NCHRP Project No.20-44(34)

Successful Practices for State Transportation Research Office's Complying with 2 CFR § 200

FINAL REPORT

Prepared for

National Cooperative Highway Research Program

Transportation Research Board

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1. Lessons Learned and Recommendations for 2 CFR § 200

The Office of Management and Budget's (OMB) Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards Code provided in Title 2 Section 200, of the Code of Federal Regulations (2 CFR § 200) [Uniform Guidance] is the cornerstone of Federal grants and financial assistance. This cornerstone provides several key lessons and improvements for managing and monitoring research activities. The objective of this report is to outline common observations and provide gap assessments for five State Transportation Research Offices (New Jersey, Missouri, Mississippi, Montana, and California) to be in compliance with 2 CFR § 200. This document contains common observations of strengths and opportunities across the five states, while providing an in-depth analysis of each state's compliance with 2 CFR § 200. We also provide a benchmarking assessment of the states in relation to their implemented and planned efforts.

The project originally was to include a peer exchange focused on this topic. As of February 2023, this peer exchange had not been scheduled.

1.1 Common Observations:

Risk management and assessment could be improved among the five states.

Uniform Guidance requires that a risk management approach is adopted in the awarding of federal funds. For many state TRO's, risk management framework and documentation, subrecipient monitoring, and penalties for high risk performing organizations are not adequately documented in the materials reviewed. To achieve a high benchmark for 2 CFR § 200, there is a need for organizations to adopt a risk management approach by providing risk assessments on subrecipients, documenting penalties for high risk performing organizations, and considering approaches for non-award due to poor performing organizations or PIs. It was observed that most states did not include regular risk assessments in their program management and award processes.

Subrecipient monitoring is not common in the transportation research management community.

State TRO's need to complete risk assessments on subrecipient entities for federal funds. While regular meetings and progress meetings are generally held, more information needs to be collected and better documentation needs to be included. States included in this sample do have varied approaches to subrecipient monitoring. There is very little consideration of the differences in awarding process for subrecipients versus pass through entities. Generally accepted accounting principles (GAAP) information needs to be collected from subrecipients. State research programs rarely have any pass-through entities involved in their programs.

Internal processes may not be publicly and transparently documented.

Some state TRO's may have internal processes, timelines, and documentation to address Uniform Guidance, such as preliminary risk management approaches or reporting procedures. These approaches, processes, and templates, as they exist, need to be publicly and transparently documented to abide by open

and fair competition. In nearly all cases, we identified that there are internal activities that are not documented.

2 CFR § 200 is not specifically mentioned

Generally, state TRO's, in research manuals and other technical documents, do not explicitly mention 2 CFR § 200 in relevant section. In areas containing other federal laws and requirements that relate to the research and procurement process, 2 CFR § 200 and Uniform Guidance is not explicitly mentioned.

Project scheduling and closeout concerns

Previous work has indicated that research is unique and can't be forced into a schedule and project cannot be closed out if a university or other performing organization is waiting on invoices. Many states do not have access to a documented template for kick-off meetings. Project scheduling should include potential impediments to minimize the need for time extensions and time and task order extensions must be adequately documented to adhere to Universal Guidance. There is a preferred practice of six-month lead times before the end of period of performance for project closeout tasks.

Reporting is generally clear and follows a set schedule.

Timeline for reporting and providing required documentation is generally well-documented across the TROs. Template quarterly project reports have been created and are easily accessible.

Grounds and process for project termination are unclear.

Projects may need to be terminated for a variety of reasons. Documentation about reason and process for project termination is generally lacking in research manuals. Accountability measures should include termination activity. Very few projects have been terminated among the states in our pool here.

Research may be improved through process technology transfer.

Research is unique. Different state TROs perform well in different aspects of complying to Uniform Guidance. A transfer of information, processes, and practices from the five surveyed here has a potential to improve the research and procurement process, especially as it relates to 2 CFR § 200. Despite efforts to understand how to successfully implement research in the context of 2 CFR § 200, there is still a need to understand the specific roadblocks to research implementation across the U.S and the extent that State DOT research programs are impacted.

Data collection efforts as they relate to 2 CFR § 200 could be improved.

Data collection efforts, aside from wide-ranging performance indicators and measurement, is generally not an integral part of the research management culture. There is relatively little information collected on research delivery, compliance with established policies, no-cost time extensions and performance measurements. State TROs are collecting and storing data, but this process could be improved to better enhance performance management and decision making. We strongly recommend consideration of a follow-on effort to collect more data related to compliance.

1.2 Recommendations

As a result of the work completed under this project, we offer the following recommendations for other state TROs.

- Formalize and adopt risk management approaches including documenting penalties for high risk performing organizations and creating approaches for non-award for poor performing organizations or PIs.
- Formalize data collection and performance measurement to easily compare and assess project performance.
- Formalize and adopt the grounds and process for project termination; follow through with project termination if warranted.
- Explicitly mention 2 CFR § 200 in research manuals and other related technical documentation and guidance – some states are making progress in this area now.
- Formalize and adopt subrecipient monitoring including collecting GAAP information.

The rest of this document includes specific recommendations for each of the to five State Transportation Research Offices, New Jersey, Missouri, Mississippi, Montana, and California, including a preliminary implementation guide and gap needs analysis table.

1.3 State Implementation Guide and Gap Needs Analysis

As part of the project efforts, the team collected baseline information needed to properly document and assess current practices as they relate to 2CFR§200 implementation for each of five target states: California, Missouri, Mississippi, Montana, and New Jersey.

Throughout this report, we will provide a reference against the documented preferred practices provided under the NCHRP Report 20-111J implementation guidance.

The steps associated with the implementation guidance are:

1. Collect stakeholder inputs to develop strategies or policies that reflect multiple viewpoints. It also provides some sense of ownership for the research monitoring, reporting, and related activities. This consultation will also allow a research manager to advise subrecipients of requirements imposed on them by federal laws, regulations, and the provisions of contracts or grant agreements as well as any supplemental requirements imposed by the grantee.

2. Tailor policies to the needs of your research office, including recognition of existing legacy practices and norms. The implementation of improved research management practices cannot be viewed as a one size fits all approach. Ultimately, the policies are not cut and paste jobs and are not lifted straight from a generic manual.

3. Document policies and procedures in writing and make them available to your entire workforce. Without a written and published guidance document, there is no clear and consistent approach among all affected parties. The documentation effort also allows for easier interpretations when conflicts arise.

4. Provide training and workforce succession to both internal staff and your key performing organizations. Complying with these changes is likely to modify or create new business practices or management processes. At a minimum, new project tracking and reporting is required. Providing training also allows for new employees in the unit to quickly ascertain corporate culture and expectations.

5. Review policies periodically. As with many implementation practices, the ability to adopt continuous improvement philosophies creates improved practices and processes.

6. Enforce consistently. A research manager must ensure that a subrecipient or non-federal agency expending $750,000 or more in federal awards during their fiscal year has met the audit requirements of 2 CFR § 200 for that fiscal year in accordance with the provisions of Subpart F—Audit Requirements. They also need to be consistent in operations approaches with all sub-recipient partners. While not forbade in the 2 CFR § 200 approach, several regulatory approaches have been used.
7. Act according to the new approaches. While monitoring and enforcing can be achieved without changing practices, the charge for research managers is to adopt new practices that help improve their own state programs, but also change the way vendors and contractors operate as well.
8. Monitor the activities as necessary to ensure that research funds are used for authorized purposes in compliance with laws, regulations, and the provisions of the contractor or subrecipient agreement and those performance goals are achieved.
9. Consider routine updates as needed to continually improve research program management practices. For each related tenet, the guide provides a general overview and description, some preferred practices or recommended processes identified in the literature or through other research, and implementation challenges that have emerged in that task area. The intent is to provide some level of resources and understanding for the implementation and compliance with 2 CFR § 200 tenets.

Each of these steps will be reviewed as part of the overall gap assessment and considerations for progress. assessing their current progress against 2 CFR § 200 principles.

1.4 Benchmarking

The guidance for implementation studies recommended that as part of the gap assessment, states consider where they are in relationship to the benchmarks identified in the 20-111J: Successful Practices for State Transportation Research Office's Complying with 2 CFR § 200 report. The benchmark information is compiled for each state in their individual summaries.

Table 1: 2 CFR § 200 Benchmarking Assessment

2 CFR § 200 Component	Low Benchmark	Moderate Benchmark	High Benchmark
Risk Management	No risk-based analysis is provided	Proposal review considers past performance Technical panels are tasked with review	Risk assessments on subrecipients Penalty for high risk performing organizations
Project Scheduling	Regular award of NCTE Unrealistic scheduling		All data stored Data stored in a functional data lake architecture Data stored as long as possible to support current and future analyses Data stored in a well-known, modern format
Closeout	Reports arrive on final day of contract Manual process for coordinating financial matters No documentation of processes	Automatic triggers upon receipt of final deliverables Inclusion in research manual or contract boilerplate	6-month lead times Expectations provided in kickoff meeting and separately documented
Data Collection/ Management	Little or no data collected Data collected is not relevant No data quality assurance performed No documented data collection procedures	Some, but not all, data collected Data collected is somewhat relevant Documented procedures are infrequently reviewed and updated	Most or all desired data is collected Data collected is used for decision making and performance tracking Process documentation is reviewed and updated

Reporting	Minimal reporting requirements Minimal time and effort used for review		Quarterly reports, supplemented by regular project reporting throughout the life cycle Financial progress monitored against research performance
Subrecipient Monitoring	No documented processes Reliance on self-monitoring		Regular review of subrecipients including site and desk reviews
Project termination	No project terminations.	Limited willingness to discontinue projects.	Accountability measures include termination activity
Linking Financial Information to Research Outcomes	No connection between financial tracking and research performance		Financial reporting included in progress and final closeout documentation Strict adherence to budget parameters as possible Good collaboration between financial offices and research unit
Training Needs	None identified. None offered.		Training regularly offered Training provided for research customers and research managers
General Advice	No documentation maintained No communication or outreach to performing organizations. No communication with division offices	Limited FHWA-division office communication	Developed relationships and network with principal investigators High level of interaction and familiarity with division office staff

2.0 State Implementation Preliminary Study and Gap Assessments

2.1 New Jersey Implementation Guide

The New Jersey Department of Transportation's (NJDOT) research staff works directly with university and other research professionals to find workable solutions to problems that affect the safety, mobility and accessibility of New Jersey's residents, workers, visitors, and businesses. The goal is to enhance the quality and cost effectiveness of the policies, practices, standards, and specifications that are used in planning, building, and maintaining New Jersey's transportation infrastructure.

This section addresses the preliminary findings and benchmarks based on a review of the documents provided by the New Jersey Department of Transportation. As with most efforts to implement new approaches and strategies, there are several things that an agency can do to facilitate effective implementation. The assessment and initial scan of topics was prepared in the Fall of 2021.

Information Review

To complete the task, the research team collected standard research agreements, research manual information, selection processes, and other details necessary to align with 2CFR§200 activities. We have completed detailed analysis of existing research program websites to collect relevant forms and research management guidance. Additional information was provided by the New Jersey DOT Panel Member.

The documents reviewed included:

- Research Process Improvement and Regulatory Compliance Updates
- Research Procedures Manual 2018
- Guidelines for Preparing NJDOT Research Final Reports and Tech Briefs
- Research Proposal Guidelines
- Research Basic Agreement
- Quarterly Report Template
- Quarterly Meeting Schedule Guide

Our team also completed a review of website documentation posted at https://www.state.nj.us/transportation/business/research/. A general internet search query was initiated through Google that provided summary information on NJDOT sponsored workshops, research showcases, and other collaborations with Rutgers University.

