concerns with the Project Team and RTI PM before preparing a Tech Memo.

### Minimum Requirements

- **Each Tech Memo must be understandable.** RTI does not require that Tech Memos be professionally edited before they are submitted, but it is highly encouraged. RTI does not prohibit editing of Tech Memos by appropriate University personnel.
- **Each Tech Memo shall be in a format that effectively communicates the information.** RTI does not require Tech Memos to be in a specific format. If a task is defined in such a way that the work will most likely represent a distinct chapter in a technical report, the Tech Memo can be submitted in that format.
- **Each Tech Memo shall be submitted to TxDOT on or before the due date per the Project Schedule.** If a task is scheduled to be conducted over a period of many months, the Principal Investigator or the Project Team may decide that an interim Tech Memo would benefit the project and will request this from the Principal Investigator.

### How to Submit

Tech Memos shall be sent electronically to [RTIMAIN@txdot.gov](mailto:RTIMAIN@txdot.gov), copying the RTI PM.

# Chapter 6 - Deliverables

## Submission, Review, and Publication

### Deliverables Required on Each Project

The Project Schedule specifies the deliverables due to TxDOT. The requirement for a deliverable and its due date will be changed by modifying the Project Agreement. No changes will be made to a Project Agreement by verbal or email communication.

### Value of Research (as part of R1)

The VoR template shall be completed and included with the write up on the economic based calculations, the description of economic variables used within the calculations, and the qualitative values of the selected benefit areas within the Research Report.

At the midpoint of the project, the Project Team and Researchers will complete the midpoint survey, selecting the benefit areas of the VoR.

The project and research team will then define each benefit area and assign variables to be tracked.

The researchers shall then research and expand upon the benefit areas noting details about qualitative benefits including process improvements, better decision-making schema, and other intangibles that include knowledge and patents. The economic benefits will translate into the concept of 'cost savings' and 'return.' Breaking down variables into the elements of the process is the key to understanding some of the larger numbers.

The VoR benefit areas are as follows:

Qualitative		Economic	
Level of Knowledge	System Reliability	Traffic and Congestion Reduction	Freight movement and Economic Vitality
Management and Policy	Increased Service Life	Reduced User Cost	Intelligent Transportation Systems
Quality of Life	Improved Productivity and Work Efficiency	Reduced Construction, Operations, and Maintenance Cost	Engineering Design Improvement
Customer Satisfaction	Expedited Project Delivery	Materials and Pavements	Safety
Environmental Sustainability	Reduced Administrative Costs	Infrastructure Condition	

## VoR Template

The Value of Research Template is an RTI form provided to the University Liaisons and should be used for all VoR reporting. It is a fillable worksheet which will calculate multiple formulas based off a few inputs. To complete the VoR Template, please do the following:

### Variable *Amounts'* Tab

- Benefit Area: list the designated benefit areas selected by the Project Lead; each area can be listed once and can have multiple values associated.
- Value: List each of the variables amounts, individually, for the selected economic benefit areas; which are expanded upon within the Technical Memo. Add additional columns as required by each benefit area.

### Value of *Research* Tab

- Project Number
- Project Name
- Agency Name(s)
- Project Budget (Total for all project years)
- Project Duration (Years): Do not round, equate the number of months into the appropriate decimal using .08333 for each month.
- Expected Value Duration (Yrs)
- Expected Value (per Yr): Expected Value is the amount of savings to TxDOT and/or the State of Texas; the amount comes from the total from the 'Benefit Area Variable Amounts' Tab.
- Discount Rate: Typically 5%
- Total Savings, NPV, Payback Period, and Cost Benefit Ratio are calculated.

Researchers will highlight and discuss the results of the research that affect the VoR economic and qualitative benefit areas. Each of the selected qualitative and economic benefit areas should be defined and discussed in association with the project and the findings of the research. Some benefit areas may contain multiple variables. A narrative for the expected value duration, expected value, and discount rate variables should be included as validation for the estimates of the VoR. References and source material shall be included as needed.

## Monthly Progress Reports (MPRs)

MPRs should be submitted on a monthly basis to [RTIMAIN@txdot.gov](mailto:RTIMAIN@txdot.gov) (copying the PM) and completed on the latest template available on RTI's webpage at [txdot.gov](http://txdot.gov). For joint projects, a single MPR should be submitted by the lead university, covering the work performed by all universities on the project. MPRs are due on the last day of the month and have a three (3) day grace period.

Complete the following information:

- Project Number
- Project Name
- Agency

- Month/Year
- TRL Level
- Answer the listed questions
- Research Team: Name, Agency, and Duties performed for all persons who are invoiced.
- Work Completed/Ongoing This Month: Expand the actual work within the tasks and deliverables being worked on and completed.
- Work Planned Next Month: Expand upon the ongoing work within the tasks and any expected, completed deliverables.
- Comments/ Issues: Discuss any concerns that the Research Team is facing, or that PM and Team should know of.

## Submission of Deliverables

Deliverables are due on the date listed in the Project Schedule, and are to be submitted to [RTIMain@txdot.gov](mailto:RTIMain@txdot.gov), copying the RTI PM.

## Technical Memorandums

Project Agreements include provisions requiring the Principal Investigator to submit a Tech Memo in association with a task to [RTIMAIN@txdot.gov](mailto:RTIMAIN@txdot.gov), copying the RTI PM. Tech Memos document project work as it progresses and provide current research results to TxDOT. Tech Memos also facilitate the preparation of project reports.

## Technical Reports

RTI will evaluate each submitted draft, log the report as received, and then coordinate the review and approval process within TxDOT. The contractual requirement for a technical report deliverable is met once an approved final complete submission is received by RTI.

## Project Summary Report

A Project Summary Report (PSR) highlights the key findings and recommendations from the research. The PSR shall be submitted to [RTIMain@txdot.gov](mailto:RTIMain@txdot.gov), copying the RTI PM per the Project Schedule.

## Products

Products submitted to RTI will be coordinated for a review and approval process within TxDOT.

## Intangibles

When products are not tangible items to be delivered physically, such as a University conducted workshop, notify RTI of the product delivery and include any related tangible materials available.

## Deadline for Submission

Draft deliverables, in compliance with submission requirements, must be received by RTI by the due date on the Project Schedule. For those products where the Project Schedule specifies another location for delivery, the formal notice to RTI meets this submission requirement.

