University Handbook • 2019

THE RESEARCH AND TECHNOLOGY IMPLEMENTATION DIVISION

TEXAS DEPARTMENT OF TRANSPORTATION

Chapter 1
Introduction

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Section 1
TxDOT Research and Implementation Program

Research and Technology Implementation Division- Introduction

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 a TxDOT Project Team. This team works closely with the University Project Supervisor 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

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

Mission Statement

Through collaboration and leadership, we deliver a safe, reliable, and integrated transportation system that enables the movement of people and goods.

Goals and Objectives

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

- Use scenario-based forecasting, budgeting, and resource management practices to plan and program projects.
- Align plans and programs with strategic goals.
- Adhere to planned budgets and schedules.
- Provide post-delivery project and program analysis.

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

- Be transparent, open, and forthright in agency communications.
- Strengthen our key partnerships and relationships with a customer service focus.
- Incorporate customer feedback and comments into agency practices, project development, and policies.
- Emphasize customer service in all TxDOT operations.

Foster Stewardship – Ensure efficient use of state resources.

- Use fiscal resources responsibly.
- Protect our natural resources.
- Operate efficiently and manage risk.

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

- Mitigate congestion.
- Enhance connectivity and mobility.
- Improve the reliability of our transportation system.
- Facilitate the movement of freight and international trade.
- Foster economic competitiveness through infrastructure investments.

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

- Maintain and preserve system infrastructure to achieve a state of good repair and avoid asset deterioration.
- Procure, secure, and maintain equipment, technology, and buildings to achieve a state of good repair and prolong life cycle and utilization.

Promote Safety – Champion a culture of safety.

- Reduce crashes and fatalities by continuously improving guidelines and innovations along with increased targeted awareness and education.
- Reduce employee incidents.

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

- Emphasize internal communications.
- Support and facilitate the development of a successful and skilled workforce through recruitment, training and mentoring programs, succession planning, trust, and empowerment.
- Encourage a healthy work environment through wellness programs and work-life balance.

TxDOT Priorities

- Be the safest DOT in the United States.
- Further strengthen and enhance our relationship with Metropolitan Planning Organizations, local, governments, and other key stakeholders.
- Act as a resource for transportation funding.
- Research transportation technology solutions.
- Develop innovative maintenance approaches that reduce costs and improve and preserve transportation system conditions.
- Develop effective information systems.

Section 2
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.

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.
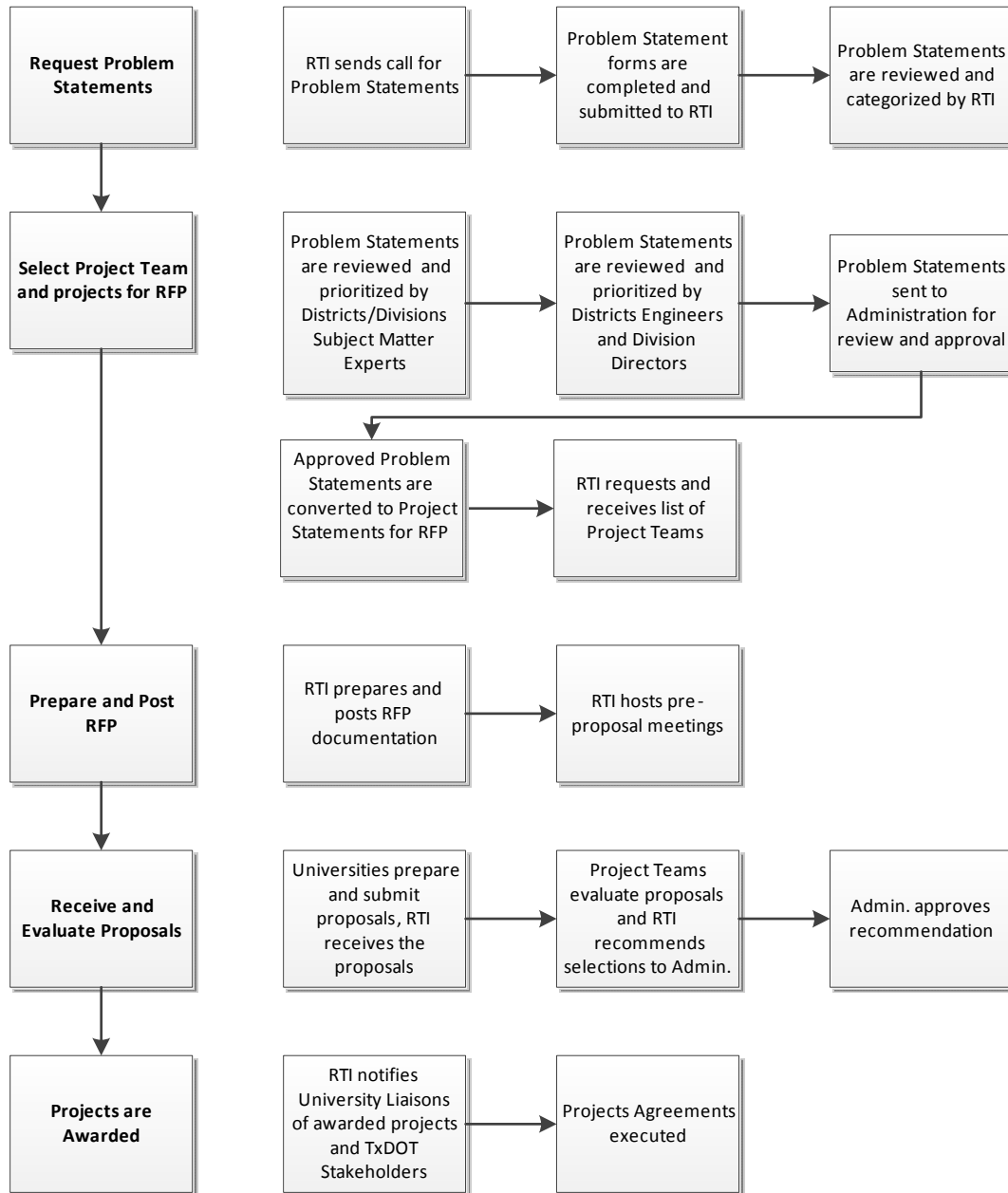
Section 3
Using This Handbook