2 CFR § 200 Foundations

To properly assess the state's responses and preparation for the gap assessment, a series of foundational principles are reviewed in each state.

Accountability Basics and Performance Management

Performance Accountability and Federal Awards

Performance measures provide useful baselines for assessing accountability. Many components of the Federal Government Performance Plan are required by the Government Performance and Results Act Modernization Act of 2010. The legislation creates a more defined performance framework by prescribing a governance structure and by better connecting plans, programs, and performance information. The law requires more frequent reporting and reviews (quarterly instead of annually) that are intended to increase the use of performance information in program decision-making. Further the implementation of the GPRA Modernization Act allows for a rebalance of compliance efforts with a focus on results for the American taxpayer; standardization of grant reporting data, and improved data collection to increase efficiency, promote evaluation, reduce reporting burden, and benefit the American taxpayer. Ultimately, a performance-based approach will provide a means to measure progress and share lessons learned and best practices to inform future efforts.

Current practice in New Jersey

The NJDOT Research Manual provides dozens of references to 2CFR 200 practices and tenets. For example, the Manual highlights the NJDOT Approval Authority Schedule for the FHWA-Sponsored Research Work Program by specific budgetary changes and provides sound support of federal award management.

Approaches to Performance Management

Implementing a Performance Measurement System

There are currently no uniform metrics collected by a state TRO to assess performance of the research enterprise. To fully implement a performance measurement system, a state TRO needs to adopt overall performance reporting, monitoring, and management practice.

A first step is to identify what data will be collected – and determine how that data fulfills broader agency goals and objectives. The identification of data to monitor and measure against objectives to achieve is a vital element of a performance measurement practice. Performance measures benchmark accomplishments against historical or international measures and advocate for particular actions. These measures show how programmatic improvement or decline occurs.

> *Preferred practice: use performance measurement to assess how to track the progress of strategies in place and use performance management to understand how to manage the strategy put into place.*

Current practice in New Jersey

Section 5 of the Research Manual provides detailed information on the performance tracking, monitoring, evaluation, and reporting associated with the research enterprise. This includes research project tracking measures, quarterly progress meetings, and final reports.

Data Collection and Analysis

State TROs collect a variety of data on the health and general direction of their programs. This data can include information on progress reporting, budget expenditures, personnel hours expended, implementation statistics, and a range of other leading and lagging performance indicators. Most of the data collection requested under Uniform Guidance is related to audit information.

> *Preferred practice: use a variety of data measures and indicators to assess program healthy and compliance. Different types of data such as leading, lagging, and diagnostic measures allow for more varied analyses both internally and externally.*

Current practice in New Jersey
The Bureau tracks project activity benchmarks and calculates performance measures such as completion time, product delivery timeliness and document processing efficiency.

Reporting Process

Non-Federal entities are required to submit performance reports at intervals no less frequent than annually nor more frequent than quarterly. This reporting requirement allows for effective and regular controls for progress monitoring.

> *Preferred practice: regardless of the time periods addressed in progress reporting, the project manager needs to communicate directly with the performing organization principal investigator to address concerns or questions and circumvent potential disruptions to schedule or budget.*

Current practice in New Jersey
Annually, each research project manager generates project activity sheets that summarize the anticipated deliverables satisfying project objectives for each of their projects in the State Planning & Research (SPR) work program. Project sheets and budget summaries are used to determine funding needs in the upcoming fiscal year. This annual report is compiled and regularly monitored.

 Considerations for Performance Measurement and Management

> *Preferred practice: use kickoff meetings as a jumping off point for establishing expectations, questions, and concerns about project plans and can also help to engage stakeholders early on in the project progress.*

Current practice in New Jersey
Research project managers generally complete a kickoff meeting and clear guidance is given to performing organizations. Additional documentation for these meetings could be included in the research manual.

Procurements and Cost Principles

Procurement activities for the transportation research office generally follow state agency purchasing procedures. Procurement is a critical component of federal cost principles. To address Uniform Guidance,

all procurement procedures must be fair, open, and well documented. All purchases must follow specific written procedures and should be approved by an appropriate responsible party.

In practice, TROs must ensure their procurement activities are completed using permitted approaches. Most research will fit into either the small purchases or competitive proposal categories. When using the non-competitive proposal or sole source options, TROs will need to provide a well-documented justification for not seeking competitive proposals.

There are many concerns with respect to procurement. The following situations are considered restrictive and as such, should not be used in the procurement:

- Placing unreasonable requirements on firms for them to qualify to do business;
- Requiring unnecessary experience, unreasonable insurance, or excessive bonding;
- Noncompetitive contracts to consultants that are on retainer contracts;
- Organizational conflicts of interest;
- Specifying a "brand name" product instead of allowing "an equal" product to be offered; and
- Any arbitrary action in the procurement process.

Preferred Practice: Document potential conflicts of interest; collaborations can potentially include conflicts of interest, which are mitigated by the disclosure of these collaborations pursuant to agency requirements and to document this material.

Current practice in New Jersey

After an extensive review, all conflicts of interest are addressed in the risk assessments protocol outlined in the research manual. NJDOT does not place unreasonable requirements on firms, excessive bonding, or non-competitive contracts. There are special provisions for an on-call quick assistance program that is competed periodically. Institutes of Higher Education are provided opportunities to compete. RFPs are posted on the NJDOT Research Bureau's webpage for final solicitation of proposals.

Terminology and Application

2CFR 200 does not change or modify any existing statute or guidance otherwise based on any existing statute. It does however, define and revise certain cost principles and terms used in award management. A State TRO must demonstrate strong internal controls. In accordance with 2 CFR § 200.302, state agencies must have financial management systems in place that include written procedures for ensuring all expenditures conform the Uniform Guidance Cost Principles.

Current practice in New Jersey

The research manual provides an extensive overview of terms and approaches as related to the 2 CFR § 200 activities.

Agency, Program, and Award Planning

Accounting Responsibilities

In order to properly maintain accountability and assure that funds are used for the transportation research purposes intended, a subrecipient needs to have certain policies and procedures in place that address budget, internal, and accounting controls. It is the responsibility of the state transportation research office to ensure

these controls are in place. Accounting controls address the processes in place to track what money is taken in and what money is spent. Having accurate and comprehensive documentation of revenue and expenses is a regulatory requirement, and it is also a necessary part of a subrecipient's organizational responsibilities. All accounting efforts should follow Generally Accepted Accounting Principles (GAAP). These uniform accounting standards exist to ensure consistency and transparency and can be understood readily by many. Most basic accounting software will meet these minimum standards, however, most transportation research performing organizations will have extensive project management systems. Accounting records for funds expended must be supported by original source documentation.

To meet regulatory requirements, a sub-recipient organization's accounting system should include at least the following elements:

- Chart of accounts: A list of account names and the numbers assigned to them
- Journals: A chronological listing of when funds were received, in what amounts, and from what sources and how much was paid, when, and to whom payment was made.
- Payroll: A chronological listing of payroll amounts, benefits, and payroll taxes
- General ledger: A comprehensive depiction, with details by account, of the activities recorded in each account of an organization. Entries transferred to the general ledger are cross-referenced to the applicable subsidiary journal or supporting documentation to permit the tracing of any financial transaction, thereby creating an 'audit trail.'

Current practice in New Jersey

We did not identify specific requests or collection of this information. However, based on the Section 3 information in the Research Manual, it is evident that the TRO could access this information on subrecipients.

Aligning Program Goals, Objectives, and Measures to Agency Goals and Priorities

Agency Priority Goals are a performance accountability structure of the GPRA Modernization Act that provides agencies a mechanism to focus leadership priorities, set outcomes, and measure results, bringing focus to mission areas where agencies need to drive significant progress and change. APG statements are outcome-oriented, ambitious, and measurable with specific targets set that reflect a near-term result or achievement agency leadership wants to accomplish within approximately 24 months. In some instances, agencies are also utilizing the APG structure to drive progress and monitor implementation of agency management reforms and priorities, a modification of the traditional APG statement format.

Current practice in New Jersey

We did not identify a set of specific goals and strategic planning associated with the research enterprise.

Pre-Award Requirements

Pre-Award Performance Measurement Requirements Under 2 CFR § 200

Typical approaches to pre-award requirement include financial review to ensure that recipients and contractors are financially capable and have the financial integrity to administer Federal funds in a research project.

Preferred practice: for non-Federal entities that have not received an award within the past 3 years be subject to additional financial review as part of the risk assessment exercise. State TROs can require subrecipients to include milestone plans with applications.

Current practice in New Jersey

Current practice provides collection of pre-award information in Section 1 of the Research Manual. No recommendations for changes are being considered at this time.

Risk Assessment and Evaluating Recipient Capabilities

Entities receiving federal awards are required to review and assess the potential risks presented prior to making an award (2 CFR § 200.205).

Preferred Practice: State TRO managers should regularly meet with key personnel from performing organizations and their offices of sponsored programs. These site visits and risk assessments provide valuable information for all parties and clarify expectations. In addition, these partnerships provide forums to address minor problems before they turn into larger concerns.

Current practice in New Jersey

As per 2 C.F.R. § 200.331, NJDOT is responsible for monitoring activities of the award recipients and their subcontractors as necessary to ensure that the:
- sub award is used for authorized purposes
- sub award performance goals are achieved, namely deliverables and completion of the final report package, in accordance with contract language
- financial status reports are accurate, complete, and submitted in a timely manner
- final invoice with contract closure language is submitted within 90-days of the end of the contract
- completed projects are closed timely in the federal accounting system

Other Requirements

Pass-through entities are treated differently as subrecipients of Federal funding. The distinctions throughout the UG has been confirmed in FHWA interpretations. As such, pass-through entities must accept an indirect F&A cost rate negotiated with a federal agency or notify the OMB as to why the negotiated rate is not accepted and make publicly available the criteria to support the deviation. In a state where there is a negotiated rate amount, it would only apply in cases where the university is performing contracted work. If the funding allows for substantial independent work, the state TRO would need to contact USDOT for additional guidance.

> *Preferred practice: become familiar with the SAM and ensure that performing organizations are included. Additionally, develop and document your organization's policies and procedures for indirect cost rate negotiation.*

Current practice in New Jersey

There was little evidence of familiarity with the SAM. No mention of it in the research manual or other reviewed documentation.

Post-Award Requirements

Performance Measurement Requirements in 2 CFR § 200

There are multiple post-award requirements in 2 CFR § 200. Recipients of Federal awards must relate financial data to the performance accomplishments of an award. Recipients must also provide cost information to demonstrate cost effective practices. Uniform Guidance did not change requirements for property records; requirements for property records ensure that non-Federal entities maintain an equipment inventory system. Recipients and subrecipients must maintain records which clearly show the source, amount, and timing for all matched contributions.

> *Preferred practice: maintain records showing sources, amounts, and timing for matched contributions. Records of matches that exceed required matching portions must be included and maintained.*

Current practice in New Jersey

Time Extensions and Period of Performance

Period of performance refers to the dates during which the non-Federal entity may incur new obligations to carry out the work authorized under the Federal award. The Federal awarding agency or pass-through entity must include start and end dates of the period of performance in the Federal award. Due to the nature of the work to be carried out by the recipient, the usual periods of performance may not routinely be appropriate for research, evaluation, and statistics awards. Accordingly, a research, evaluation, or statistics award may exceed a 3-year initial period of performance (and/or a 5-year total period of performance, and more than two continuations awards), when appropriate under the particular circumstances of that project.