## TxDOT Review Process

The RTI PM is responsible for final acceptance or approval of each deliverable. During the review process, the PM considers comments from Project Team members and the Principal Investigator.

## Final Approval

RTI will provide publication and distribution instructions along with formal approval of deliverables. The instructions may vary, dependent on the deliverable, the anticipated audience, and the cost of publication.

## Publication and Distribution Instructions

RTI will generally elect one of the following after review of deliverables:

- **Approved deliverables that TxDOT elects not to publish** — The University may not publish at its own expense.
- **Disapproved deliverables** — The University may revise and resubmit a disapproved deliverable. No document may be published until an approval is received from RTI for publication.
- **Deliverables containing classified or sensitive information** — The University shall comply with any written request from TxDOT to restrict access and distribution of any deliverable containing information that TxDOT determines to be classified or sensitive. Any disagreement on the part of the University shall be submitted to RTI in writing, but final determination remains wholly at TxDOT's discretion.

- **Approved for Publication**

RTI PM will send the approved email for publication to the Principal Investigator, copying the University Liaison, the RTI contract specialist, the Project Monitoring Committee, and the CTR Library. Please provide the following when publishing:

- Copyright permissions provided for the library to host RTI Research and Implementation Program deliverables online, for public access;
- A digital copy should be provided for each deliverable.
- E-mail addresses of each PMC member should be provided, including the Project Manager, and other individuals to receive an electronic copy of the final, published deliverable;
- The final accessible version of the approved deliverable (the electronic file or a web link to the electronic file) to the TxDOT Research Library [ctrlib@austin.utexas.edu](mailto:ctrlib@austin.utexas.edu). Files too large to be sent via e-mail may be submitted to the library via Box.com or on CD-ROM, flash drive, or other common electronic media;
- A web link to the electronic file of each deliverable be sent to the national registries below, by the Principal Investigator or request that the CTR Library perform this task to:
  - Federal Highway Administration (FHWA) Library, [fhwalibrary@dot.gov](mailto:fhwalibrary@dot.gov);
  - TRID, <https://trid.trb.org/submit.asp>;
  - National Transportation Library (NTL), [NTLDigitalSubmissions@dot.gov](mailto:NTLDigitalSubmissions@dot.gov);
  - National Technical Information Service (NTIS), [input@ntis.gov](mailto:input@ntis.gov);

- FHWA Office of Corporate Research, Technology, and Innovation Management, [john.mouldon@dot.gov](mailto:john.mouldon@dot.gov);
- Each university must confirm archiving in TSLAC's TRAIL website archive of each report/product to the Texas State Library and Archives Commission; the TxDOT Research Library can assist with this requirement.

## Publication Requirements and Reproduction Costs

Each university shall provide electronic deliverables that meet federal requirements for digital accessibility (WCAG 2.0 Level AA), particularly alternative text for images, to allow for easy conversion for online, public publication and access meeting legal requirements.

If the University does not have the resources to publish an approved deliverable in accordance with RTI's instructions, the University may contact RTI to discuss potential options. TxDOT may opt to publish the deliverable, using TxDOT or other resources.

## Copies Retained by the University

The University may publish up to one hard copy of any approved report or product, at TxDOT's expense. The State Library is not requiring print copies as long as a digital copy is provided for each deliverable. Hard copy needs beyond these limits shall be approved at RTI's discretion in advance of publication and will be evaluated on a case by case basis.

## Technical Report Standards

### General

Technical reports will be developed, published, and reproduced to reflect the best professional standards of the University and RTI. They will be written and edited per current professional standards of style and usage, such as The Chicago Manual of Style or the Federal Highway Administration (FHWA) publication guidelines.

### Cover Page

A formal cover page is required on each published report, produced on heavy stock and designed by the university responsible for the report. Information shown on the cover page will include:

- Name of the University, prominently displayed;
- Title of the report, prominently displayed;
- TxDOT report number, prominently displayed;
- TxDOT project number;
- URL where the report will be posted on the Internet;
- Additional information may be included at each University's option.

### Technical Report Documentation Page

A Form DOT F 1700.7 will be included in each technical report. The Form DOT F 1700.7 will be used as the cover page on a draft report submitted to TxDOT for review. The form shall be included as the first page of the front matter for reports published in hard copy and may serve as the cover page for a

report published on-line. All SPR funded reports must include this Form in the report and it is good practice to include this Form in all reports regardless of funding source. Link to these recommendations are found in the Guidelines section of the Report Guidelines and Requirements from AASHTO SCOR/RAC site. The URL is: <https://research.transportation.org/report-guidelines-and-requirements/>.

An Example of Form DOT F 1700.7 (8-72) Filled Out:

TECHNICAL REPORT DOCUMENTATION PAGE			
1. Report No. cmr 15-006	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Safety Evaluation of Diverging Diamond Interchanges in Missouri		5. Report Date January 2015	
		6. Performing Organization Code WBS # 25-1121-0003-27	
7. Author(s) Praveen Edara, Ph.D., P.E., PTOE <a href="http://orcid.org/xxxx-xxxx-xxxx-xxxx">http://orcid.org/xxxx-xxxx-xxxx-xxxx</a> Carlos Sun, Ph.D., P.E., J.D. <a href="http://orcid.org/0000-0002-8857-9648">http://orcid.org/0000-0002-8857-9648</a> Boris R. Claros, MSCE <a href="http://orcid.org/xxxx-xxxx-xxxx-xxxx">http://orcid.org/xxxx-xxxx-xxxx-xxxx</a> Henry Brown, MSCE, P.E. <a href="http://orcid.org/xxxx-xxxx-xxxx-xxxx">http://orcid.org/xxxx-xxxx-xxxx-xxxx</a>		8. Performing Organization Report No. MATC-MU: 276	
9. Performing Organization Name and Address University of Missouri-Columbia Department of Civil & Environmental Engineering E 2509 Lafferre Hall, Columbia, MO 65211		10. Work Unit No.	
		11. Contract or Grant No. MoDOT project# TR201406	
12. Sponsoring Agency Name and Address Mid-America Transportation Center University of Nebraska-Lincoln <a href="http://dx.doi.org/10.13039/100008114">http://dx.doi.org/10.13039/100008114</a> 2200 Vine Street, PO Box 830851, Lincoln, NE 68583-0851		13. Type of Report and Period Covered Final Report (July 2013-January 2015)	
Missouri Department of Transportation (SPR) <a href="http://dx.doi.org/10.13039/100007251">http://dx.doi.org/10.13039/100007251</a> Construction and Materials Division P.O. Box 270, Jefferson City, MO 65102		14. Sponsoring Agency Code	
15. Supplementary Notes Conducted in cooperation with the U.S. Department of Transportation, Federal Highway Administration. Project name: DDI Evaluation. MoDOT research reports are available in the Innovation Library at <a href="http://www.modot.org/services/or/byDate.htm">http://www.modot.org/services/or/byDate.htm</a> . This report is available at <a href="http://library.modot.mo.gov/RDT/reports/TR201406/cmr15-006.pdf">http://library.modot.mo.gov/RDT/reports/TR201406/cmr15-006.pdf</a> .			
16. Abstract The Diverging Diamond Interchange (DDI) has gained in popularity in the United States during the last decade. The operational benefits and lower costs of retrofitting a conventional diamond with a DDI have contributed to its increased use. Existing research on DDIs has focused primarily on the assessment of operational benefits. Unfortunately, formal safety evaluations of DDIs are lacking. This study filled the knowledge gap by conducting a safety evaluation at the project-level (interchange) and the site-specific level (ramp terminals) of DDIs using three types of before-after evaluation methods: Naive, Empirical Bayes (EB), and Comparison Group (CG). Three evaluation methods were used since the methods involved different trade-offs, such as data requirements, complexity, and regression-to-the-mean. The safety evaluation at the project-level accounts for the influence of the DDI treatment in the entire footprint of the interchange. On the other hand, the site-specific approach focused on the influence at the ramp terminals only. All three methods showed that a DDI replacing a conventional diamond decreased crash frequency for all severities. At the project-level, the highest crash reduction was observed for fatal and injury (FI) crashes – 63.2% (Naive), 62.6% (EB), and 60.6% (CG). Property damage only crashes were reduced by 33.9% (Naive), 35.1% (EB), and 49.0% (CG). Total crash frequency also decreased by 41.7% (Naive), 40.8% (EB), and 52.9% (CG). Similarly, in the site-specific analysis, the highest crash reduction was observed for fatal and injury (FI) crashes – 64.3% (Naive), 67.8% (EB), and 67.7% (CG). Property damage only crashes were reduced by 35.6% (Naive), 53.4% (EB), and 47.0% (CG). Total crash frequency also decreased by 43.2% (Naive), 56.6% (EB), and 53.3% (CG). A collision type analysis revealed that the DDI, as compared to a diamond, traded high severity for lower severity crashes. While 34.3% of ramp terminal-related FI crashes in a diamond occurred due to the left turn angle crashes with oncoming traffic, the DDI eliminated this crash type. In summary, the DDI offers significant crash reduction benefits over conventional diamond interchanges.			
17. Key Words Before and after studies; Crash rates; Crash severity; Diamond interchanges; Evaluation; Fatalities; Ramps (Interchanges); Traffic safety. Diverging Diamond; Alternative Designs; DDI		18. Distribution Statement No restrictions. This document is available through the National Technical Information Service, Springfield, VA 22161.	
19. Security Classif. (of this report) Unclassified.	20. Security Classif. (of this page) Unclassified.	21. No. of Pages 57	22. Price

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

## Title Page

The Title Page follows the Technical Report Documentation Page, and will include the following information:

- Title of the deliverable
- Researchers and their University(ies)
- Deliverable number, including the entire project number and deliverable item number
- Project number
- Project title
- Sponsoring agency(ies)
- Date
- Performing agency

## Credits for Sponsor

The following statement will be included either on the report cover or on the title page of each report:

“Performed in cooperation with the Texas Department of Transportation and the Federal Highway Administration.”

The FHWA credit may be omitted, or other sponsors included in the credits, if so notified by RTI.

## Disclaimer(s)

Disclaimers, as appropriate, are presented on a separate page, following the title page.

- Author’s Disclaimer — required in all technical reports, and states:

“The contents of this report reflect the views of the author(s), who is (are) responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the Federal Highway Administration (FHWA) or the Texas Department of Transportation (TxDOT). This report does not constitute a standard, specification, or regulation.”

- Engineering Disclaimer — required on all technical reports that contain engineering recommendations and states:

“This report is not intended for construction, bidding, or permit purposes.”

This disclaimer will be accompanied by a statement identifying the engineer in charge of the project, including name, P.E. designation, and license number.

All technical reports produced for TxDOT under this program will comply with the requirements of the State of Texas and TxDOT related to signing, sealing, and dating of engineering documents, as applicable to work produced under the specific project.

## Trade Names / Manufacturers' Notice

Reports will avoid the appearance of endorsing or favoring a specific commercial product, commodity, or service. Trade names or manufacturers' names are given only if their exclusion results in the loss of meaningful information. When trade names or manufacturers' names are used in a report, the following "notice" will be included on the disclaimer page:

"The United States Government and the State of Texas do not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the object of this report."

## TxDOT Disclaimer

If TxDOT disapproves or conditionally approves the report, the University must include any disclaimer deemed appropriate by RTI.

## Acknowledgments

Members of the Project Team will be acknowledged in each report, along with their organizations. For TxDOT employees, the acknowledgment may include the "Texas Department of Transportation" rather than individual district or division affiliations. Acknowledgments are presented on a separate page following the disclaimers.

## Table of Contents

Each report will contain a table of contents, following the acknowledgments page. This table will include all principal headings and subheadings as they appear in the report, along with page numbers. Lists of figures, tables, and abbreviations may follow, as required.

## List of Figures

A list of figures (includes figures, illustrations, and photographs) is required for reports containing five or more figures, and may be included at the author's option in any report. This list will contain:

- The number of each figure
- The title or caption for each figure
- The page number of each figure

## List of Tables

A list of tables is required for reports containing five or more tables and may be included at the author's option in any report. Tables shall conform to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0. This list will contain:

- The number of each table
- The title for each table
- The page number of each table

## List of Abbreviations and Symbols

If a report contains numerous or unusual abbreviations or symbols, the author should include a list that clearly defines each abbreviation and symbol.

## Body of the Report

The body of the report will include all the information needed to adequately support the conclusions and recommendations presented. Contents will be logically organized into chapters. Clearly identify Project Recommendations.

References will be included for specific sources cited in the report. References will contain author(s), title, publication number, publisher, and publication date. References shall be listed in a separate chapter or appendix. Material used to help conduct the project or develop the report, which is not specifically cited in the report, may be listed in a bibliography following the references.