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.

Program Overview

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Request Problem          RTI sends call for      Problem Statement       Problem Statements
Statements               Problem Statements      forms are               are reviewed and
                                                 completed and           categorized by RTI
                                                 submitted to RTI

Select Project Team      Problem Statements      Problem Statements      Problem Statements
and projects for RFP     are reviewed  and       are reviewed  and       sent to
                         prioritized by          prioritized by          Administration for
                         Districts/Divisions     Districts Engineers     review and approval
                         Subject Matter          and Division
                         Experts                 Directors

                         Approved Problem        RTI requests and
                         Statements are          receives list of
                         converted to Project    Project Teams
                         Statements for RFP

Prepare and Post         RTI prepares and        RTI hosts pre-
RFP                      posts RFP               proposal meetings
                         documentation

Receive and              Universities prepare    Project Teams           Admin. approves
Evaluate Proposals       and submit              evaluate proposals      recommendation
                         proposals, RTI          and RTI
                         receives the            recommends
                         proposals               selections to Admin.

Projects are             RTI notifies            Projects Agreements
Awarded                  University Liaisons     executed
                         of awarded projects
                         and TxDOT
                         Stakeholders
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Chapter 2
Request for Proposals (RFP)

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Section 1
Request for Proposals

Process

The following information details TxDOT's Research Program through the Request for Proposal (RFP) process.

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 Project Review Board (PRB) review.
- PRB recommends which problem statements to go forward in an RFP.

Prepare and Post RFP

- RTI prepares RFP documentation.
- RTI posts RFP.
- RTI hosts Pre-Proposal meetings.

Receive and Evaluate Proposals

- University prepares and submits proposals.
- RTI receives proposals. Proposals not received by the proposal deadline, or received in an incorrect format, will not be accepted.
- RTI confirms receipt of proposals.

Award Projects

- RTI prepares evaluation documentation.
- Project Teams review and score proposals.
- RTI compiles proposal scores and submits to PRB
- PRB reviews and recommends projects for award.
- RTI notifies University Liaisons and TxDOT stakeholders of awarded projects.

The University Liaison is the point of contact for RFP information and for submitting proposals to RTI.

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 email to RTI prior to the deadline.
- Proposal requirements (See Chapter 3, Proposal Requirements).
- Project requirements - Project Statement (PS)/Implementation Project Recommendation (IPR).
- Use of current RTI Forms (see the University Liaison for current forms).

Section 2
Eligible Proposers

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.

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 Project Supervisor. 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.

Section 3
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; except at a pre-proposal meeting.

During the RFP

During the open period of the RFP (from issuance to the due date), questions about RTI's policies or procedures associated with the RFP may ONLY be posed to the contact person named in the RFP or may be emailed to RTIMain@txdot.gov.

Questions regarding project scope may be submitted to the point of contact named on the Project Statement or asked the question during the Pre-proposal meeting, or emailed to RTIMain@txdot.gov.

Announcement of Selections

RTI announces the project awards, after proposals are 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
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Section 1
Submission Format and Deadline

Required Format for Submission

Current Forms – Proposals should be submitted on current RTI forms. Current RTI forms are sent to University Liaisons for distribution, and can also be downloaded off the RTI website. Please note that these forms are updated from time to time, and it is the University responsibility to ensure that they are using the latest form. Forms include:

- Research Problem Statement
- Research Project Statement
- Project Agreement Cover Page
- IPR, Implementation Project Recommendation
- Itemized Budget, Exhibit A
- Project Deliverables Table

Delivery Method – All proposals are required to be submitted electronically in portable document format (PDF). The file can be submitted:

- By email to RTIMAIN if the email and attachment together are smaller than 15 megabytes.
- Larger files can be sent to RTI through TxDOT's drop box service, available at https://ftp.dot.state.tx.us/dropbox.

Critical Aspects:

- Submit only one (1) PDF file for each proposal.
- Researchers must submit proposals through the University Liaison.
- Resubmitting a proposal – The last submission by email before the deadline will be taken as the proposal for RTI consideration.
- Do not send a proposal to an individual's email address in RTI.

Meeting the Deadline Timeframe – The date and time proposals are due is set by RTI and is stated in the RFP instructions.

Responsibility for Delivery of Proposals –The University is responsible for ensuring the timely submission of each proposal to RTI. Proposals received after the deadline will not be accepted.

Confirmation of Receipt – RTI confirms receipt of proposals received to the email address that sent the file. TxDOT's email system does not provide an automated return receipt nor does it reply to messages sent to non-existent email addresses to alert RTI of the error. If the confirmation is not received, check to make sure the proposal was sent to the correct email address.