> *Preferred practice: build in a six-month buffer to the period of performance to allow for delays and follow through on behaviors that consistently cause delay. Deliverables may still be scheduled within the windows as appropriate and preferred by the State TRO.*

Current Practice in New Jersey

Several practices will need to be addressed to ensure compliance. The PI must provide a realistic anticipated research study duration based on the proposed tasks. Consideration should be given to potential impediments so that adjustments are incorporated into the schedule, minimizing the need for time extensions. For example, if subcontractors are required as part of the project, the time it takes to procure those subcontractors must be factored into the project duration. Requests for time extensions will

be considered but must be supported by adequate written justification in order to be processed. The justification must include an explanation of the reasons for the delay and details regarding how the remaining project funds will be used to meet the objectives within the extended Performance Period. Absent adequate justification, extension requests will not be processed. Please be advised that extension requests must be made 90 days prior to the original project end date. Task orders, having permissible justification, may be allowed a one-time extension of the period of performance by up to twelve months as described in 2 C.F.R. § 200.308(d)(2).

Monitoring Responsibilities for Federal Awarding Agencies and Pass-Through Entities

The purpose of subrecipient monitoring is to ensure that the subaward is being used for the authorized purpose. The pass-through entity must have written policies on subrecipient monitoring, as described in 2 CFR § 200.331. The pass-through entity is required to monitor the subrecipient's use of Federal funds during the program period. Risk assessments continue post-award.

Some of the mechanisms that may be used to monitor subrecipient activities throughout the year include:

- regular communication with subrecipients and contactors by phone and email
- appropriate inquiries concerning program level activities;
- performing subrecipient site visits to examine financial and programmatic records;
- observing overall operations; and
- reviewing detailed financial and program data and information submitted by the subrecipient.

Preferred practice: maintain simple rules and easy to follow compliance requirements. Research has shown that complex rule and requirements for monitoring or reporting have a higher risk of non-compliance.

Current Practice in New Jersey
Regular meetings are held and documented. A QPR template has been established.

Closeout and Post-Closeout

Closeout Requirements

Project closeout refers the systematic process by which the state TRO determines that all required technical work under a contracted agreement has been completed by the recipient and the TRO, and all applicable administrative requirements are met. The closeout period begins when final deliverables are accepted by the agency within the period of performance.

Clear kickoff meeting procedures set the stage for project closeout and recordkeeping. Project kickoffs should clearly establish expectations. Document the workflow to close out projects and align the process with the 120-day window allowed under the Uniform Guidance.

> *Preferred practice: use a project management software package for tracking and monitoring research project management. Other options include programs like Workfront, Asana, or Mavenlink.*

Current Practices in New Jersey

According to the Research Manual, projects must be closed within ninety days of the contract's completion date in accordance with federal and state requirements. All project deliverables and the final invoice inclusive of the release clause, all eligible incurred costs, and all performance reports must be submitted at that time. Failure to do so may result in a forfeiture of final payment. Federally funded projects are subject to final acceptance approval by the federal oversight agency.

Recordkeeping and Post-Closeout Requirements

As with other elements of project execution, the records retention elements should be included in contract language and in kickoff meeting discussions.

> *Preferred practice: keep electronic copies in searchable format. When scanning documents, ensure information is available with character recognition. While the cost for digital storage may be significantly lower than keeping hard copy documents, there is still a cost for e-storage.*

Current Practices in New Jersey.

No information on digital record keeping was identified in the operations manual.

2.2 New Jersey Gap Assessment

It is recommended that state TROs use benchmarking as the first step to assessing their current progress against 2 CFR § 200 principles. The state level gap assessment was completed to identify current gaps in state practices as they relate to 2 CFR § 200 implementation against the identified benchmarks in the document 2 CFR § 200 Implementation Guidance: Preliminary State Report New Jersey DOT provided by ARA, Inc. to NJDOT in October 2021, which outlined preliminary findings on data collection in relation to 2 CFR § 200 compliance. This section of the final report outlines current NJDOT practices as well as needs to achieve high benchmark recommendations for compliance with 2 CFR § 200.

To complete this task, the research team reviewed a variety of documents, agreements, and other details necessary to align with 2 CFR § 200 activities.

The documents reviewed included:

- Research Process Improvement and Regulatory Compliance Updates
- Research Procedures Manual 2018
- Guidelines for Preparing NJDOT Research Final Reports and Tech Briefs
- Research Proposal Guidelines
- Research Basic Agreement
- Quarterly Report Template
- Quarterly Meeting Schedule Guide
- Implementation Guide

The research team also had discussions with research staff to identify gaps. This gap assessment can be used in tandem with the implementation guide to further compliance with 2 CFR § 200.

Red = Critical Issue for High Benchmark

Green = Recommended Approach

Item	NJDOT Current Practices	High Benchmark for 2 CFR § 200
Risk management	- All conflicts of interest are addressed in risk assessments protocol outlined in research manual. - NJDOT does not place unreasonable requirements on firms, excessive bonding, or non-competitive contracts. There are special provisions for an on-call quick assistance program that is competed periodically. Institutes of Higher Education are provided opportunities to	**Provide risk assessments on subrecipients. Penalty for high risk performing organizations. Ensure clear risk assessment documentation.**

	compete. RFPs are posted on the NJDOT Research Bureau's webpage for final solicitation of proposals. • Pre-award information provided in Section 1 of the Research Manual	
Project Scheduling	• Research project managers generally complete kickoff • Research manual provides extensive overview of terms and approaches as related to 2 CFR § 200 activities on award management, internal controls, financial management systems in place that conform to the Uniform Guidance Cost Principles • Includes examples of what failure to maintain program activity schedule looks like (equipment failure/malfunction, unsuitable weather conditions) • Time extensions and zero-dollar budget modifications discussed with member of the RPP at quarterly meetings and approved by Bureau manager.	**All data stored** • Data stored in a functional data lake architecture and stored for as long as possible to support current and future analyses. • Data stored in a well-known, modern format. **Recommended approaches** • Include documentation for project kickoff meeting. • Several practices may need to be addressed to ensure compliance. PI should provide realistic anticipated research study duration based on proposed tasks: considerations should be given to potential impediments, so adjustments are incorporated into schedule, minimizing need for time extension, such as including time to procure subcontractors when required for a project. Time extensions must be supported by adequate written justification, include an explanation and details regarding how remaining project funds

		will be used to meet objectives within extended Performance Period. Task orders, having permissible justification, may be allowed a one-time extension of the period of performance by up to 12 months as described in 2 C.F.R. § 200.308(d)(2).
Closeout	• Final invoice with contract closure language is submitted within 90-days of the end of the contract and closed timely in the federal accounting system.	**Process** • Preferred practice of six-month lead times • Expectations provided in kickoff meeting and separately documented.
Data Collection/Management	• Tracks project activity benchmarks and calculates performances measures such as completion time, product delivery timeliness, and document processing efficiency. • No information on digital record keeping was identified in the operations manual	**Data Management** • Most or all desired data is collected. • Data collected is used for decision making and performance tracking. • Process documentation is reviewed and updated. • Address: How is data collection currently accomplished? Digital recordkeeping software used? • Keep electronic copies of project execution in searchable format. When scanning documents, ensure information is available with character recognition. • Consider using data measures and indicators, including leading, lagging, and diagnostic

		measures to assess program health and compliance
Reporting	• Section 5 provides detailed information on performance tracking, monitoring, evaluation, and reporting associated with research enterprise. Includes research project tracking measures, quarterly progress meetings, and final reports. • Annually, each PM generates project activity sheets for SPR work program. Project sheets and budget summaries used to determine funding needs in upcoming fiscal year	• Quarterly reports, supplemented by regular project reporting throughout the life cycle. • Financial programs monitored against research performance.
Sub Monitoring	• Did not identify specific request or collection of GAAP information; however, based on Section 3 of the Research Manual, it is evident that the TRO could access this information on subrecipients. • Little mention of SAM in research manual and other reviewed documentation outside of Section 1 • Regular meetings are held, and progress is documented. A QPR template has been established	**Subrecipient Monitoring** • Regular review of subrecipients including site and desk reviews • Address: How are recipients and pass through entities being registered?
Project Termination	• Mentioned in context of Change in Principal. A change in PI or significant absence, could be grounds for termination	**Termination** • What are the grounds for termination? How does NJDOT define these thresholds and how do they determine when they are reached/exceeded?

Linking Financial Info to Research Outcomes	• Final invoice due within 90 days after contract's completion date	• Financial reporting included in progress and final closeout documentation. • Strict adherence to budget parameters as possible • Good collaboration between financial offices and research unit
Training Needs	• Address: training on monitoring award recipients and subcontractors and other resources?	• Training regularly offered. • Training provided for research customers and research managers
General	• Did not identify a set of specific goals and strategic planning associate with the research enterprise.	• Develop relationships and network with principal investigators. • High level of interaction and familiarity with division office staff • Put Research Handbook on research guidelines website (currently marked under construction)
Report Structure/Content	• Provides dozens of references to 2CFR 200 practices and tenants; highlights NJDOT Approval Authority Schedule for FHWA-Sponsored Research Work Program by specific budgetary changes and provides sound support of federal award management	

2.3 Missouri Implementation Guide

The Missouri Department of Transportation's Research Program delivers knowledge solutions and innovations so that MoDOT can make informed decisions. Research staff administer contract research to outside organizations, universities, or private consultants. Research projects are focused on how MoDOT can change processes, products, or materials in order to do our jobs in the most efficient and economical manner. The Research Section falls under the Construction and Materials Division within MoDOT. This section addresses the preliminary findings and benchmarks based on a review of the documents provided by the Missouri Department of Transportation.

As with most efforts to implement new approaches and strategies, there are several things that an agency can do to facilitate effective implementation. This report provides initial assessments with respect to the practices outlined in the Implementation Guide for Compliance with 2 CFR § 200.

Information Review

To complete the task, the research team collected standard research agreements, research manual information, selection processes, and other details necessary to align with 2CFR§200 activities. We have completed detailed analysis of existing research program websites to collect relevant forms and research management guidance. Additional information was provided by the Missouri DOT Panel Member.

The documents reviewed included:

- Technical Report Documentation Page
- Sample Work Plan
- Budget
- Research Submission Checklist
- Quarterly Report Format
- Data Management Plan
- Publications Guidelines
- RFP Frequently Asked Questions
- Contract Research Policy
- Proposal Submission Form
- Standard Research Agreement
- Engineering Policy Guide
- Research Communication Planning Sheet (Principal Investigator)
- MoDOT Research Manual (Draft 2021)

The research team also completed a review of website documentation posted at https://www.modot.org/research-section. A general internet search query was initiated through Google that provided summary information on Missouri DOT sponsored activities, library services, pooled fund participation, Every Day Counts initiatives, and associated MoDOT efforts. The research team also reviewed websites for the Missouri Center for Transportation Innovation (MCTI) and its relationship to MoDOT research efforts.

The proposed draft Research Manual provides a condensed version of the general responsibilities, requirements, and processes. Additional information and detailed procedures are provided via templates and other documentation.

Throughout this report, we will provide a reference against the documented preferred practices provided under the NCHRP Report 20-111J implementation guidance. This initial report details preliminary findings on the data collection and will set the foundation for the next gap assessment reports.

2 CFR § 200 Foundations

To properly assess the state's responses and preparation for the gap assessment, a series of foundational principles are reviewed in each state.

Accountability Basics and Performance Management

Performance Accountability and Federal Awards

Performance measures provide useful baselines for assessing accountability. Many components of the Federal Government Performance Plan are required by the Government Performance and Results Act Modernization Act of 2010. The legislation creates a more defined performance framework by prescribing a governance structure and by better connecting plans, programs, and performance information. The law requires more frequent reporting and reviews (quarterly instead of annually) that are intended to increase the use of performance information in program decision-making. Further the implementation of the GPRA Modernization Act allows for a rebalance of compliance efforts with a focus on results for the American taxpayer; standardization of grant reporting data, and improved data collection to increase efficiency, promote evaluation, reduce reporting burden, and benefit the American taxpayer. Ultimately, a performance-based approach will provide a means to measure progress and share lessons learned and best practices to inform future efforts.