- **Size Conventions**

Technical reports will be formatted for 8 ½ by 11 inch pages. Contents will be presented in portrait orientation, with a margin of at least 1 inch on all sides. Large charts or multiple charts presented together, which would not be easily readable otherwise, may be presented in a landscape orientation, or produced on oversize pages. All reports will be in a single-column format, to facilitate on-line reading. Individual reports may be divided into volumes if deemed necessary by the author.

- **Line Spacing**

For body text and other non-graphical elements, either single or one-and-one-half line spacing is acceptable. Reports with double line spacing will not be accepted.

- **Pagination**

Reports will be printed on both sides of the paper, except when standard bookmaking practice dictates that a left-hand page be left blank so that the start of a section (chapter, appendix, etc.) falls on a right-hand page.

- Front Matter — Number pages consecutively with lower case Roman numerals, such as ii, iii, etc. The Technical Report Documentation Page is always page 'I' but does not display the page number. The title page is also to be unnumbered.
- Body of the Report — Number pages consecutively, starting with Arabic numeral 1 and continuing uninterrupted through any back matter (appendices, list of references, etc.) in the report. Page numbering each chapter or section separately using a dual system, such as "1-1", is also acceptable.

- **Figures / Illustrations / Photographs**

- General — Information in each report will be illustrated clearly and, in a cost-effective manner. The most appropriate illustrations will depend on the type of work done and the amount of data gathered. PMs may request figures or illustrations be added to more effectively convey the content of the report.
- Numbering — Figures will be numbered consecutively within chapters, using Arabic numerals in a dual system. For example, the second figure in Chapter 3 would be numbered "Figure 3-2". Numbering figures consecutively throughout the entire report is also acceptable.
- Titles — Each figure will include a title or caption, generally beneath the figure. The title will quickly and simply describe the essence of the figure. If a legend is required to make

the figure readily understandable, it will be included beneath the figure. Titles and legends will be distinguished from the body of the report by placement (for example, centered just beneath the figure) and a difference in font.

- Labels — Labels within figures will appear in a consistent font throughout a report, as is practical. A font will be chosen for readability and contrast with surrounding text.
- Color — Figures will not be printed in color unless authorized by RTI, either by a specific statement, or approval of a draft submitted in color. Approved reports may be delivered electronically, such as on university web sites, in full color without specific permission from RTI, even if the draft was submitted in black and white. When figures are developed, colors or patterns will be chosen for critical elements that can be delivered effectively in color electronically and printed in black and white.
- Placement — Each figure will be placed near, but not before, its first reference in the text. If a report contains few text pages and many figures, place all the figures sequentially after the text.

- **Tables**

- Tables shall conform to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0.
- Tables Numbering — Tables will be numbered consecutively within chapters. For example, the first table in Chapter 4 would be numbered "Table 4-1" and the second table in Appendix A would be numbered "Table A-2." Numbering tables consecutively through the entire report is also acceptable.
- Titles — Each table shall include a title at the top of the table. The title shall quickly and simply describe the essence of the data presented in the table. Any legends or notes needed to make the table readily understandable shall be included within, or just below the table. Titles shall be distinguished from the body of the report by placement (for example, centered just above the table) and a difference in font.
- Placement — A table will be placed near, but not before, its first reference in the text. If a report contains few text pages and many tables, place all the tables sequentially after the text.

- **Equations**

- General — For each independent equation or for the first in a series of related equations, authors will identify symbols after their first use, or in a separate list, to aid the reader.
- Numbering — Within each chapter, sequentially number equations that are part of a series, or which are referred to consecutively in the text, with Arabic numerals in a dual system. Enclose each number in parentheses at the right margin on the last line of the equation elements. For example, "(Eq. 1-2)" in chapter 1, or "(Eq. A-2)" in appendix A. Numbering equations consecutively through the entire report is also acceptable, if a list of equations is then added in the front matter of the report.
- Placement — Indent or center each equation in the line immediately following the first text reference made to it.

## Use of Copyrighted Material

- General — No copyrighted material, except that which falls under the “fair use” clause, may be incorporated into a report without permission from the copyright owner, if the copyright owner requires such. Prior use of the material in a TxDOT or governmental publication does not necessarily constitute permission to use it in a later publication.
- As applicable, copyrighted material used in a report shall be accompanied by a statement y as follows:
  - “Reprinted from (title of publication) by (name of author), by permission of (name of copyright owner). Year of first publication.”
  - Courtesy — Acknowledgment or credit will be given by footnote, bibliographic reference, or a statement in the text for use of material contributed or assistance provided, even when a copyright notice is not applicable.
  - Caveat for Unpublished Work —Some material may be protected under common law or equity even though no copyright notice is displayed on the material. Credit will be given and permission will be obtained as appropriate.
  - Proprietary Information — To avoid restrictions on the availability of reports, proprietary information will not be included in reports, unless it is critical to the understanding of a report and prior approval is received from RTI. Reports containing such proprietary information will contain a statement on the Technical Report Documentation Page restricting availability of the report.

## University’s Right to Copyright

Article 17, “Copyrights,” of the Cooperative Research and Implementation Agreement (CRIA) contains provisions relating to copyrights on materials developed under a research or implementation project.

## Ownership and Release of Data

As stated in Article 16 of the CRIA, release of information contained in a report is restricted prior to approval of the report by TxDOT, to the extent allowed by the Texas Public Information Act.

## DOT F 1700.7 Instruction

### Technical Reports

- Box 1, Report No. — Enter as FHWA/TX-09/0-1234-1, where:
  - FHWA = Federal Highway Administration,
  - TX = Texas,
  - 09 = year the report is approved,
  - 0-1234 = entire project number, including suffix if used on contract,
  - 1 = usually the Project Schedule, Exhibit C item number, without the preceding “R”.
- Box 2, Government Accession No. — Leave blank.
- Box 3, Recipient’s Catalog No. — Leave blank.
- Box 4, Title and Subtitle — Entire report title.
- Box 5, Report Date — Month and year report was written or last revised, whichever is later.