Section 2
Required Documents

Overview

The documents listed below are required for the submitted proposal and must be compiled in the following order:

- Project Agreement Cover Page (RTI form)

- Itemized Budget, Exhibit A (RTI form)

- Project Description, Exhibit B, consisting of:

    o Project Abstract

    o Implementation

    o Work Plan

    o Assistance or Involvement by TxDOT,

    o Project Deliverables Table (on a RTI form).

- Background and Significance of Work

- Research Staff and Facilities

Formatting and Extra Documentation

The Project Agreement's pages must be numbered as one document, beginning with "1 of X".

Incomplete proposals will not be accepted. Documents other than those listed above 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.
- Letters of intent from subcontractors or suppliers.

Required documents are discussed in detail in the remainder of this chapter.

Section 3
Project Agreement Cover Page

Elements of the Project Agreement Cover Page (Signature)

The Cover Page should always be prepared using the current RTI form. Each Cover Page must include the elements discussed below:

- Fiscal Year (FY) – This is the first fiscal year when the project is activated.

- Heading –Labels the document as a "Project Agreement" and 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.

- Research or Implementation Project – Check the appropriate box to indicate the type of project.

- Project Number - The project number from the Project Statement included in the RFP.

- Document Date - The date the document is prepared. This uniquely identifies this version of the agreement, and will be referenced when the final Project Agreement is activated. The date initially entered here is the date the proposal is prepared. That date must be changed if the proposed Project Agreement is modified before execution.

- Project Title - The project title from the Project Statement included in the RFP.

- DUNS # - The Performing Agency's unique ID Number.

- Indirect Cost Rate – The Performing Agency's approved Indirect cost rate from cognizant agency, Health and Human Services also known as HHS.

- FAIN # - The Federal Award ID Number (RTI will provide this information).

- Federal Award Date – The date the federal award was approved by the Federal Agency (RTI will provide this information).

- Amount of Federal Funds Obligated to Sub-recipient – Amount the Federal Agency obligated to the Performing Agency, also known as Sub-recipient (RTI will provide this information).

- Contact Information – The contact information for TxDOT's Research and Technology Implementation Division.

- Federal Awarding Agency – Indicates the Federal Agency awarding the project.

- CFDA # - The Catalog of Federal Domestic Assistance (RTI will provide this information).

- CFDA Name – The Catalog of Federal Domestic Assistance title name (RTI will provide this information).

- Amount of Federal Funds Obligated – The total amount of Federal Funds obligated to the award (RTI will provide this information).

- CRIA Statement (First Paragraph) - 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 and enter the Performing Agency(s).

- Part I. Project Description – Paragraph to incorporate Exhibit B, the description of the specific work needed, into the Project Agreement. Do not make changes to this language.

- Part II. Project Duration and Performance Period – States that project work is not approved, and that no work should be performed, for any fiscal year, until RTI issues either an initial or continuation Activation Letter to the university. Only insert a proposed Project Termination Date to be considered during proposal review. This date sets the proposed project duration.

- Part III. Project Budget – Includes an estimated total project budget by proposed fiscal year. This detailed budget (by agency, fiscal year) is attached as Itemized Budget, Exhibit A. The Budget incorporates all Exhibit As into the Project Agreement. If there is a discrepancy between the total budget on an Itemized Budget, Exhibit A for any agency and the amount shown on the Cover Page for that agency, the amount on the Cover Page will be used during the initial evaluation of the proposal.

- Total Project Budget – The total of the proposed annual project budgets for all deliverables, for all performing agencies. Once the project is activated, this can be changed only by modification of the Project Agreement. If there is a discrepancy between the annual budgets shown and the total project budget, this will be resolved before a Project Agreement is executed.

- Part IV. Project Supervision – Identifies the Project Supervisor, who also specifies the lead agency on a joint project. Other primary researchers on the project should also be identified, including at least one researcher from each performing agency. The lead researcher at each agency may be identified as that agency's Principal Investigator (PI). Information about each researcher, including contact information, is also required here.

- Part V. No Waiver –Incorporates all the applicable provisions of the CRIA into the Project Agreement.

- Approved (Performing Agency) - A signature block for each university on the project, including each signatory's official title and agency.

- Approved (TxDOT) – A signature block is included for the Responsible TxDOT officials, to execute the agreement for TxDOT.

- Page Numbering – Should begin with "1". The project agreement, which includes several different sections, is numbered as one document, beginning with "1 of X". The correct document order for page numbering is in Chapter 3, Section 2, and Overview.

The following information can be found on the Project Statement, IPR, or in the RFP message:

- Fiscal Year

- Research or Implementation Project

- Project Number and Title

- Annual Program or Independent Project

No section should be removed from the form; unused lines in Part III (Project Budget) and IV (Project Supervision) may be left blank. Do not change the standard language on the RTI form.

Section 4
Itemized Budget Exhibit A- Overview

Overview

Each proposal will include an Itemized Budget – Exhibit A 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 that fiscal year for the specified project. Expenditures in excess of the amount allocated for a fiscal year must be pre-approved by the responsible RTI PM in order to be paid and must otherwise 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 item for each fiscal year (see Chapter 4 for changing and modifying an itemized budget).

Heading Elements on an Itemized Budget

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

Completing Exhibit A

- Proposal # (change to Project # after award)
- Agency
- Primary Agency (Place an 'X' if the Agency holds primary responsibility
- Revision # (enter the revision being presented to the PM or RTI Finance Committee), when applicable
- Revision Date (enter the date presented to the above)

Direct Costs

Include only those costs specifically identifiable for each fiscal year.