Current practice in Missouri

The draft Research Manual outlines roles and responsibilities of individual participants and highlights various research partners. It includes some references to 2 CFR § 200 provisions and practices.

Approaches to Performance Management

Implementing a Performance Measurement System

There are currently no uniform metrics collected by a state TRO to assess performance of the research enterprise. To fully implement a performance measurement system, a state TRO needs to adopt overall performance reporting, monitoring, and management practice.

A first step is to identify what data will be collected – and determine how that data fulfills broader agency goals and objectives. The identification of data to monitor and measure against objectives to achieve is a vital element of a performance measurement practice. Performance measures benchmark accomplishments against historical or international measures and advocate for particular actions. These measures show how programmatic improvement or decline occurs.

> *Preferred practice: use performance measurement to assess how to track the progress of strategies in place and use performance management to understand how to manage the strategy put into place.*

Current practice in Missouri

MoDOT's Research Section has several Performance Measures that track the effectiveness and management of the program as required under 2 CFR § 200.328 and 23 CFR 420.209(a). These performance measures are reported in MoDOT's Construction and Materials Tracker. It is published on the internal SharePoint site and can be accessed by Missouri's FHWA Division Office. A few of the measures include the percent of projects on-time and the number of research reports completed. Data is reported over the last 5 years to aid in discerning trends in the data points. Projects on time; completed projects; library; trainings; number of literature searches; circulating reports from the library.

Data Collection and Analysis

State TROs collect a variety of data on the health and general direction of their programs. This data can include information on progress reporting, budget expenditures, personnel hours expended, implementation statistics, and a range of other leading and lagging performance indicators. Most of the data collection requested under Uniform Guidance is related to audit information.

Preferred practice: use a variety of data measures and indicators to assess program healthy and compliance. Different types of data such as leading, lagging, and diagnostic measures allow for more varied analyses both internally and externally.

Current practice in Missouri

Data is reported over the last 5 years to aid in discerning trends in the data points.

Reporting Process

Non-Federal entities are required to submit performance reports at intervals no less frequent than annually nor more frequent than quarterly. This reporting requirement allows for effective and regular controls for progress monitoring.

Preferred practice: regardless of the time periods addressed in progress reporting, the project manager needs to communicate directly with the performing organization principal investigator to address concerns or questions and circumvent potential disruptions to schedule or budget.

Current practice in Missouri

MoDOT submits quarterly reports to FHWA's Missouri office to document project progress and project expenditures as required in 23 CFR 420.117(e). These reports document that project activities are achieving the projects stated objectives, research findings, and benefits. Quarterly project reports are used to document activities on specific project meetings. Interim panel discussions can also be scheduled in concert with research project managers. MoDOT requires quarterly reports for all projects. A quarterly report template is located on the Information for Researchers website.

Considerations for Performance Measurement and Management

Preferred practice: use kickoff meetings as a jumping off point for establishing expectations, questions, and concerns about project plans and can also help to engage stakeholders early on in the project progress.

Current practice in Missouri

A kick-off meeting is scheduled for all research projects. The research team, PM, and technical advisory panel all attend the kick-off meeting. A kick-off meeting checklist was created to help make sure all items that might need to be covered are addressed.

Procurements and Cost Principles

Procurement activities for the transportation research office generally follow state agency purchasing procedures. Procurement is a critical component of the requirements of the federal cost principles. To address Uniform Guidance, all procurement procedures must be fair, open, and well documented. All purchases must follow specific written procedures and should be approved by an appropriate responsible party.

In practice, TROs must ensure their procurement activities are completed using permitted approaches. Most research will fit into either the small purchases or competitive proposal categories. When using the non-competitive proposal or sole source options, TROs will need to provide a well-documented justification for not seeking competitive proposals.

There are many concerns with respect to procurement. The following situations are considered restrictive and as such, should not be used in the procurement:

- Placing unreasonable requirements on firms for them to qualify to do business.
- Requiring unnecessary experience, unreasonable insurance, or excessive bonding;
- Noncompetitive contracts to consultants that are on retainer contracts;
- Organizational conflicts of interest;
- Specifying a "brand name" product instead of allowing "an equal" product to be offered; and
- Any arbitrary action in the procurement process.

> *Preferred Practice: Document potential conflicts of interest; collaborations can potentially include conflicts of interest, which are mitigated by the disclosure of these collaborations pursuant to agency requirements and to document this material.*

Current practice in Missouri

No specific process was identified for deconflicting interests. Research is generally available in full and open solicitations.

Terminology and Application

2CFR 200 does not change or modify any existing statute or guidance otherwise based on any existing statute. It does, however, define and revise certain cost principles and terms used in award management. A State TRO must demonstrate strong internal controls. In accordance with 2 CFR § 200.302, state agencies must have financial management systems in place that include written procedures for ensuring all expenditures conform the Uniform Guidance Cost Principles.

Current practice in Missouri

The draft MoDOT Research Manual (in appendix B) outlines the specific amendment process for the Work Program.

Agency, Program, and Award Planning

Accounting Responsibilities

In order to properly maintain accountability and assure that funds are used for the transportation research purposes intended, a subrecipient needs to have certain policies and procedures in place that address budget, internal, and accounting controls. It is the responsibility of the state transportation research office to ensure these controls are in place. Accounting controls address the processes in place to track what money is taken in and what money is spent. Having accurate and comprehensive documentation of revenue and expenses is a regulatory requirement, and it is also a necessary part of a subrecipient's organizational responsibilities.

All accounting efforts should follow Generally Accepted Accounting Principles (GAAP). These uniform accounting standards exist to ensure consistency and transparency and can be understood readily by many. Most basic accounting software will meet these minimum standards, however, most transportation research performing organizations will have extensive project management systems. Accounting records for funds expended must be supported by original source documentation.

To meet regulatory requirements, a sub-recipient organization's accounting system should include at least the following elements:
- Chart of accounts: A list of account names and the numbers assigned to them;
- Journals: A chronological listing of when funds were received, in what amounts, and from what sources and how much was paid, when, and to whom payment was made;
- Payroll: A chronological listing of payroll amounts, benefits, and payroll taxes;
- General ledger: A comprehensive depiction, with details by account, of the activities recorded in each account of an organization. Entries transferred to the general ledger are cross-referenced to the applicable subsidiary journal or supporting documentation to permit the tracing of any financial transaction, thereby creating an 'audit trail.'

Current practice in Missouri

The research team did not identify specific requests or collection of this information as part of the formal closeout procedures. Project files are within SharePoint. This information is currently kept indefinitely.

Aligning Program Goals, Objectives, and Measures to Agency Goals and Priorities

Agency Priority Goals are a performance accountability structure of the GPRA Modernization Act that provides agencies a mechanism to focus leadership priorities, set outcomes, and measure results, bringing focus to mission areas where agencies need to drive significant progress and change. APG statements are outcome-oriented, ambitious, and measurable with specific targets set that reflect a near-term result or achievement agency leadership wants to accomplish within approximately 24 months. In some instances, agencies are also utilizing the APG structure to drive progress and monitor implementation of agency management reforms and priorities, a modification of the traditional APG statement format.

Current practice in Missouri

Missouri does not have a standalone strategic planning document that aligns to APGs.

Pre-Award Requirements

Pre-Award Performance Measurement Requirements Under 2 CFR § 200

Typical approaches to pre-award requirement include financial review to ensure that recipients and contractors are financially capable and have the financial integrity to administer Federal funds in a research project.

> *Preferred practice: for non-Federal entities that have not received an award within the past 3 years be subject to additional financial review as part of the risk assessment exercise. State TROs can require subrecipients to include milestone plans with applications.*

Current practice in Missouri

Pre-award financial review does not appear in the research manual or project manager's handbook. This may be an area where additional documentation of practice is needed.

Risk Assessment and Evaluating Recipient Capabilities

Entities receiving federal awards are required to review and assess the potential risks presented prior to making an award (2 CFR § 200.205).

> *Preferred Practice: State TRO managers should regularly meet with key personnel from performing organizations and their offices of sponsored programs. These site visits and risk assessments provide valuable information for all parties and clarify expectations. In addition, these partnerships provide forums to address minor problems before they turn into larger concerns.*

Current practice in Missouri

The draft Manual provides that MoDOT completes a joint risk assessment with MoDOT and FHWA is done to determine which areas create risk for the program. A risk assessment is completed and presented at the Strategic Advance hosted by Missouri's FHWA Division where all program area risks are discussed and mitigation plans developed, if needed. No additional documentation on this process or its use was recorded.

Other Requirements

Pass through entities are treated differently as subrecipients of Federal funding. The distinctions throughout the UG has been confirmed in FHWA interpretations. As such, pass-through entities must accept an indirect F&A cost rate negotiated with a federal agency or notify the OMB as to why the negotiated rate is not accepted and make publicly available the criteria to support the deviation. In a state where there is a negotiated rate amount, it would only apply in cases where the university is performing contracted work. If the funding allows for substantial independent work, the state TRO would need to contact USDOT for additional guidance.

> *Preferred practice: become familiar with the SAM and ensure that performing organizations are included. Additionally, develop and document your organization's policies and procedures for indirect cost rate negotiation.*

Current practice in Missouri

There is documentation on indirect rates and associated information in the contract template language that was reviewed. Part of the pre-qualification process.

Post-Award Requirements

Performance Measurement Requirements in 2 CFR § 200

There are multiple post-award requirements in 2 CFR § 200. Recipients of Federal awards must relate financial data to the performance accomplishments of an award. Recipients must also provide cost information to demonstrate cost effective practices. Uniform Guidance did not change requirements for

property records; requirements for property records ensure that non-Federal entities maintain an equipment inventory system. Recipients and subrecipients must maintain records which clearly show the source, amount, and timing for all matched contributions.

Preferred practice: maintain records showing sources, amounts, and timing for matched contributions. Records of matches that exceed required matching portions must be included and maintained.

Current practice in Missouri

MoDOT publishes all final reports online in the Research Report Repository except in rare occasions when there is information that cannot be released.

Time Extensions and Period of Performance

Period of performance refers to the dates during which the non-Federal entity may incur new obligations to carry out the work authorized under the Federal award. The Federal awarding agency or pass-through entity must include start and end dates of the period of performance in the Federal award. Due to the nature of the work to be carried out by the recipient, the usual periods of performance may not routinely be appropriate for research, evaluation, and statistics awards. Accordingly, a research, evaluation, or statistics award may exceed a 3-year initial period of performance (and/or a 5-year total period of performance, and more than two continuations awards), when appropriate under the particular circumstances of that project.

Preferred practice: build in a six-month buffer to the period of performance to allow for delays and follow through on behaviors that consistently cause delay. Deliverables may still be scheduled within the windows as appropriate and preferred by the State TRO.

Current Practice in Missouri

Several practices will need to be addressed to ensure compliance. The draft Research Manual references the Period of Performance tenet of Uniform Guidance. Extending the period of performance past the approved work program period (i.e., no-cost time extension) (2 CFR § 200.309) is addressed. MoDOT does build in one month for billing.

Monitoring Responsibilities for Federal Awarding Agencies and Pass-Through Entities

The purpose of subrecipient monitoring is to ensure that the subaward is being used for the authorized purpose. The pass-through entity must have written policies on subrecipient monitoring, as described in 2 CFR § 200.331. The pass-through entity is required to monitor the subrecipient's use of Federal funds during the program period. Risk assessments continue post-award.

Some of the mechanisms that may be used to monitor subrecipient activities throughout the year include:

- regular communication with subrecipients and contactors by phone and email
- appropriate inquiries concerning program level activities;
- performing subrecipient site visits to examine financial and programmatic records;
- observing overall operations; and
- reviewing detailed financial and program data and information submitted by the subrecipient.