- Box 6, Performing Organization Code — Leave blank.
- Box 7, Author(s) — List all authors, primary author first, including first name, middle initial if available, and last name.
- Box 8, Performing Organization Report No. — Report number, consisting of entire project number and report number from Project Schedule, 0-1234-1 for example.
- Box 9, Performing Organization Name and Address — Name and address of the research agency(s).
- Box 10, Work Unit No. — Leave blank.
- Box 11, Contract or Grant No. — Entire TxDOT project number, as on the contract.
- Box 12, Sponsoring Agency Name and Address — enter:  
Texas Department of Transportation  
Research and Technology Implementation Division  
125 E. 11th Street  
Austin, TX 78701
- Box 13, Type of Report and Period Covered — “Technical Report” and dates showing period of time covered by the report.
- Box 14, Sponsoring Agency Code — Leave blank.
- Box 15, Supplementary Notes — Enter “Project performed in cooperation with the Texas Department of Transportation and the Federal Highway Administration.” If the title of the project is significantly different from the report title, enter the project title here.
- Box 16, Abstract — Include a brief (200 – 250 words) summary of the most significant information contained in the report. When applicable, the abstract should include advice on how the results of the research can be used.
- Box 17, Key Word — Terms or short phrases that identify the important topics in the report.
- Box 18, Distribution Statement — “No restrictions. This document is available to the public through the National Technical Information Service, Alexandria, Virginia 22312, [www.ntis.gov](http://www.ntis.gov).”
- Boxes 19 and 20, Security Classify. — Unless advised otherwise in writing by RTI, enter “unclassified”.
- Box 21, No. of Pages — Total number of pages in the report, excluding any bound covers.
- Box 22, Price — Leave blank.

## Draft Products

Although not required with draft products, at the University’s option, this form can be included to help identify the deliverable. If including the form with a draft product, modify the contents of the form, compared to a technical report, as discussed below. This form is not generally published with stand-alone products; as such products will carry enough information to be readily identifiable without this form.

- Box 8 —Indicate “Product” and include the entire product number from the Exhibit C, Project Schedule, 0-1234-P2 for example.
- Box 13 — Indicate “Product”, and do not include a “period covered”.
- Boxes 18, 19, 20 — leave blank.

## Project Summary Report Standards

### General

PSRs are required for projects. PSRs are utilized to communicate information about research results to a broad audience, although technical information may be included. PSRs serve as a link between research and implementing the results of that research. The PSR should be written and compiled in such a way that makes the work accessible to the public or someone not versed in the pertinent technical background.

The material for the body of each PSR is prepared, edited and submitted by the University. The PSR is then reviewed and approved by TxDOT.

The ideal PSR is a clear and concise description of:

- Why the research is important
- What the research accomplished
- How the research results may be utilized for implementation

### Contents

The body of each PSR is limited to 1000 words (if no graphics are included) and discusses the topics listed below. A Technical Report Documentation Page is not required with a PSR.

- Background — A brief description of the purpose and scope of the project and why the research was important.
- What the Researchers Did — A brief summary of project activities (e.g.: literature review, interviews, laboratory and field testing, surveys, monitoring of test sections, development of a draft specification), and problems encountered.
- What Was Found — A summary of the research findings and conclusions drawn from those finds, and whether or not the findings were expected.
- What This Means — Suggestions from the research team for putting project findings to use.

Graphics are not required in a PSR, but are highly encouraged, and may be used to effectively convey the information. The 1000-word limit must then be reduced to make space for the graphic(s). Graphics will be clear, simple and referenced in the text of the PSR to effectively convey meaning to the reader.

The University shall include the names of all University researchers who should be credited.

### Copyrights

Article 17, "Copyrights," of the CRIA contains provisions relating to copyrights on materials developed under a research or implementation project. The same standards for use of copyrighted material, and ownership of copyrights, apply to PSRs that apply to technical reports.

### Ownership and Release of Data

As stated in Article 16, "Ownership of Data," of each CRIA, release of information contained in a report is restricted prior to approval of the report by TxDOT, to the extent allowed by the Texas Public Information Act.

## Product Standards

### General

Products are intended for implementation within TxDOT operations. The Project Schedule for each project specifies the form or media in which each product will be delivered, and any specific format required. All products will be developed and produced in final form in a manner that reflects the best professional standards of the University and RTI. Standards applicable to specific types of products commonly required by TxDOT are included below.

### Equipment and Devices

- General-Equipment deliverables, as discussed here, are tangible devices developed or procured under a research or implementation project specifically for delivery to TxDOT.
- Physical Delivery to TxDOT —The Project Schedule specifies where within TxDOT the University will deliver the equipment. Physical delivery will often be to a functional Division, or a District, rather than RTI.
- Schematics — Working plans or schematics may or may not be required, dependent upon patent filing contemplated by the university.
- Patents — Article 18, "Patents," of each CRIA contains provisions relating to patentable discoveries or inventions resulting from research or implementation projects.

### Guidebooks and Manuals General

Products such as guidebooks, manuals, and similar items are developed as specified by TxDOT. Often developed as printed documents and published in non-traditional formats, guidebooks and manuals may be printed on heavy stock or waterproof material, or in a size smaller than 8.5 by 11 inches, to facilitate use in the field. Guidebooks and manuals may be published electronically as a PDF document that includes active hyperlinks to resources on the Internet.

- Standards — When a product is developed as printed material, all of the technical report standards that can be reasonably applied to the document will be, except the requirement for a Technical Report Documentation Page (Form DOT F 1700.7). If a Form 1700 is needed with the final delivery of a product, RTI will notify the university.
- Final Publication within TxDOT — When a department manual is developed under a research or implementation project managed by RTI, the final outcome is a draft department manual. Once the PM approves the product on the RTI project, RTI ensures the appropriate District or Division, is responsible for the functional area, and receives the material in a format that will facilitate final approval and publishing of the manual within TxDOT.

### Draft Specifications

- Format — Draft Specifications will be delivered in a format consistent with those found in the current version of TxDOT's standard specifications.
- Final Approval within TxDOT — Once specifications are approved by the PM, they must be approved by TxDOT's Specification Committee before distribution for use by TxDOT generally.

However, a Draft Specification may be submitted as a proposal to TxDOT for submittal to the Specification Committee.

- Other Specifications Format — The required format for delivery of specifications, other than construction specifications, will typically be stated on the Exhibit A, Work Plan, of the Project Agreement. If not stated in the Project Agreement, the required format will be discussed with the PM before the specification is submitted to RTI.

### **Training Materials**

- Development — Development of training materials will be coordinated with the agency that will ultimately be responsible for providing and supporting the training. Within TxDOT, this may be a specific technical division or the Human Resources Division. It may also be an outside entity, such as the National Highway Institute (NHI).
- Format — For a specific training module, multiple formats may be required, such as student notebooks for a workshop, hard copy and electronic instructor material, an instructional video and a video presentation. Some training modules may be required to be delivered via the internet.