- Salaries and Wages – Show estimated budget totals for salaries and wages for full and part-time personnel under these categories, if and when applicable:

- o Research Supervisor
- o Professional
- o Sub-professional and technical
- o Student

- For each salary group, provide:

  - o Fringe Rate % - Percentage of the salaries and wages to cover all allowable benefits for the individual. The actual amounts are included in with the salary and wages amounts, it is not broken out.

- Subcontracts – A subcontract is as defined in Chapter 4, Section 4. For each expected Subcontractor provide an indexing number, include a brief description of anticipated work and a total   estimated cost per fiscal year.

  - o The first $25,000 of each subcontract is subject to indirect costs.

  - o However, the amount over $25,000 of each subcontract is excluded from Modified Total Direct Cost (MTDC).

- Equipment – Include each item of equipment or other tangible items to be purchased under the project for which the item or system cost is $5,000 or more. 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 and lists which tasks it is expected to be used for within Exhibit B.

  - o Equipment is excluded from MTDC.

  - o 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.

  - o City/State
  - o Purpose
  - o Total number of Trips
  - o 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 OMB Rule, 2 CFR 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, as noted on Itemized Budget, Exhibit A.

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 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 Itemized Budget - Exhibit A form.

Exhibit A 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 may be shown as the University's contribution to the project.

Contribution to lower the IDC rate by the University is not sufficient reason for charging normally indirect costs directly to a project as a direct cost.

MTDC covers all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel, and up to the first $25,000 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 $25,000.

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 A 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.

The fiscal year amounts on Exhibit A for each agency should agree with the fiscal year amounts included in the Project Deliverables table.

If there is a discrepancy between line item amounts and "total project cost" on an Exhibit A, 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 items 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 extramural funding source guidelines and requirements
- Identify and manage all operational aspects of targeted grant proposals, program development, and evaluation
- Assist in the development and implementation of specific programs and proposals
- Develop 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 work flow 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/integrality 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

Section 5
Project Description - Exhibit B

Overview

The Project Description– Exhibit B is comprised of several sections and defines the work to be completed by the University. All pages in Exhibit B shall display a footer with the proposal number (change to project number after award) and consecutive page numbers. The required sections, and one optional section, shall be presented in the order discussed within Chapter 3, Section 2 Overview. Use "shall" when describing Performing Agency actions and use "will" when describing Receiving Agency actions.

Taken together, sections in Exhibit B:

- present the essence of the project,

- describe the work to be performed,

- establish the deliverables due to TxDOT, and

- establish the schedule for completion of project work.

When preparing Exhibit B:

- respond clearly, directly, completely, and concisely to the Project Statement distributed in the RFP,
- do not include the University name on the header or footer,
- communicate how the project will be conducted,
- include relevant research considerations, and
- 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.

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

- AASHTO Standard Specifications
- TxDOT Standard Specifications
- Special Specifications

The best method to convey the research findings to operating personnel for use

- circulation of a written report

- personal contact with operating personnel

- demonstrations

- movie, slide, or videotape presentation

- field manuals

- 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.

The work plan for a research or implementation project shall contain at least the following information.

- How the project and each deliverable/ tasks will be managed.

- Principles or theories 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.

- An evaluation of the Technology Readiness Level (TRL) of the Project's subject matter, and a work plan to advance the TRL of the Project's subject matter in line with TxDOT expectations.

- Data analysis and statistical procedures.

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

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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.

For further information on the TRL system, please reference the FHWA Technology Readiness Level Guidebook, available at https://www.fhwa.dot.gov/publications/research/ear/17047/index.cfm

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 Deliverables Table. 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.

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

Mandatory Research Project Deliverables

Use the following standardized language in all contracts. This language accounts for deliverables required within all projects.

Value of Research:

"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.

Benefit Area	Qual	Econ	Both	TxDOT	State	Both
Level of Knowledge	X			X		
Management and Policy	X			X		
Quality of Life	X			X		
Customer Satisfaction	X			X		
Environmental Sustainability	X				X	
System Reliability		X		X		
Increased Service Life		X		X		
Improved Productivity and Work Efficiency		X		X		
Expedited Project Delivery		X		X		
Reduced Administrative Costs		X		X		
Traffic and Congestion Reduction		X			X	

		X			X	
Reduced User Cost		X			X	
Reduced Construction, Operations, and Maintenance Cost		X			X	
Materials and Pavements		X			X	
Infrastructure Condition		X				X
Freight movement and Economic Vitality		X				X
Intelligent Transportation Systems		X				X
Engineering Design Improvement			X			X
Safety			X			X

(The Project Manager should remove all benefit areas not selected by the Project Sponsor.)

The Performing Agency shall complete the Value of Research Template, and include it with a write up on the economic based calculations, a description of economic variables used within the calculations, and the qualitative values of the Project Sponsor's selected benefit areas.

The Performing Agency shall direct all benefit area data requests to the Receiving Agency's PM. A summarization of this information shall be included within the Project Summary Report (PSR) and a detailed analysis should be submitted as a separate section in the Research Report (R1).

Project Management:

The research team will 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 will be responsible for providing written meeting minutes following any project meeting at the request of the PM.

The documentation/deliverables/meetings will include:

- Technical Memoranda documenting project progress and findings for each task as defined in the Project Deliverables table (TM).