Preferred practice: maintain simple rules and easy to follow compliance requirements. Research has shown that complex rule and requirements for monitoring or reporting have a higher risk of non-compliance.

Current Practice in Missouri
Regular meetings are held, and progress is documented. A quarterly progress report template has been established.

Closeout and Post-Closeout

Closeout Requirements

Project closeout refers the systematic process by which the state TRO determines that all required technical work under a contracted agreement has been completed by the recipient and the TRO, and all applicable administrative requirements are met. The closeout period begins when final deliverables are accepted by the agency within the period of performance.

Clear kickoff meeting procedures set the stage for project closeout and recordkeeping. Project kickoffs should clearly establish expectations. Document the workflow to close out projects and align the process with the 120-day window allowed under the Uniform Guidance.

Preferred practice: use a project management software package for tracking and monitoring research project management. Other options include programs like Workfront, Asana, or Mavenlink.

Current Practices in Missouri
Closeout is described as a duty in the draft Research Manual. No additional documentation was found on the closeout process. Financial services take over after final invoice.

Recordkeeping and Post-Closeout Requirements

As with other elements of project execution, the records retention elements should be included in contract language and in kickoff meeting discussions.

Preferred practice: keep electronic copies in searchable format. When scanning documents, ensure information is available with character recognition. While the cost for digital storage may be significantly lower than keeping hard copy documents, there is still a cost for e-storage.

Current Practices in Missouri.
As above, records retention is a key part of the project conclusion effort.

2.4 Missouri Gap Assessment

It is recommended that state TROs use benchmarking as the first step to assessing their current progress against 2 CFR § 200 principles. The state-level gap assessment was completed to identify current gaps in state practices as they relate to 2 CFR § 200 implementation against the identified benchmarks in the document 2 CFR § 200 Implementation Guidance: Preliminary State Report Missouri DOT provided by ARA, Inc. to MoDOT in October 2021, which outlined preliminary findings on data collection in relation to 2 CFR § 200 compliance. This section of the final report outlines current MoDOT practices as well as need to achieve high benchmark recommendations for compliance with 2 CFR § 200.

To complete this task, the research team reviewed a variety of documents, agreements, and other details necessary to align with 2 CFR § 200 activities.

The documents reviewed included those described in Section 2.3 as well as discussions with research staff to identify gaps. This gap assessment can be used in tandem with the implementation guide to further compliance with 2 CFR § 200.

Red = Critical Issue for High Benchmark

Green = Recommended Approach

Item	MoDOT Current Practices	High Benchmark for 2 CFR § 200
Risk management	- Joint risk assessment is done with MoDOT and FHWA to determine which areas create risk for the program. - Risk assessment is presented at the Strategic Advisory Committee hosted by MO FHWA division. - Risks are discussed and mitigation plans developed, if needed - This is discussed in program reporting and evaluation section of MoDOT Research Manual	**Risk assessments on subrecipients** - No mention of risk assessments being done on subs - Recommendation: include some discussion on risk assessments for performing organizations **Penalty for high risk performing organizations** - No mention of any penalties for high risk - No mention of the process used to assess and manage risk - Consider approaches for non-award to poor performing organizations or PIs (understanding the risk associated with agency wide bans/delays) **Risk Assessment Documentation**

		• Include an example risk management table/matrix and go through sample assessment and mitigation strategies with a flow chart to show how meeting this area (see examples) • Provide details on the risk assessment process used • Include example Pre-award risk form in Research Manual
Project Scheduling	• Schedule shown on page 7 of the estimated dates of each step of the program. • They discuss scheduling a kick-off meeting for all research projects. • They discuss encouraging updates of anything that could impact budget or schedule ahead of quarterly reports if necessary. • Project meetings scheduled as needed	**All data stored** • Data stored in a functional data lake architecture and stored for as long as possible to support current and future analyses. • Data stored in a well-known, modern format. **Recommended approaches** • Include a sample project schedule. • Include proposal evaluation form, which includes proposed research schedule. • Include approval authority schedule and signature hierarchy. • Include some examples of what failure to maintain program activity schedule looks like (equipment failure/malfunction, unsuitable weather conditions, delays due to external causes beyond control of the research team members)
Closeout	• No mention of closeout activities by name • At end of project, end of project presentation is	**Process** • Include a section on closeout discussing closeout

	scheduled for all projects.	period after contract completion.
	• Draft final report submitted 3 months prior to end of contract.	• Expectations provided in kickoff meeting and separately documented.
	• Final version due one month prior to end of project	
	• Final invoice not paid until after final report is accepted.	
	• 6-month lead times seem to be no problem in meeting	
	• Includes discussion on process for NCTE.	
Data Collection/Management	• Research Manual includes discussion on SMEs for answering technical questions and to help facilitate data gathering if needed.	**Data Management**
		• Most or all desired data is collected.
	• MoDOT works with state library; has access to databases.	• Data collected is used for decision making and performance tracking.
	• Mention of discussing what data the researchers may require from MoDOT in the kickoff meeting and where this data is housed.	• Process documentation is reviewed and updated.
		• Address How is data that is collected stored and accessed by other agencies/divisions?
	• Mention in Performance Measures: data on performance measures that track effectiveness and management of the program being reported over the last 5 years	• Consider use of formal data management plans to be submitted with project proposals and reviewed at TAC meetings
Reporting	• Research Director responsible for overseeing development	• Quarterly reports, supplemented by regular project reporting throughout the life cycle.

	of program and Federal reporting. • MoDOT requires quarterly reports for all projects and provides a report template. • Each project will do a draft final and final report. • MoDOT submits quarterly reports to FHWA's Missouri office. • They also submit a combined Work Program and Annual Report each year	• Financial programs monitored against research performance. • Flowchart of performance measures including who gets what reports and what frequency reports are created/sent. • Discuss project tracking, project monitoring and evaluation, quarterly progress meetings and reports, monthly reports, and final reports
Sub Monitoring	• No documented processes • No mention of subrecipients at all in the manual	**Subrecipient Monitoring** • Implement regular review of subrecipients including site and desk reviews. • As per 2 CFR § 200, MoDOT is responsible for monitoring activities of the award recipients and their subs to ensure that the: sub award is used for authorized purposes, sub award performance goals are achieved including deliverables and completion of the final report package in accordance with contract language, financial status reports are accurate, complete, and submitted in a timely manner, final invoice is submitted on time, and completed projects are closed timely in the federal accounting system • Sub monitoring should include ensuring timely and appropriate action is taken

		on all deficiencies pertaining to any award. • What risk assessment process is used to monitor subs and prove a formal risk assessment has been taken?
Project Termination	• No mention of project termination in manual	**Termination** • What are the grounds for termination? How does MoDOT define these thresholds and how do they determine when they are reached/exceeded? • If termination is sought, what is the process for this?
Linking Financial Info to Research Outcomes	• Budget for SPR Part B sent from Financial Services Division • Information for each project includes financial info. • Expenditures in previous fiscal years as well as anticipated budget in upcoming fiscal year included in annual report	• Financial reporting included in progress and final closeout documentation. • Strict adherence to budget parameters as possible • Good collaboration between financial offices and research unit • Discuss how the budget is developed and who works on this
Training Needs	• Limited trainings • MoDOT Research Section administers the Local Technical Advisory Program (LTAP) to provide training and resources to local agencies that do not have the internal resources for training programs	• Training regularly offered. • Training provided for research customers and research managers
General	• N/A	• Developed relationships and network with principal investigators. • High level of interaction and familiarity with division office staff

		• Could include more figures/flow charts/examples of processes. • Include info on submission of problem statements, how to rank and select problem statements, development of RFPs, guidance on proposal writing, and selection of proposals

Report Structure/Content	• Very brief research manual (18 pages long vs. 69+ pages in the fully referenced 2 CFR § 200 versions)
	   • Sections provide basics more perfunctory.
	   • Lacks table of contents, table of figures, table of tables, etc.
		• Example chapters/sections: Pre-Award activities, research project activities, development of annual research work program, research implementation, performance tracking & monitoring, evaluation and reporting, technology transfer program, project closeout
		 • Could include more figures/flow charts/examples of processes, table of contents and user guide.

2.5 Mississippi Implementation Guide

The Mississippi DOT Research Division supports the agency mission by administering Mississippi's State Planning and Research Part II funds in an innovative, ethical, accountable, and efficient manner, including selecting and monitoring research projects that solve agency problems, move he agency forward and improve the network for the traveling public. This section addresses the preliminary findings and benchmarks based on a review of the documents provided by the Mississippi Department of Transportation. As with most efforts to implement new approaches and strategies, there are several things that an agency can do to facilitate effective implementation. The assessment and initial scan of topics was prepared in the Fall of 2021.

As with most efforts to implement new approaches and strategies, there are several things that an agency can do to facilitate effective implementation. This report provides initial assessments with respect to the practices outlined in the Implementation Guide for Compliance with 2 CFR § 200.

Information Review

To complete the task, the research team collected standard research agreements, research manual information, selection processes, and other details necessary to align with 2CFR§200 activities. We have completed detailed analysis of existing research program websites to collect relevant forms and research management guidance. Additional information was provided by the Mississippi DOT Panel Member.

The documents reviewed included:
- Final Report Template
- MDOT Research Consultant Manual
- MDOT Research Manual (May 2020)
- Research Proposal Template
- Training Module Research Consultants
- Accessibility Requirements
- Laws and Regulations
- Sample Letter and Sample Research Plan
- Testing Facilities
- Work Programs
- Mississippi DOT Research Fact Sheet

The research team also completed a review of website documentation posted at https://mdot.ms.gov/portal/research. A general internet search query was initiated through Google that provided summary information on Mississippi DOT-sponsored research activities.

2 CFR § 200 Foundations

To properly assess the state's responses and preparation for the gap assessment, a series of foundational principles are reviewed in each state.

Accountability Basics and Performance Management

Performance Accountability and Federal Awards

Performance measures provide useful baselines for assessing accountability. Many components of the Federal Government Performance Plan are required by the Government Performance and Results Act Modernization Act of 2010. The legislation creates a more defined performance framework by prescribing a governance structure and by better-connecting plans, programs, and performance information. The law

requires more frequent reporting and reviews (quarterly instead of annually) that are intended to increase the use of performance information in program decision-making. Further, the implementation of the GPRA Modernization Act allows for a rebalance of compliance efforts with a focus on results for the American taxpayer; standardization of grant reporting data, and improved data collection to increase efficiency, promote evaluation, reduce reporting burden, and benefit the American taxpayer. Ultimately, a performance-based approach will provide a means to measure progress and share lessons learned and best practices to inform future efforts.

Current practice in Mississippi

The current Research Manual provides a supplement with information related to foundational legal references; however, it does not include references to 2 CFR § 200 provisions.

Approaches to Performance Management

Implementing a Performance Measurement System

There are currently no uniform metrics collected by a state TRO to assess performance of the research enterprise. To fully implement a performance measurement system, a state TRO needs to adopt overall performance reporting, monitoring, and management practice.

A first step is to identify what data will be collected – and determine how that data fulfills broader agency goals and objectives. The identification of data to monitor and measure against objectives to achieve is a vital element of a performance measurement practice. Performance measures benchmark accomplishments against historical or international measures and advocate for particular actions. These measures show how programmatic improvement or decline occurs.

Preferred practice: use performance measurement to assess how to track the progress of strategies in place and use performance management to understand how to manage the strategy put into place.

Current practice in Mississippi

MDOT began reporting on performance measures in connection with requirements under the MAP-21. The Research Liaison gathers data for three performance measures reported to FHWA quarterly: Percentage of research projects with a deliverable, Percentage of research projects performed by universities, and Percentage of research projects receiving an extension of time and/or cost. These measures are supplemented by additional performance measures.