### **Video Presentations**

- Quality — Commercial quality equipment shall be used to document research work or develop a formal presentation.
- Scripts — Scripts for formal presentations will be submitted to RTI for review at least 60 days prior to the start of production.
- Review of Draft — A draft of the presentation will be presented to RTI and members of the Project Team for review, prior to final editing.

### **Technical Report Documentation Page**

A Technical Report Documentation Page is not generally required. Each product will carry adequate identifying information, on the product itself, to make this form unnecessary. If the University chooses to submit this form, see "Draft Products" in this chapter.

### **Copyrights**

The same standards that apply to technical reports for use of copyrighted material, and ownership of copyrights, apply to products, when the product is one to which these standards can be logically applied.

### **Ownership and Release of Data**

As stated generally in Article 16, "Ownership of Data," of each CRIA, release of information contained in a product is restricted prior to the approval of the product by TxDOT, to the extent allowed by the Texas Public Information Act.

# Chapter 7 - University Costs

## Allowable Costs

### Eligibility Requirements

Eligible costs chargeable by Universities, and other research agencies to TxDOT's Research and Implementation Projects are outlined in 2 CFR 200, which became effective on December 26, 2014. The following principles must be met for costs to be eligible for reimbursement by TxDOT:

- Project Agreement must be executed by RTI for any costs to be eligible for reimbursement by TxDOT.
- Costs must be necessary and reasonable on the specific project to which the costs are charged.
- Costs meet all applicable principles for allowable costs in federal regulations. Various factors affecting allowability of costs are detailed in 2 CFR 200.403.
- Costs are payable under Texas state requirements and rules, including the determination of the correct state budget year.
- Costs must be within the scope of the executed Project Agreement and included on the Exhibit B, Itemized Project Budget Estimate.
- Costs must be incurred during the term of the Project Agreement.
- Costs must be within the approved budget limits (see CRIA Article 9, "Budget") for the project.

While there is some judgment involved in determining what costs are necessary and reasonable, there are some costs that should not be charged to a project, such as:

- Business meals not related to travel.
- Taxes from which exemptions are available to the University
- Gratuities (tips)
- Costs not actually incurred. For example, charging an amount based on an allowance or estimate, rather than actual cost.
- Salary for someone who did not work on the project for the amount of time charged.
- Costs for preparing proposals.
- Purchases, such as equipment, that are not expected to be used on that project.
- Office supplies, including certain personal protective equipment (e.g., face masks) and cleaning supplies (e.g., wipes), should not be charged as direct costs, since they must normally be covered as indirect costs.

### Cost Control and Accounting

TxDOT and the Universities share the responsibility of ensuring that costs charged to RTI projects meet state and federal requirements. This responsibility is covered by CRIA Article 13, "Billing and Payment," which discusses billing frequency, requirements, and limits. Responsibility is also shared by TxDOT and the Universities to account for expenditures according to state laws and procedures and to

maintain financial management systems, including appropriate records, in compliance with 2 CFR 200.302.

## **Equipment**

Refer to General Requirements of Equipment of this chapter for requirements related to purchasing and safeguarding equipment purchased under RTI projects.

## **Supplies**

“Supplies”, in this context, means tangible personal property other than that meeting the definition of “equipment” (see below). Prior approval is not needed from RTI to purchase supplies under a research or implementation project, provided that the supplies are categorizable under a budget line item in the Exhibit B, Itemized Project Budget Estimate. The University will generally retain title to supplies, unless RTI requests title in writing, or title is retained by TxDOT in the Project Agreement. Supplies should be used by the University on the project for which they were acquired. After the project terminates, the supplies should be used on other TxDOT projects.

If supplies valued in excess of \$5,000.00 are still on hand when a project terminates, RTI’s approval is needed to retain the supplies, without compensating TxDOT. Notify RTI in writing, describing the type of supplies still on hand, and how the supplies are planned to be used. If the supplies will not be used on another TxDOT project, RTI will advise the university on how to compensate TxDOT.

## **Facilities**

Universities maintain and operate the facilities necessary to conduct research and implementation projects. Items such as standard office equipment, including general use computers, and furniture are part of these facilities and are not generally chargeable to TxDOT projects. Refer to CRIA Article 10, “Facilities, Equipment and Procurement,” for additional information. It discusses such things as equipment procurement, management, and maintenance and repair.

## **Indirect (Overhead) Cost Charges**

Indirect cost charges by Universities to TxDOT research and implementation projects are covered in CRIA Article 12, “Indirect Cost Charges”, which discusses indirect cost rate limits and direct costs to which indirect rates may be applied.

## **Salary and Travel**

Travel and Mileage will be reimbursed in accordance with the current travel and mileage reimbursement rates as published by the Texas Comptroller of Public Accounts. This reimbursement shall be considered to include full compensation for use of the conveying vehicle, whether private, University-owned, or otherwise. Salary and travel costs are further covered in CRIA Article 11, “Salary and Travel Charges.” This article discusses general requirements for salary and travel charges, and the advance approval needed from TxDOT for out-of-state travel by University personnel.

## **Foreign Travel**

In addition to the requirements in CRIA Article 11, University personnel are responsible for meeting all requirements of their agencies and the state for pre-approval of foreign travel.

## Proposal Preparation

Costs incurred to prepare proposals in response to a Request for Proposal (RFP) issued by RTI must be covered by the proposing University. These costs may not be charged to a prospective or current TxDOT project. Refer to CRIA Article 1, "Nature of the Agreements" for additional information.

## Equipment

### General Requirements of Equipment

University research facilities may not include all the equipment needed to complete a specific research or implementation project. Specialized items needed for a specific project are typically included in the project budget and procured under that project.

Pursuant to, Title 2-Grants and Agreements, Subtitle A, Chapter 11, Part 200 - Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Subpart A- Acronyms and Definitions, Section 200.1 - Definitions, states:

"Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds the lesser of the capitalization level established by the non-Federal entity for financial statement purposes, or \$5,000.00. See also the definitions of capital assets, computing devices, general purpose equipment, information technology systems, special purpose equipment, and supplies in this section."