- A research report that completely documents the work performed, methods used, and results achieved at a minimum of one month before the Project Termination Date (e.g. R1) for review, revision and possible publication. A project summary report that highlights the key findings and recommendations from the research (PSR).

- A Close-Out Meeting (CO).

- A Close-Out Video (COV)

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

The deliverables associated with the project management task, R1, PSR, shall be delivered via email to RTIMAIN@txdot.gov , copying the RTI Project Manager per the Project Deliverables Table."

A 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."

Project Deliverables Table

The Project Supervisor ensures that the project adheres to the Project Deliverables Table. All deliverables anticipated or required from the project should be shown on the Project Deliverables Table.

Each Project Deliverables Table should be prepared on RTI's provided form, available on the RTI website.

The Project Deliverables Table includes a forecast of a fiscal year's spending on a project. All required major deliverables are to be listed on the Project Deliverables Table by the associated Task of the Work Plan of Exhibit B. The budgeted amounts from Exhibit A should be spread out amongst the twelve months within the fiscal year (September – August). The Task within each fiscal year should add up to the total for each fiscal year in Exhibit A.

Complete the following on the Project Deliverables Table:

- Project #: initially the Proposal # before award
- Project Name
- Primary, secondary Agency Abbreviation(s)
- Version
- Task (from Exhibit B, Work Plan). Subtask: the scheduling of time to complete the task from beginning to end; are numbered 1.1, 1.2, 1.3, 2.1, 2.2 etc. for each line
- Agency #: agency responsible for the deliverable
- Deliverable: minor deliverable shall be listed as Monthly Progress Report/Task Activities, a Major Deliverable is as assigned in Exhibit B; the Major Deliverable is listed as the last deliverable in a Task. Subtask series.
- Due Date (Budgeted Month End): Date that a deliverable is due, the end date of a month that actual expenses are billed to on the Invoice Report, after the corresponding deliverable has been received by TxDOT; All deliverables are due the last day of the month, but minor deliverables have a three (3) business day grace period.)
- Monthly Budget Forecast: the budgeted dollar amount of the associated month for subtask
- Comments: include any associated comments of a deliverable
- FY/ Months: mark the month corresponding to the due date of the Task/Subtask on the schedule portion of the Project Deliverables Table.

Once a specified month's deliverables has been received, an Invoice Report for that month may be submitted to 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 Project Deliverable Table will be requested by TxDOT before the Project Agreement is executed.

Use RTI's (Excel) form, provided on the RTI website. The RTI form's legend distinguishes between the original, revised and completed work on the Project Deliverables Table.

The fiscal year amounts on Exhibit A for each agency should match the Project Deliverables Table amounts by fiscal year.

Section 6
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 is limited to no more than 10 pages, and is prepared free form text. Page number this section separately, beginning with "1 of X". Start and end this section on pages separate from all other sections of 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.

Section 7
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

Table of Contents

Section 1
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 RFP.

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 of the Project Statement.

Project Review Board Approval

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

Revisions to the Proposal

The awarded proposal may require modifications and enhancements to become a Project Agreement. Revisions requested can be administrative and/or technical. Each revised proposal will:
- Carry a new date on the Cover Page.
- Clearly mark all revised language.
- Be coordinated through the University Liaison and a RTI Contract Specialist.

After all revisions have been approved by TxDOT, RTI will request a signed copy of the Project Agreement from the lead University Liaison. Before execution by the University (ies), all highlighted revisions will be incorporated, or "accepted" into the Project Agreement.

Section 2
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.

In the event that the initial project activation covers only portions of the project, the Activation Letter will state which work tasks are not yet approved, and researchers will not begin work on those tasks. RTI will issue a subsequent Activation Letter when that work is approved to start. Work on unapproved tasks will not be reimbursed by TxDOT.

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 will 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.

Section 3
Modifications

Project Agreement Modifications

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

Requirements for a Modification

Utilizing the most recent forms available on the RTI website, submit a Change Request Form to the project's PM when a Modification of a Project Agreement is required.

Modification forms shall include, at a minimum, 1) information on changes to the agreement, 2) a justification for the changes, and 3) an explanation of the impact if the Modification is not implemented. Enough information must be provided to enable TxDOT to make an effective and realistic initial evaluation of the request.

The explanation of why the agreement needs to be modified should also 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 Modifications on 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?
- What will happen if the Modification is not approved?

Changing the Project Supervisor

When a Project Supervisor leaves a project, finding a replacement is critical to continued project work. If advanced notice is available, and as soon as possible, the Project Supervisor or University Liaison will notify the RTI PM that the Project Supervisor is planning to leave the project, along with an estimated date of departure.

The University will develop a plan to continue the project and submit 1) the Continuation Plan and 2) a nomination for the Project Supervisor's replacement to RTI. The Continuation Plan shall include the following information:

- When and how the University intends to deliver project documentation.

- Name and professional background of the nominated Project Supervisor.

- The nominee's 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 Project Supervisor, renegotiated or terminated. They 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 Project Supervisor, and

- any other relevant information.

Submitting a Modification Form

The University will submit a Modification Cover in response to a request from RTI. The Modification Cover document provides the details about what terms in the Project Agreement need to change, and how. Other updated forms should be included, as necessary. The Contract Specialist on the project will send the request to the lead University Liaison after the Modification has been conceptually approved within TxDOT and funding has been identified. If the changes proposed to the Project Agreement are approved, and funding is secured, a RTI Contract Specialist will request that the University sign the Modification and send the partially executed agreement to RTI for final execution.