Data Collection and Analysis

State TROs collect a variety of data on the health and general direction of their programs. This data can include information on progress reporting, budget expenditures, personnel hours expended, implementation statistics, and a range of other leading and lagging performance indicators. Most of the data collection requested under Uniform Guidance is related to audit information.

Preferred practice: use a variety of data measures and indicators in order to assess program healthy and compliance. Different types of data such as leading, lagging, and diagnostic measures allow for more varied analyses both internally and externally.

Current practice in Mississippi

Data is reported quarterly to FHWA on three criteria and noted in the Implementation and Performance Measures database.

Reporting Process

Non-Federal entities are required to submit performance reports at intervals no less frequent than annually nor more frequent than quarterly. This reporting requirement allows for effective and regular controls for progress monitoring.

> *Preferred practice: regardless of the time periods addressed in progress reporting, the project manager needs to communicate directly with the performing organization principal investigator to address concerns or questions and circumvent potential disruptions to schedule or budget.*

Current practice in Mississippi

Quarterly reporting made to FHWA. PIs are required to submit QPRs to the Research Liaison and technical advisory committee members. All projects are posted on the website for accountability.

Considerations for Performance Measurement and Management

> *Preferred practice: use kickoff meetings as a jumping off point for establishing expectations, questions, and concerns about project plans and can also help to engage stakeholders early on in the project progress.*

Current practice in Mississippi

A kick-off meeting is scheduled for all research projects. The Research Manual outlines that Once a research needs statement is developed and a PI has been selected, the TAC Chair schedules an initial meeting of the TAC and the PI. During this meeting, the RNS is reviewed, and the TAC Chair ensures the PI understands the focus of the proposed research. PI feedback may be incorporated into a TAC-approved revised RNS. The PI then proceeds with developing the research proposal.

Procurements and Cost Principles

Procurement activities for the transportation research office generally follow state agency purchasing procedures. Procurement is a critical component of federal cost principle requirements. To address Uniform Guidance, all procurement procedures must be fair, open, and well documented. All purchases must follow specific written procedures and should be approved by an appropriate responsible party.

In practice, TROs must ensure their procurement activities are completed using permitted approaches. Most research will fit into either the small purchases or competitive proposal categories. When using the non-competitive proposal or sole source options, TROs will need to provide a well-documented justification for not seeking competitive proposals.

There are many concerns with respect to procurement. The following situations are considered restrictive and as such, should not be used in the procurement:
- Placing unreasonable requirements on firms for them to qualify to do business;
- Requiring unnecessary experience, unreasonable insurance, or excessive bonding;
- Noncompetitive contracts to consultants that are on retainer contracts;
- Organizational conflicts of interest;
- Specifying a "brand name" product instead of allowing "an equal" product to be offered; and
- Any arbitrary action in the procurement process.

> *Preferred Practice: Document potential conflicts of interest; collaborations can potentially include conflicts of interest, which are mitigated by the disclosure of these collaborations pursuant to agency requirements and to document this material.*

No specific process was identified for deconflicting interests.

Terminology and Application

2CFR 200 does not change or modify any existing statute or guidance otherwise based on any existing statute. It does, however, define and revise certain cost principles and terms used in award management. A State TRO must demonstrate strong internal controls. In accordance with 2 CFR § 200.302, state agencies must have financial management systems in place that include written procedures for ensuring all expenditures conform the Uniform Guidance Cost Principles.

No specific references.

Agency, Program, and Award Planning

Accounting Responsibilities

In order to properly maintain accountability and assure that funds are used for the transportation research purposes intended, a subrecipient needs to have certain policies and procedures in place that address budget, internal, and accounting controls. It is the responsibility of the state transportation research office to ensure these controls are in place. Accounting controls address the processes in place to track what money is taken in and what money is spent. Having accurate and comprehensive documentation of revenue and expenses is a regulatory requirement, and it is also a necessary part of a subrecipient's organizational responsibilities.

All accounting efforts should follow Generally Accepted Accounting Principles (GAAP). These uniform accounting standards exist to ensure consistency and transparency and can be understood readily by many. Most basic accounting software will meet these minimum standards, however, most transportation research performing organizations will have extensive project management systems. Accounting records for funds expended must be supported by original source documentation.

To meet regulatory requirements, a sub-recipient organization's accounting system should include at least the following elements:
- Chart of accounts: A list of account names and the numbers assigned to them.
- Journals: A chronological listing of when funds were received, in what amounts, and from what sources and how much was paid, when, and to whom payment was made.
- Payroll: A chronological listing of payroll amounts, benefits, and payroll taxes
- General ledger: A comprehensive depiction, with details by account, of the activities recorded in each account of an organization. Entries transferred to the general ledger are cross-referenced to the applicable subsidiary journal or supporting documentation to permit the tracing of any financial transaction, thereby creating an 'audit trail.'

Chapter 6 of the MS DOT manual provides details on project closeout. We did not identify specific requests or collection of this information as part of the formal closeout procedures.

Aligning Program Goals, Objectives, and Measures to Agency Goals and Priorities

Agency Priority Goals are a performance accountability structure of the GPRA Modernization Act that provides agencies a mechanism to focus leadership priorities, set outcomes, and measure results, bringing focus to mission areas where agencies need to drive significant progress and change. APG statements are outcome-oriented, ambitious, and measurable with specific targets set that reflect a near-term result or achievement agency leadership wants to accomplish within approximately 24 months. In some instances,

agencies are also utilizing the APG structure to drive progress and monitor the implementation of agency management reforms and priorities, a modification of the traditional APG statement format.

Current practice in Mississippi

Mississippi does not have a standalone strategic planning document that aligns to APGs.

Pre-Award Requirements

Pre-Award Performance Measurement Requirements Under 2 CFR § 200

Typical approaches to pre-award requirement include financial review to ensure that recipients and contractors are financially capable and have the financial integrity to administer Federal funds in a research project.

Preferred practice: for non-Federal entities that have not received an award within the past 3 years be subject to additional financial review as part of the risk assessment exercise. State TROs can require subrecipients to include milestone plans with applications.

Current practice in Mississippi

Pre-award financial review does not appear in the research manual or research consultant's manual.

Risk Assessment and Evaluating Recipient Capabilities

Entities receiving federal awards are required to review and assess the potential risks presented prior to making an award (2 CFR § 200.205).

Preferred Practice: State TRO managers should regularly meet with key personnel from performing organizations and their offices of sponsored programs. These site visits and risk assessments provide valuable information for all parties and clarify expectations. In addition, these partnerships provide forums to address minor problems before they turn into larger concerns.

Current practice in Mississippi

When preparing research proposals, MDOT and the PI identify risks to the completion of the project and describe how they can be mitigated. This process is outlined in research needs identification.

Other Requirements

Pass through entities are treated differently as subrecipients of Federal funding. The distinctions throughout the UG have been confirmed in FHWA interpretations. As such, pass-through entities must accept an indirect F&A cost rate negotiated with a federal agency or notify the OMB as to why the negotiated rate is not accepted and make publicly available the criteria to support the deviation. In a state where there is a negotiated rate amount, it would only apply in cases where the university is performing contracted work. If the funding allows for substantial independent work, the state TRO would need to contact USDOT for additional guidance.

Preferred practice: become familiar with the SAM and ensure that performing organizations are included. Additionally, develop and document your organization's policies and procedures for indirect cost rate negotiation.

Current practice in Mississippi

No documentation on this practice was identified.

Post-Award Requirements
Performance Measurement Requirements in 2 CFR § 200

There are multiple post-award requirements in 2 CFR § 200. Recipients of Federal awards must relate financial data to the performance accomplishments of an award. Recipients must also provide cost information to demonstrate cost effective practices. Uniform Guidance did not change requirements for property records; requirements for property records ensure that non-Federal entities maintain an equipment inventory system. Recipients and subrecipients must maintain records which clearly show the source, amount, and timing for all matched contributions.

> *Preferred practice: maintain records showing sources, amounts, and timing for matched contributions. Records of matches that exceed required matching portions must be included and maintained.*

Current practice in Mississippi
Mississippi publishes final reports on their website.

Time Extensions and Period of Performance

Period of performance refers to the dates during which the non-Federal entity may incur new obligations to carry out the work authorized under the Federal award. The Federal awarding agency or pass-through entity must include start and end dates of the period of performance in the Federal award. Due to the nature of the work to be carried out by the recipient, the usual periods of performance may not routinely be appropriate for research, evaluation, and statistics awards. Accordingly, a research, evaluation, or statistics award may exceed a 3-year initial period of performance (and/or a 5-year total period of performance, and more than two continuations awards), when appropriate under the particular circumstances of that project.

> *Preferred practice: build in a six-month buffer to the period of performance to allow for delays and follow through on behaviors that consistently cause delay. Deliverables may still be scheduled within the windows as appropriate and preferred by the State TRO.*

Current Practice in Mississippi
Several practices will need to be addressed to ensure compliance. Research contract changes are coordinated with MDOT's CSU and require RAC, Mississippi Transportation Commission and FHWA approval.

Monitoring Responsibilities for Federal Awarding Agencies and Pass-Through Entities

The purpose of subrecipient monitoring is to ensure that the subaward is being used for the authorized purpose. The pass-through entity must have written policies on subrecipient monitoring, as described in 2 CFR § 200.331. The pass-through entity is required to monitor the subrecipient's use of Federal funds during the program period. Risk assessments continue post-award.

Some of the mechanisms that may be used to monitor subrecipient activities throughout the year include:

- regular communication with subrecipients and contactors by phone and email
- appropriate inquiries concerning program level activities;
- performing subrecipient site visits to examine financial and programmatic records;
- observing overall operations; and
- reviewing detailed financial and program data and information submitted by the subrecipient.

> *Preferred practice: maintain simple rules and easy to follow compliance requirements. Research has shown that complex rule and requirements for monitoring or reporting have a higher risk of non-compliance.*

Current Practice in Mississippi

Regular meetings are held and progress meetings are documented. A QPR template has been established and is provided as part of the resources section for all researchers.

Closeout and Post-Closeout

Closeout Requirements

Project closeout refers the systematic process by which the state TRO determines that all required technical work under a contracted agreement has been completed by the recipient and the TRO, and all applicable administrative requirements are met. The closeout period begins when final deliverables are accepted by the agency within the period of performance.

Clear kickoff meeting procedures set the stage for project closeout and recordkeeping. Project kickoffs should clearly establish expectations. Document the work flow to close out projects and align the process with the 120-day window allowed under the Uniform Guidance.

> *Preferred practice: use a project management software package for tracking and monitoring research project management. Other options include programs like Workfront, Asana, or Mavenlink.*

Current Practices in Mississippi

Closeout is discussed in the Research Manual. Specific details should be documented.

Recordkeeping and Post-Closeout Requirements

As with other elements of project execution, the records retention elements should be included in contract language and in kickoff meeting discussions.

> *Preferred practice: keep electronic copies in searchable format. When scanning documents, ensure information is available with character recognition. While the cost for digital storage may be significantly lower than keeping hard copy documents, there is still a cost for e-storage.*

Current Practices in Mississippi

As above, records retention is a key part of the project conclusion effort. 2.32 Mississippi Gap Assessment

2.6 Gap Assessment: Mississippi

In order to assess current gaps in state practices as they relate to 2 CFR § 200 implementation against the identified benchmarks in the document 2 CFR § 200 Implementation Guidance: Preliminary State Report Mississippi DOT provided by ARA, Inc. to MDOT in October 2021, which outlined preliminary findings on data collection in relation to 2 CFR § 200 compliance. This section outlines current MDOT practices as well as needs to achieve high benchmark recommendations for compliance with 2 CFR § 200.