Both state and federal requirements govern equipment issues related to RTI projects. State requirements are implemented through the State Property Accounting (SPA) System maintained by the Texas Comptroller. Relevant federal requirements are contained in several documents, such as:

- Code of Federal Regulations, Title 23 - Highways, Revised as of April 1, 2014, Subchapter E- Planning and Research, Part 420 - Planning and Research Program Administration, Subpart A- Administration of FHWA Planning and Research Funds.
- Code of Federal Regulations, Title 2 - Grants and Agreements, Subtitle A, Chapter 11, Part 200 - Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.

In general, federal requirements state that any equipment acquired under an RTI project should be used, managed, and disposed of according to state and federal requirements. Universities are required to follow 2 CFR 200, which is consistent with state property management requirements.

The remainder of this section summarizes the requirements covering acquisition and equipment management for university equipment acquired under RTI projects. Equipment provisions are covered in general in CRIA Article 10, "Facilities, Equipment and Procurement."

### Approval for Procurement

Procured equipment must be approved for purchase under current state procurement methods and requirements.

Approval for an equipment purchase under an RTI project is obtained and evidenced in either of two ways:

- The item(s) is specifically identified on the approved Exhibit B, Itemized Project Budget Estimate for the project.
- The university receives written approval from RTI prior to the purchase. Written requests should include the estimated cost and the FY of the expected purchase.

In addition, equipment must be purchased in the fiscal year in which it is budgeted.

### **Equipment Purchases Must be Necessary and Reasonable**

- Equipment purchased under a project must be for use on that project.
- Purchases made near the end of a project, when there is no reasonable expectation that the equipment will be used on that project, will not be reimbursed by TxDOT, regardless of budget or purchase approval.

The University may elect to rent the equipment from a third party if cost savings will accrue to the project. The equipment rental from a third party should be listed on the Exhibit B, Itemized Project Budget Estimate.

### **Procurement Reporting**

Universities report equipment purchases to RTI through:

- their billings that include these costs. For details on the information required, see Invoicing below
- Monthly Progress Reports (MPR)

### **Working Title**

TxDOT retains ownership of the title to all equipment purchased under RTI projects, unless RTI transfers title, in writing, to a University. If TxDOT and a University share the cost of a piece of equipment, they share title. If the University incorporates a component purchased by TxDOT into a piece of equipment, such that the component cannot be recovered from the equipment, TxDOT and the University share title to that equipment.

### **Possession and Use**

The University shall use equipment on the project for which it was acquired until it is no longer needed on that project. When equipment is acquired or produced, the University must notify RTI of the delivery, attach an RTI Asset Tag, and send to RTIMain@txdot.gov, the following information:

- Which Project the equipment item is funded through.
- When and where the equipment was delivered.
- Who (TxDOT) accepted delivery.
- Picture(s) of the equipment item, including the RTI Asset Tag next to the serial number, and front and side views, when possible.

The University shall follow the procedure outlined in the Disposal section below. TxDOT may allow the University to retain possession of the equipment for use on other TxDOT projects funded through the Research and Implementation Program. Such equipment should not be used on non-RTI projects.

TxDOT may ask for the return of TxDOT equipment at any time after project termination, or cancellation.

## **Equipment Management**

The University must maintain equipment records for all equipment purchased, whether acquired in whole or in part under a federal award, and remaining in the University's custody and possession. Equipment Inventory records shall include:

- A clear description of the equipment or component(s)
- Serial number, model number, date of manufacture, or other available manufacturer's identification information
- State or university property identification number
- Source of funding for the equipment, including the FAIN number and RTI project number
- Name of University holding title
- Date purchased (or date received if furnished by TxDOT or the Federal government)
- Cost of the equipment or component(s)
- Location and use of the equipment or component(s)
- Condition of the equipment or component(s) and last inventory date
- Disposal data, including date and fair market value

The University must not use equipment acquired with the Federal award to provide services for a fee. When acquiring replacement equipment, the University may use the equipment to be replaced as a trade-in or sell the equipment and use the proceeds to offset the cost of the replacement equipment.

Universities are responsible for properly tagging, maintaining, and securing equipment, and for performing physical inventories annually. During physical inventory, the University will tag equipment in the University's possession as belonging to TxDOT if the equipment was not previously tagged. If TxDOT pays for all or part of a piece of equipment, it must be tagged with a TxDOT-RTI inventory tag. The University is also responsible for conducting annual equipment inventories and reporting equipment in their possession per the State Property Accounting System (SPA) and to RTI via [RTIMAIN@txdot.gov](mailto:RTIMAIN@txdot.gov).

Universities must develop a control system to ensure adequate safeguards are in place to keep the equipment in good condition. Any loss, damage, or theft must be investigated, by the university, and any accounting of the investigations fully documented and immediately reported to RTI via [RTIMAIN@txdot.gov](mailto:RTIMAIN@txdot.gov).

RTI is responsible for tracking equipment purchased under research and implementation projects as long as TxDOT holds title to the equipment, or until a University disposes of the equipment, whichever comes first. RTI maintains inventory records for such equipment and monitors each University's inventory process.

## **Disposal**

When the University no longer needs TxDOT equipment used within its research, they shall inform RTI in writing that the equipment is no longer needed. The University shall state the condition of the equipment and an estimated fair market value. RTI will evaluate the condition and potential uses for

the equipment, and instruct the university about disposal actions. Equipment purchased under an RTI project should not be transferred to another agency, or disposed of, without contacting RTI and receiving approval.

## **Invoicing**

### **Submitting Invoices**

RTI considers timely invoice submissions to be critical for effective project management. Invoices should be sent directly to RTI monthly and no later than 120 days after costs are incurred. If a significant invoicing delay is expected, the University should notify RTI in advance and include the reason and the estimated amount. CRIA Article 13, "Billing and Payment", includes provisions covering billing frequency, references to cost principles and circulars, and penalties assessed on untimely billings.

### **Electronic Format**

All invoices are required to be submitted in an editable PDF format (1 PDF file per invoice). The file can be submitted:

- By email to [RTI\\_Invoices@txdot.gov](mailto:RTI_Invoices@txdot.gov), if the email and attachment together are smaller than 15 megabytes.
- Larger files can be sent to RTI using TxDOT's official file transfer internal application, Box.com.