Normally, the last date in each fiscal year that RTI twill request a signed Modification is August 1st, with the signed Modification due back to RTI by August 15th. These deadlines allow adequate time for final processing before the end of the fiscal year. These deadlines are particularly critical for any terminating projects, as terminated Project Agreements cannot be modified.

Preparing a Modification Form

The Modification Cover Page is the signature page. Language on the Modification Cover must either specify the new contract terms, or incorporate these terms by reference. All documentation associated with the Modification shall be attached to the signature page. Most items on the form parallel items on the Project Agreement Cover Page, and are self-explanatory. The following discusses those items which are unique to Modifications.

- **Numbering Modifications** – Number the Modifications in sequence, starting with "1". The sequence continues through the life of the agreement.

- **Document Dates** – Each Modification, and each respective Modification version, will be uniquely dated. Each document will carry the date it was developed or last edited. The date distinguishes that document from other versions of that particular Modification, and from any other agreement document for that project. Attachments to the Modification signature page do not need to be separately dated.

- **The "revision date"** fields on the Itemized Budget and Project Deliverables Table are used when those documents are updated to provide more current information or clarification, and are not a critical part of a Modification.

- **Language on a Modification Form** – The forms that RTI distributes to University Liaisons include a file with example language for common scenarios that arise when agreements need to be modified. Basic language is included for the scenarios listed below, along with tips about other parts of the agreement that may be affected.

- **Budget Modification**

  o Increase to annual and total budget

  o Moving budget from one University to another, no change in Total Budget.

  o Reducing budget in one year, increasing in another year, and no change in Total Budget.

- **Project Duration Modification**

- **Research Supervisor Modification**

- **Project Deliverables Table Modification**

- **Add, Delete, or Revise Tasks**

  o Minor revisions to a task(s) – new Work Plan not attached.

  o Major revisions to a task(s) – new Work Plan not attached.

  o Add a task – new Work Plan not attached.

  o Delete a task – new Work Plan not attached.

  o Revise tasks – new Work Plan is attached.

  o Add tasks – new Work Plan is attached.

Marking Changes in Attachments

When attaching documents to the Modification to show what specific terms of the Project Agreement are being changed, clearly mark all modified language.

Each Modification will highlight only the changes being made in the respective Modification. Changes approved in previous Modifications will be incorporated, or accepted, into the Project Agreement before developing the current Modification. Mark the current changes in simple ways. Common acceptable techniques include underlining for additions and strikethrough for deletions.

As with all Project Agreements, use information in the footer, such as the project, modification numbers, and page numbers, to clearly identify the Modification.

Work Plan Rewritten

Occasionally, changes needed to a Work Plan may be so extensive that a complete rewrite is needed. In those situations, the language on the Modification signature page will state include language similar to the following: "The Work Plan is deleted in its entirety and replaced with the attached."

Changes in the Work Plan are not highlighted in this situation. Rather, the following notice will be included at the beginning of the Work Plan:

- **Significant Modification** – This is a significant modification of the Work Plan. Changes are not highlighted and some previous material may have been removed. This Work Plan must be reviewed in its entirety.

Project Agreement Rewritten

In rare cases, the entire Project Agreement may need to be rewritten. In those rare cases, a new Project Agreement form, rather than a Modification form is to be used. Review the requirements for Project Agreements in general, and pay particular attention to these items.

- **Cover Page** — The heading on the cover page will state "Modification No._____" before the "Project Agreement" line. This Modification will be numbered in sequence with all other previous Modifications for this project.
- **Notice of Rewrite** — No highlighting of additions and deletions is necessary. Instead, a notice similar to that shown above for a rewritten Work Plan will be included at the beginning of the Cover Page.

Modification Activation

Once a Modification 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.

Modification Activation Lists

Once a Modification has been executed by TxDOT, the University Liaison for each University will receive an activation list which accompanies an activation letter and reflects any changes for each project.

Section 4
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, not to determine the adequacy of the contract provisions. 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.

- Before a University plans to subcontract, they should make a realistic assessment of whether the work can be done by another Texas state-supported university, if not 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 should be disclosed to the PM and the Contract Specialist

If a Project Agreement mentions a subcontract, but does not clearly describe the work the subcontractor is to do, execution of the agreement by RTI does not serve as evidence of RTI concurrence. The University will need to request specific concurrence for that subcontract. A

written statement of concurrence from RTI will include at least the project number, the name of the subcontractor, and a brief description of the work the subcontractor is expected to perform. RTI's concurrence covers only the work identified. This explicit concurrence most typically happens when the need for a subcontract was not known, or not disclosed, in the Project Agreement. In such cases, submit subcontracts to RTI for review at least ten (10) business days before execution of the subcontract.

Chapter 5
Managing the Project

Table of Contents

Section 2
Project Agreement

Project Agreement

Project work will 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 that may have taken place in a pre-proposal meeting, or in negotiations after a proposal is selected, 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 Budget

See Chapter 4.

Section 2
Project Supervisor Responsibilities

Project Work

The Project Supervisor has the primary responsibility to TxDOT for the conduct and completion of all project tasks and work. The Project Supervisor 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 Project Supervisor is responsible for seeing that all required deliverables meet TxDOT's standards and are delivered in a timely manner. Deliverables shall be submitted electronically to RTIMain@txdot.gov, copying the RTI PM. RTI encourages the Project Supervisor to seek assistance from other University personnel, including professional editors, to help meet TxDOT's standards for quality and timeliness of deliverables.