To complete this task, the research team reviewed a variety of documents, agreements, and other details necessary to align with 2 CFR § 200 activities.

The documents reviewed included:
- Final Report Template
- MDOT Research Consultant Manual

- MDOT Research Manual (May 2020)
- Research Proposal Template
- Training Module Research Consultants
- Accessibility Requirements

· Laws and Regulations
· Sample Letter and Sample Research Plan
· Testing Facilities
· Work Programs
· Mississippi DOT Research Fact Sheet
· Implementation Guide

This gap assessment is meant to be used in tandem with the implementation guide to further compliance with 2 CFR § 200.

Red = Critical Issue for High Benchmark

Green = Recommended Approach

Item	MDOT Current Practices	High Benchmark for 2 CFR § 200
Risk management	- No specific process identified for deconflicting interests in procurement under Uniform Guidance - MDOT and PI identify risks to completion of the project and mitigation strategies when preparing proposals outlined in research needs identification. - Two risks identified: MDOT champions leaving and shifting priorities in development of RNSs and PI leaving and not getting desired quality of final deliverables.	**Risk assessments on subrecipients** Recommendation: formalize language on risk assessments for performing organizations **Penalty for high risk performing organizations.** Limited documentation of a formal risk process Consider approaches for non-award to poor performing organizations or PIs (understanding the risk associated with agency wide bans/delays) **Risk Assessment Documentation** Include an example risk management table/matrix and go through sample assessment and mitigation strategies with a flow.

Project Scheduling	- Kick-off meetings scheduled for all research projects. - TAC Chair schedules an initial meeting of the TAC and the PI post kick-off - Uses an RMS that can be viewed by any MDOT member to track project attributes	**All data stored.** - Data stored in a functional data lake architecture and stored for as long as possible to support current and future analyses. - Data stored in a well-known, modern format.
Closeout	- Chapter 6 provides details on project closeout – no specific requests or collection of this information as part of the formal closeout procedures was identified. - Project closeout is discussed in the research manual. Specific details should be documented. - Draft final report must be submitted at least three months before the end of the contract to all TAC members for review and revision. - Implementation questionnaire six months after project completion - Final invoice and final report submitted around same time.	**Process** - Expectations provided in the kickoff meeting and separately documented. - Include chart of accounts, journals, payroll, and general ledger in subs' accounting systems to comply with GAAP.
Data Collection/Management	- MDOT reports on performance measures under MAP-21 requirements. - Data is reported quarterly to FHWA on three criteria and noted in the Implementation and Performance Measures database.	**Data Management** - Most desired data is collected. - Data collected is used for decision making and performance tracking. Consider updating, consolidating, and improving performance measures recorded.

Reporting	• PIs required to submit QPR to Research Liaison • Research Liaison responsible for reporting performance measures to FHWA quarterly along with additional supplemental performance measures • Publishes annual work program. • Required to submit QPR and study-specific annual progress reports; optional interim reports. • Mississippi publishes final reports on their website.	• Quarterly reports with regular project reporting through life cycle • Financial progress monitored against research performance. • Consider other practices for records retention of project management materials
Sub Monitoring	• Pre-award financial review does not appear in the research manual or research consultant's manual. • No requirement identified for treating subrecipients differently than pass through entities. • Regular meetings are held and progress meetings are documented between subrecipient and pass-through entities. • QPR template has been established	**Subrecipient Monitoring** • Consider implementing regular review of subrecipients including site and desk reviews. • Maintain simple rules and easy to follow compliance requirements. • Ensure timely and appropriate action is taken on all deficiencies pertaining to any award. • Address: what risk assessment process is used to monitor subs and prove a formal risk assessment has been taken?
Project Termination	• No specific process was identified for de conflicting interests. • Project termination not mentioned in the manual	**Termination** • What are the grounds for termination? How does MDOT determine when

		• they are reached or exceeded? • If termination is sought, what is the process for this?
Linking Financial Info to Research Outcomes	• Pre-award financial review does not appear in the research manual or research consultant's manual. • Invoices submitted at least quarterly; prefer to coincide with submission of QPRs. • Uses FMS and FMIS to track parts of annual budgets and manage federal apportionments to MDOT.	• Financial reporting included in progress and final closeout documentation. • Strict adherence to budget parameters as possible • Good collaboration between financial offices and research unit
Training Needs	• Training mentioned in manual as part of risk mitigation strategy.	• Training regularly offered. • Training provided for research customers and research managers
General	• N/A	• Developed relationships and network with principal investigators. • High level of interaction and familiarity with division office staff • Consider creating standalone strategic planning document that aligns to MDOTs agency priority goals
Report Structure/Content	• Includes required and optional report elements along with templates. • Studies follow guidelines and generally include required elements.	• Could include more figures/flow charts/examples of processes. • Consider explicitly referencing 2 CFR § 200 in laws and regulations supplement.

2.7 Montana Implementation Guide

This section addresses the preliminary findings and benchmarks based on a review of the documents provided by the Montana Department of Transportation.

As with most efforts to implement new approaches and strategies, there are several things that an agency can do to facilitate effective implementation. This report provides initial assessments with respect to the practices outlined in the Implementation Guide for Compliance with 2 CFR § 200.

Information Review

To complete the task, the research team collected standard research agreements, research manual information, selection processes, and other details necessary to align with 2CFR§200 activities. We have completed detailed analysis of existing research program websites to collect relevant forms and research management guidance. Additional information was provided by the Montana DOT Panel Member.

The documents reviewed included:
- Montana Public Institution Cost Reimbursement Agreement
- Research, Development, and Technology Transfer Guidelines for the Montana Department of Transportation
- Cost Reimbursement Contract
- Survey Results on Programming Research Projects
- Report writing requirements
- Contract Template
- 2020 Annual Report – At a Glance
- Review Committee & Project Technical Panel Roles & Responsibilities
- Experimental projects overview
- MDT Research Project Researcher Guidance
- Success through partnerships: Montana Contract Management Manual October 2020

The research team also completed a review of website documentation posted at https://www.mdt.mt.gov/research/ . A general internet search query was initiated through Google that provided summary information on Montana DOT-sponsored activities, pooled fund participation, and other relevant information on MDT research activity.

The MDT Research Manual provides a clear explanation of research selection processes, roles and responsibilities, and other procedural information related to the research and innovation life cycle.

Throughout this report, we will provide a reference against the documented preferred practices provided under the NCHRP Report 20-111J implementation guidance. This initial report details preliminary findings on the data collection and will set the foundation for the next gap assessment reports.

Accountability Basics and Performance Management

Performance Accountability and Federal Awards

Performance measures provide useful baselines for assessing accountability. Many components of the Federal Government Performance Plan are required by the Government Performance and Results Act Modernization Act of 2010. The legislation creates a more defined performance framework by prescribing a governance structure and by better connecting plans, programs, and performance information. The law requires more frequent reporting and reviews (quarterly instead of annually) that are intended to increase

the use of performance information in program decision-making. Further the implementation of the GPRA Modernization Act allows for a rebalance of compliance efforts with a focus on results for the American taxpayer; standardization of grant reporting data, and improved data collection to increase efficiency, promote evaluation, reduce reporting burden, and benefit the American taxpayer. Ultimately, a performance-based approach will provide a means to measure progress and share lessons learned and best practices to inform future efforts.

Current practice in Montana

The current MDT research manual does not reference 2 CFR § 200 directly in its preamble or purpose statements.   The contract management manual does provide reference to OMB Uniform Guidance.

Approaches to Performance Management

Implementing a Performance Measurement System

There are currently no uniform metrics collected by a state TRO to assess performance of the research enterprise. To fully implement a performance measurement system, a state TRO needs to adopt overall performance reporting, monitoring, and management practice.

A first step is to identify what data will be collected – and determine how that data fulfills broader agency goals and objectives. The identification of data to monitor and measure against objectives to achieve is a vital element of a performance measurement practice. Performance measures benchmark accomplishments against historical or international measures and advocate for particular actions. These measures show how programmatic improvement or decline occurs.

Preferred practice: use performance measurement to assess how to track the progress of strategies in place and use performance management to understand how to manage the strategy put into place.

Current practice in Montana

MDT uses an extensive program evaluation process to meet the requirements of performance management and tracking. Chapter 6 of the research manual outlines these provisions and provides documentation on the roles for progress reports, annual documentation, and associated information.

Data Collection and Analysis

State TROs collect a variety of data on the health and general direction of their programs. This data can include information on progress reporting, budget expenditures, personnel hours expended, implementation statistics, and a range of other leading and lagging performance indicators. Most of the data collection requested under Uniform Guidance is related to audit information.

Preferred practice: use a variety of data measures and indicators in order to assess program healthy and compliance. Different types of data such as leading, lagging, and diagnostic measures allow for more varied analyses both internally and externally.

Current practice in Montana

The research manual notes that "expenditure of public funds is subject to scrutiny. The profit motive does not exist in the public arena; hence, the programs in the public arena that receive these funds must prove their value through periodic reviews and assessments."

Reporting Process

Non-Federal entities are required to submit performance reports at intervals no less frequent than annually nor more frequent than quarterly. This reporting requirement allows for effective and regular controls for progress monitoring.

> *Preferred practice: regardless of the time periods addressed in progress reporting, the project manager needs to communicate directly with the performing organization principal investigator to address concerns or questions and circumvent potential disruptions to schedule or budget.*

Current practice in Montana

MDT Research provided guidance and forms for both monthly and quarterly progress reports for its suite of project activities. The review of this material is documented and communications with principal investigators is submitted. Based on initial review, this is a strength of the MDT Research group. The forms could reference key details associated with Federal awards.

Considerations for Performance Measurement and Management

> *Preferred practice: use kickoff meetings as a jumping off point for establishing expectations, questions, and concerns about project plans and can also help to engage stakeholders early on in the project progress.*

Current practice in Montana

Research project managers generally complete a kickoff, and clear documentation for kickoff meetings is available.

Procurements and Cost Principles

Procurement activities for the transportation research office generally follow state agency purchasing procedures. Procurement is a critical component of federal cost principle requirements. To address Uniform Guidance, all procurement procedures must be fair, open, and well documented. All purchases must follow specific written procedures and should be approved by an appropriate responsible party.

In practice, TROs must ensure their procurement activities are completed using permitted approaches. Most research will fit into either the small purchases or competitive proposal categories. When using the non-competitive proposal or sole source options, TROs will need to provide a well-documented justification for not seeking competitive proposals.

There are many concerns with respect to procurement. The following situations are considered restrictive and as such, should not be used in the procurement:
- Placing unreasonable requirements on firms for them to qualify to do business.
- Requiring unnecessary experience, unreasonable insurance, or excessive bonding;
- Noncompetitive contracts to consultants that are on retainer contracts;
- Organizational conflicts of interest;
- Specifying a "brand name" product instead of allowing "an equal" product to be offered; and
- Any arbitrary action in the procurement process.

> *Preferred Practice: Document potential conflicts of interest; collaborations can potentially include conflicts of interest, which are mitigated by the disclosure of these collaborations pursuant to agency requirements and to document this material.*

Current practice in Montana

No current practices for risk assessments were identified in the document review for research. Competitive award processes, with some considerations on the MPART small projects program. This program includes cost sharing considerations which will also need to be well documented, and information kept to comply with 2 CFR § 200 tenets. The contract management manual provides for extensive discussion on pre-award risk assessments and provides details on ongoing monitoring of these activities.

Terminology and Application

2CFR 200 does not change or modify any existing statute or guidance otherwise based on any existing statute. It does, however, define and revise certain cost principles and terms used in award management. A State TRO must demonstrate strong internal controls. In accordance with 2 CFR § 200.302, state agencies must have financial management systems in place that include written procedures for ensuring all expenditures conform the Uniform Guidance Cost Principles.