Before submitting an invoice, perform a quality control check to ensure the invoice is in compliance with 2 CFR 200. RTI also recommends checking the following points:

- In order to save data storage space, PDFs are scanned in black and white, not in color.
- All supporting documentation is attached to the invoice. Excess supporting documentation beyond requirements (see "Supporting Documentation" below) is removed.
- Add Notations as needed to clarify the items or amounts being charged from a vendor invoice, to add a more understandable description of an item purchased, and/or to explain unusual charges, etc.
- Invoices should only be submitted after the corresponding deliverables have been received by RTI.
- All rates have been verified (e.g., travel, indirect costs).
- Work, services or goods were provided during a valid Project Agreement period and are billed to the appropriate fiscal year.
- For all salary/wage charges, the employees are listed on the MPR(s) that corresponds to the month(s) during which the service was provided.
- Invoice contains a signed certification statement.
- Pre-approval was obtained for any out-of-state travel, using the "Request for University Out-of-State Travel" form.

- All charges correspond to a line item on the FY budget. Pre-approval is obtained for any invoice items that do not directly correspond to a budget line item. Pre-approval documentation is submitted with the corresponding invoice.
- Equipment purchases or subcontract charges were approved on the FY budget.

All charges must be for costs incurred during the term of the agreement and within the fiscal year billed. The fiscal year in which a cost is incurred is determined by state purchasing and fiscal management standards. See §5.56 of Title 34, Part 1, Chapter 5 of the Texas Administrative Code for more information.

Send a final invoice, marked "FINAL", for each fiscal year a project is active. RTI requests final billings for projects to be submitted by October 31st for the previous year.\*

If you cannot meet the October 31st deadline for final invoices\*, send RTI a notice by this date, to include project(s) to be billed late, the estimated amount(s) remaining to be billed, and an explanation for late billing. If RTI does not receive a notice of remaining charges on a project by October 31st, RTI will consider the last invoice received by October 31st \*, for that project year, as the final invoice, even if it is not marked.

\*NOTE: Based on requirements in 2 CFR 200.344 through 200.346 regarding project closeout, all invoices for terminating projects, including those projects terminating in mid-year, must be sent to RTI no later than 90 calendar days after the project termination date. Consideration should be given to allow time within the 90 calendar days for any resubmissions requested by RTI.

## Basic Billing Requirements

An invoice is payable when the deliverables have been received and accepted.

Basic billing requirements are that each invoice be legible and include at least the information listed below. Each invoice may include other information for the University's benefit, such as University reference numbers, but should not include a TxDOT charge number.

When submitting an invoice, include an invoice cover page(s) with the following required information:

- Project #
- Agency Name
- Agency Invoice #
- Invoice Total
- Signed certification statement
- Breakout of charges by cost category
- Billing Period. The billing period must fall within a single fiscal year when the costs were incurred, and must fall within the active dates of the project.
- Cumulative fiscal year-to-date spent amount, including the current invoice.

## Supporting Documentation

Break-out pages detailing all expenditures/charges on the invoice, including amounts, dates posted, voucher numbers, etc.

Documentation of all out-of-town travel (travel away from the researcher's normal work location), including:

- Travel expense report or similar documentation sufficient to clearly show:
  - who traveled,
  - date(s) of the travel,
  - destination(s),
  - purpose of the travel,
  - purpose for intracity trip charges, including taxis, Uber rides, etc.,
  - who the researcher met with, when billing for weekend days, provide a clear explanation, and identification of specific costs (meals/lodging, mileage, parking, etc.).
  - NOTE: meals/lodging costs should be identified per person per day
- Travel receipts, including hotel, airfare, car rental, fuel, parking, taxi, ride-booking service, registration, etc. (NOTE: Meals receipts not required.)
- For mileage charges, documentation of the number miles:
  - for fleet vehicles, by a mileage log
  - for personal vehicles, by a readily available online mapping service
- RTI approval prior to the travel for out-of-state (including foreign) travel or travel from out-of-state to Texas for university and non-university personnel.

Documentation of salary charges to clearly show:

- who worked on the project,
- total cost charged for each person,
- pay period, andFor each person, information on the time worked on the project. RTI accepts any of the following formats for information on time worked (only one format is required):
  - Monthly rate (for full time work only)
  - Hourly rate
  - Number of hours worked on the project during the pay period
  - Hours/week worked on the project during the pay period
  - Percentage of full-time work on the project during the pay period

Documentation of fringe charges, which should clearly identify individual fringe costs per person.

Documentation of tuition costs showing the name, semester and amount charged for each person.

Documentation of rental costs, which should clearly identify the rental(s). A copy of the vendor's invoice or receipt is required for charges over \$250.00. For charges under \$250.00, if a vendor invoice or receipt is not available, another form of documentation would still be required.

Documentation of supplies/equipment costs, which should clearly identify all items purchased. A copy of the vendor's invoice or receipt is required for charges over \$250.00. For charges under \$250.00, if a vendor invoice or receipt is not available, another form of documentation would still be required.

Documentation for Equipment Purchases - For equipment which was not received by the end of the fiscal year to be billed, a copy of the purchase order awarded during that fiscal year.Documentation to support charges for services, which should clearly identify all services purchased. For outside service charges, a copy of the vendor's invoice or receipt is required for charges over \$250.00. For outside

service charges under \$250.00, if a vendor invoice or receipt is not available, another form of documentation would still be required.

Documentation adequate to support charges for services received from another department within the University.

Documentation to explain and justify unusual costs such as excessive printing, significant equipment repair costs, unusual supply costs, or similar items.

Documentation to support all credits, such as credit documentation from the vendor. For credits over \$250.00, note the invoice number of the invoice containing the original charge being credited back.

Universities are encouraged not to send supporting documentation beyond what is required. The inclusion of excess documentation increases the time required to process invoices and may generate more questions from RTI to the university.

## **Review and Payment by TxDOT**

After submission, invoices are reviewed by RTI accounting staff and the PMs.

PMs review invoices for reasonableness and to identify charges that may not relate to approved project work or that are not covered under a line item in Exhibit B, Itemized Project Budget Estimate. If there are questions, the PM will contact the Principal Investigator or request the Accounting Specialist to ask for additional information.

RTI determines whether payment should be withheld because deliverables are overdue. Whenever possible, Universities should not submit invoices for projects with overdue deliverables.

Invoices that pass RTI's review, without needing additional information, are typically paid by the Comptroller's Office 30 days after their receipt at RTI.

RTI will request the University's accounting staff to resubmit an invoice requiring adjustment and will advise them if an invoice is declined. For questions about the status of payment of an invoice after that time period, contact RTI to help resolve the issue.