Status Reports and Tech Memos

The Project Supervisor 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** – Monthly Progress reports are due on the last day of the month and have a three (3) business day grace period.
- **Technical Memorandums** – 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 Project Supervisor 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 Project Supervisor 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 Project Supervisor 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

- Prior to out-of-state travel, a request for University Out-of-State Travel on Form No. 2632 is required for TxDOT's approval, if the travel will be charged to an RTI project.

Roadside Safety

Each university must follow TxDOT's Handbook of Safe Practices, including wearing hard hats, safety vest and steel toe shoes, or other appropriate safety attire, when working within the TxDOT right of way.

Coordinate all traffic control needs and plans with the TxDOT district, when applicable. Ensure submittal of request for TxDOT assistance to RTI is submitted at least two (2) weeks in advance of the work to help ensure TxDOT assistance.

Submitting Questionnaires and Surveys for TxDOT Review

A preliminary copy of all questionnaires and surveys expected to be used on a research project must be submitted to RTI before being used in the field. RTI will coordinate a review by the Project Team, and other appropriate TxDOT personnel. The Project Supervisor is responsible for submittal to the RTI PM.

TxDOT reviews surveys to ensure objectivity and verify that surveys do not offer incentives to participants. TxDOT will not support paying participants to complete surveys.

Submitting Papers (and Presentations) for TxDOT Review

Prior to publishing or submittal of a paper or presentation to a professional journal or conference documenting work on a TxDOT sponsored project, the Project Supervisor must receive approval from RTI PM. In this context, publishing includes posting material on a non-secure Internet site.

If the paper or presentation contains subject matter or technical findings substantially similar to those in a deliverable that TxDOT has already approved, another TxDOT review is not needed. A courtesy copy shall be sent to the RTI PM, to help keep everyone aware of Project activities. If the paper or presentation contains significant technical findings that have not been approved by TxDOT, TxDOT's approval is needed prior to presentation.

When the preparation schedule does not allow adequate time for TxDOT review and approval, send an abstract of the material to RTI, along with a notice of when and where the material will be presented. RTI will coordinate TxDOT's review and approval of the abstract. The paper or presentation must then include a disclaimer that TxDOT has not reviewed the findings. A copy of the completed material shall be submitted to RTI as soon as possible. If there is sufficient time before the material is scheduled to be presented, TxDOT will review the material, and the disclaimer may be removed.

Section 3
Technical Memorandums Standards

Overview

Project Agreements include provisions requiring the Project Supervisor 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 Deliverables Table. Typically this date is the final day of the month at the end of the respective task.

Contents

Tech Memos will 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 Project Supervisor 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 any University personnel.

- **Each Tech Memo will 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 will be submitted to TxDOT on or before the due date per the Project Deliverables Table.** If a task is scheduled to be conducted over a period of many months, the Project Supervisor or the Project Team may decide that an interim Tech Memo would benefit the project and will request this from the Project Supervisor.

How to Submit

Tech Memos should be sent electronically to RTIMain@txdot.gov, copying the RTI PM. Tech Memos are typically submitted to TxDOT by the Project Supervisor. Other University personnel may submit Tech Memos with the approval of the Project Supervisor.

Chapter 6
Deliverables

Table of Contents

Section 1
Submission, Review, and Publication

Deliverables Required on Each Project

The Project Deliverables Table specifies the deliverables due to TxDOT. The requirement for a deliverable and its due date will only be changed by modifying the Project Agreement.

Value of Research (as part of R1)

The initial version of the Value of Research (VoR) should be included in the Project Agreement as the first deliverable. 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 Project Sponsor's selected benefit areas within a Tech Memo.

- The VoR for TxDOT and the State of Texas shall be determined for all projects. Value turns the subjective into the objective, which can often turn uncertainty into support. It also builds stakeholder support for projects and to further research if new phases or possibilities arise. It can also uncover additional benefits. Determining value services practitioners to investigate benefits that might not have seemed obvious at project inception.

VoR Benefits

The Project Sponsor will select and "define" the benefit areas below.

The VoR benefit areas are as follows.

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

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.

Complete the following on the VoR Template:

'Benefit Area 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 #

- 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 completed on a monthly basis and completed on the latest template available at RTI's website. 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

- 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 Deliverables Table, and are to be submitted to RTIMain@txdot.gov, copying the RTI PM.

Technical Memorandums

Project Agreements include provisions requiring the Project Supervisor to submit a Tech Memo in association with a task to 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, copying the RTI PM per the Project Deliverables Table.

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 Deliverables Table. For those products where the Project

Deliverables Table specifies another location for delivery, the formal notice to RTI meets this submission requirement.

TxDOT Review Process

The 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 Project Supervisor.

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

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 and 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

Publication and Reproduction Costs

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 five hard copies of any approved report or product, at TxDOT's expense. 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.

Section 2
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 DOT F 1700.7 form will be included in each technical report. The 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.

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. 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 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.

Section 3
DOT F 1700.7 Instruction

Technical Reports

- Box 1, Report No. — Enter as FHWA/TX-09/0-1234-1, where:

    o FHWA = Federal Highway Administration,

    o TX = Texas,

    o 09 = year the report is approved,

    o 0-1234 = entire project number, including suffix if used on contract,

    o 1 = usually the Deliverables Table 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 Deliverables Table, 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."

- Boxes 19 and 20, Security Classif. — 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 Deliverables Table, 0-1234-P2 for example.

- Box 13 — Indicate "Product", and do not include a "period covered".

- Boxes 18, 19, 20 — leave blank.

Section 4
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.

Section 5
Product Standards

General

Products are intended for implementation within TxDOT operations. The Project Deliverables Table 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 Deliverables Table 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.

Construction Specifications

- Format — 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.

- Other Specifications Format — The required format for delivery of specifications, other than construction specifications, will typically be stated on the Projects Deliverables Table in 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 shall 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 — The format in which the training material will be delivered is specified on the Project Deliverables Table. For a specific training module, multiple formats may be required, such as student notebooks for a workshop, hard copy and electronic instructor material, 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.

Close Out Video

- Quality — A recorded webex with a single speaker with an accompanying power point

shall be used to document the completed research work.

- Content – Video should run no more than 15 minutes, unless otherwise permitted by the PM. Content should briefly highlight the technical concepts addressed in the Project, the findings of the Project and present contact information for the research team.

- Review — 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 Section 3 of 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

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Section 1
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.

- 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 Itemized Budget – Exhibit A.

- 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.

- 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.

Cost Control

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.

Equipment

Refer to Section 2 of this chapter for requirements related to purchasing and safeguarding equipment purchased under RTI projects.

Supplies

"Supplies", in this context, means tangible 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 Itemized Budget Exhibit A. 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 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.

Section 2
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 200.33- Equipment, 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. See also 200.12 Capital assets, 200.20 Computing devices, 200.48 General purpose equipment, 200.58 Information technology systems, 200.89 Special purpose equipment, and 200.94 Supplies."

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 property 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 by being specifically identified on the approved Itemized Budget Exhibit A for the project. 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 Itemized Budget - Exhibit A.

Procurement Reporting

Universities report equipment purchases to RTI through:

- their billings that include these costs. For details on the information required, see Section 3 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 RTI 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.

Property Management

The University must maintain effective property records for all equipment purchased under RTI projects and still in the University's possession. Effective inventory records typically include:

- A clear description of the equipment

- Serial number, model number, date of manufacture, or other available manufacturer's identification information

- State or university property identification number

- Source of the equipment, including the RTI project number

- Name of entity holding title

- Date purchased (or date received if furnished by TxDOT or the Federal government)

- Cost of the equipment

- Location of the equipment

- Condition of the equipment and last inventory date

- Disposal data, including date and price

Universities are responsible for properly tagging, maintaining, and securing equipment. 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). Loss, damage to, or theft of equipment should be investigated by the

university, fully documented, and reported to RTI.

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, performs physical inventories, and monitors each University's inventory process. During physical inventory, RTI will tag equipment in the University's possession as belonging to TxDOT if the equipment was not previously tagged.

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.

Section 3
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. Late-invoicing penalties are waived on expenses   under $500 and are waived altogether if the penalty total on an invoice is below a $50 minimum threshold.

Electronic Format

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

- o   By email to RTI_Invoices@txdot.gov, if the email and attachment together are smaller than 15 megabytes.

- o   Larger files can be sent to RTI through TxDOT's drop box service, available at https://ftp.dot.state.tx.us/dropbox.

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

- In order to save data storage space, PDFs are scanned in black and white, not in color

- Excess supporting documentation beyond requirements (see "Supporting Documentation" below) is removed.

- Invoices should only be submitted after the corresponding deliverables have been received by RTI.

- For Deliverables Base projects, the Invoice Report form has been completed and the Invoice Total is correct.

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.

For equipment which was not received by the end of the fiscal year to be billed, also send a copy of the purchase order awarded during that fiscal year.

*NOTE: Based on requirements in 2 CFR 200.343 through 200.345 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 for Deliverables Base or Traditional projects. 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 Report form (available at RTI's website) with the following required fields and   sections completed:

- Project #

- Project Title

- Agency

- Agency Invoice #

- Invoice Total

- Salary/Wage Information Section

- Month/Year being invoiced (Deliverables Base only) – The Month/Year must fall within the active dates of the project

- Expenditure Information Section (Deliverables Base only)

- Fiscal Year Budget Section (Deliverables Base only)

In addition, invoices for non-Deliverables-Base projects should include, on the university invoice cover pages:
- Billing Period. The billing period must fall within a single fiscal year, and within the active dates of the project,
- Cumulative fiscal year-to-date amount, including the current invoice.

Supporting Documentation

Break-out pages detailing all expenditures/charges on the invoice, including amount, date 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,

- 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

Documentation of salary charges to clearly show:

- who worked on the project that billing period,

- total cost charged for each person,

- pay period, and

- monthly or hourly rate of each person working on the project. (Show salary rates by directly stating each person's rate in supporting documentation, or by showing the percentage of monthly time or number of hours being billed.)

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. For charges under $250, 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. For charges under $250, if a vendor invoice or receipt is not available, another form of documentation would still be required.

Documentation for equipment purchases

Send evidence that the equipment has been added to the University's inventory system, such as a screen print from the university or state property accounting system, or other documentation showing:

- Description of equipment, including make, model number, and serial number if available
- university equipment number
- date of purchase
- current location of equipment
- picture of equipment and any components

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. For outside service charges under $250, 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.

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 covered under a line item in Itemized Budget Exhibit A. If there are questions, the PM will contact the Project Supervisor 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.