Current practice in Montana

The Contract Management Manual provides details on compliance with most provisions related to cost principles. MDT research contracts follow this (it is included in contract templates reviewed by the research team)

Agency, Program, and Award Planning

Accounting Responsibilities

In order to properly maintain accountability and assure that funds are used for the transportation research purposes intended, a subrecipient needs to have certain policies and procedures in place that address budget, internal, and accounting controls. It is the responsibility of the state transportation research office to ensure these controls are in place. Accounting controls address the processes in place to track what money is taken in and what money is spent. Having accurate and comprehensive documentation of revenue and expenses is a regulatory requirement, and it is also a necessary part of a subrecipient's organizational responsibilities.

All accounting efforts should follow Generally Accepted Accounting Principles (GAAP). These uniform accounting standards exist to ensure consistency and transparency and can be understood readily by many. Most basic accounting software will meet these minimum standards, however, most transportation research performing organizations will have extensive project management systems. Accounting records for funds expended must be supported by original source documentation.

To meet regulatory requirements, a sub-recipient organization's accounting system should include at least the following elements:
- Chart of accounts: A list of account names and the numbers assigned to them
- Journals: A chronological listing of when funds were received, in what amounts, and from what sources and how much was paid, when, and to whom payment was made.
- Payroll: A chronological listing of payroll amounts, benefits, and payroll taxes
- General ledger: A comprehensive depiction, with details by account, of the activities recorded in each account of an organization. Entries transferred to the general ledger are cross-referenced to the applicable subsidiary journal or supporting documentation to permit the tracing of any financial transaction, thereby creating an 'audit trail.'
-

Current practice in Montana

We did not identify specific requests or collection of this information as part of the formal closeout procedures. Research is placed on a shared drive. All correspondence is kept according to electronic records retention in Montana.

Aligning Program Goals, Objectives, and Measures to Agency Goals and Priorities

Agency Priority Goals are a performance accountability structure of the GPRA Modernization Act that provides agencies a mechanism to focus leadership priorities, set outcomes, and measure results, bringing

focus to mission areas where agencies need to drive significant progress and change. APG statements are outcome-oriented, ambitious, and measurable with specific targets set that reflect a near-term result or achievement agency leadership wants to accomplish within approximately 24 months. In some instances, agencies are also utilizing the APG structure to drive progress and monitor the implementation of agency management reforms and priorities, a modification of the traditional APG statement format.

Current practice in Montana

MDT Research does not have a standalone strategic plan aligning with agency goals and priorities. However, there are tactical plans.   The research review committee is the highest level for the organization resulting in senior management having substantial direction on the program.

Pre-Award Requirements

Pre-Award Performance Measurement Requirements Under 2 CFR § 200

Typical approaches to pre-award requirements include a financial review to ensure that recipients and contractors are financially capable and have the financial integrity to administer Federal funds in a research project.

Preferred practice: for non-Federal entities that have not received an award within the past 3 years be subject to additional financial review as part of the risk assessment exercise. State TROs can require subrecipients to include milestone plans with applications.

Current practice in Montana

Pre-award financial review does not appear in the research manual or project manager's handbook. **This is an area where additional documentation of practice is needed.**

Risk Assessment and Evaluating Recipient Capabilities

Entities receiving federal awards are required to review and assess the potential risks presented prior to making an award (2 CFR § 200.205).

Preferred Practice: State TRO managers should regularly meet with key personnel from performing organizations and their offices of sponsored programs. These site visits and risk assessments provide valuable information for all parties and clarify expectations. In addition, these partnerships provide forums to address minor problems before they turn into larger concerns.

Current practice in Montana

The contract management manual provides some detailed steps on the risk assessment process, but it is not regularly followed.

Other Requirements

Pass-through entities are treated differently as subrecipients of Federal funding. The distinctions throughout the UG have been confirmed in FHWA interpretations. As such, pass-through entities must accept an indirect F&A cost rate negotiated with a federal agency or notify the OMB as to why the negotiated rate is not accepted and make publicly available the criteria to support the deviation. In a state where there is a negotiated rate amount, it would only apply in cases where the university is performing

contracted work. If the funding allows for substantial independent work, the state TRO would need to contact USDOT for additional guidance.

> *Preferred practice: become familiar with the SAM and ensure that performing organizations are included. Additionally, develop and document your organization's policies and procedures for indirect cost rate negotiation.*

Current practice in Montana

There is documentation on indirect rates and associated information in the contract template language that was reviewed.

Post-Award Requirements

Performance Measurement Requirements in 2 CFR § 200

There are multiple post-award requirements in 2 CFR § 200. Recipients of Federal awards must relate financial data to the performance accomplishments of an award. Recipients must also provide cost information to demonstrate cost-effective practices. Uniform Guidance did not change requirements for property records; requirements for property records ensure that non-Federal entities maintain an equipment inventory system. Recipients and subrecipients must maintain records that clearly show the source, amount, and timing for all matched contributions.

> *Preferred practice: maintain records showing sources, amounts, and timing for matched contributions. Records of matches that exceed required matching portions must be included and maintained.*

Current practice in Montana

MDT keeps a spreadsheet and invoice payment tracking in a standalone system.

Time Extensions and Period of Performance

Period of performance refers to the dates during which the non-Federal entity may incur new obligations to carry out the work authorized under the Federal award. The Federal awarding agency or pass-through entity must include start and end dates of the period of performance in the Federal award. Due to the nature of the work to be carried out by the recipient, the usual periods of performance may not routinely be appropriate for research, evaluation, and statistics awards. Accordingly, a research, evaluation, or statistics award may exceed a 3-year initial period of performance (and/or a 5-year total period of performance, and more than two continuations awards), when appropriate under the particular circumstances of that project.

> *Preferred practice: build in a six-month buffer to the period of performance to allow for delays and follow through on behaviors that consistently cause delay. Deliverables may still be scheduled within the windows as appropriate and preferred by the State TRO.*

Current Practice in Montana

Several practices will need to be addressed to ensure compliance. The need for a change in a research project can happen at any time after the project's initiation. The Research Manual provides that a research project may need to be changed due to new information being discovered, modifications in funding possibilities, or modifications in research priorities. Proposal template includes revised schedule for final project completion. When MDT contracts, there is an assessment of their schedules. As a regular practice, MDT will add time to the contract.

Monitoring Responsibilities for Federal Awarding Agencies and Pass-Through Entities

The purpose of subrecipient monitoring is to ensure that the subaward is being used for the authorized purpose. The pass-through entity must have written policies on subrecipient monitoring, as described in 2 CFR § 200.331. The pass-through entity is required to monitor the subrecipient's use of Federal funds during the program period. Risk assessments continue post-award.

Some of the mechanisms that may be used to monitor subrecipient activities throughout the year include:
- regular communication with subrecipients and contactors by phone and email
- appropriate inquiries concerning program level activities;
- performing subrecipient site visits to examine financial and programmatic records;
- observing overall operations; and
- reviewing detailed financial and program data and information submitted by the subrecipient.

Preferred practice: maintain simple rules and easy to follow compliance requirements. Research has shown that complex rule and requirements for monitoring or reporting have a higher risk of non-compliance.

Current Practice in Montana

Regular meetings are held, and progress meetings are documents. A monthly and QPR template has been established.

Closeout and Post-Closeout

Closeout Requirements

Project closeout refers the systematic process by which the state TRO determines that all required technical work under a contracted agreement has been completed by the recipient and the TRO, and all applicable administrative requirements are met. The closeout period begins when final deliverables are accepted by the agency within the period of performance.

Clear kickoff meeting procedures set the stage for project closeout and recordkeeping. Project kickoffs should clearly establish expectations. Document the workflow to close out projects and align the process with the 120-day window allowed under the Uniform Guidance.

Preferred practice: use a project management software package for tracking and monitoring research project management. Other options include programs like Workfront, Asana, or Mavenlink.

Current Practices in Montana

The research manual includes discussion of the research project management systems. MDT project managers use a project checklist that is updated as needed. They also use contractor project managers occasionally.

Recordkeeping and Post-Closeout Requirements

As with other elements of project execution, the records retention elements should be included in contract language and in kickoff meeting discussions.

Preferred practice: keep electronic copies in searchable format. When scanning documents, ensure information is available with character recognition. While the cost for digital storage may be significantly lower than keeping hard copy documents, there is still a cost for e-storage.

Current Practices in Montana.

Closeout processes and responsibilities are documented in the roles and responsibilities. More exact guidance on these closeout practices may be an area for further consideration.

2.8 Montana Gap Assessment

The objective of this task is to assess current gaps in state practices as they relate to 2 CFR § 200 implementation against the identified benchmarks in the document 2 CFR § 200 Implementation Guidance: Preliminary State Report Montana DOT provided by ARA, Inc. to MDT in October 2021, which outlined preliminary findings on data collection in relation to 2 CFR § 200 compliance. This report outlines current MDT practices as well as needs to achieve high benchmark recommendations for compliance with 2 CFR § 200. It is recommended that state TROs use benchmarking as the first step to assessing their current progress against 2 CFR § 200 principles.

The documents reviewed included:

   • Montana Public Institution Cost Reimbursement Agreement
   • Research, Development, and Technology Transfer Guidelines for the Montana Department of Transportation
   • Cost Reimbursement Contract
   • Survey Results on Programming Research Projects
   • Report writing requirements
   • Contract Template
   • 2020 Annual Report – At a Glance
   • Review Committee & Project Technical Panel Roles & Responsibilities
   • Experimental projects overview
   • MDT Research Project Researcher Guidance
   • Success through partnerships: Montana Contract Management Manual October 2020
   • Implementation Guide

This gap assessment is meant to be used in tandem with the implementation guide to further compliance with 2 CFR § 200.

Red = Critical Issue for High Benchmark

Green = Recommended Approach

Item	MDT Current Practices	High Benchmark for 2 CFR § 200
Risk management	• Competitive award process, with some considerations on the MPART small projects program, including cost sharing considerations. • No current practices for risk assessments were identified in the documents reviewed. • Pre-award financial review does not appear	**Risk assessments on subrecipients** • No mention of risk assessments being done on subs • Recommendation: include some discussion on risk assessments for performing organizations **Penalty for high risk performing organizations.**

	in Research Manual or Project Manager's handbook	• No mention of any penalties for high risk • No mention of the process used to assess and manage risk. • Consider approaches for non-award to poor performing organizations or PIs (understanding the risk associated with agency wide bans/delays) **Risk Assessment Documentation** • Document of practice for pre-award financial review needed. • Consider including an example risk management table/matrix. • Provide details on the risk assessment process used.
Project Scheduling	• PM generally completes kickoff meeting. • Regular meetings are held and progress meetings are documented. Monthly and QPR templates established	**All data stored** • Data stored in a functional data lake architecture and stored for as long as possible to support current and future analyses. • Data stored in a well-known, modern format. **Recommended approaches** • Include proposal evaluation form, which includes proposed research schedule.

		• Include some examples of what failure to maintain program activity schedule looks like (equipment failure/malfunction, unsuitable weather conditions, delays due to external causes beyond control of the research team members)
Closeout	• Closeout process and responsibilities are documented in roles and responsibilities. • Final evaluation report due by end of fiscal year in which the formal evaluation is completed. • Deliverables include final oral presentation, implementation report, performance measure report, final project poster	**Process** • Expectations provided in kickoff meeting and separately documented. • Consider providing more exact guidance on closeout practices.
Data Collection/Management	• MDT uses an extensive program evaluation process to meet requirements of performance management and tracking. Chapter 6 of the Research Manual outlines provisions and provides documentation on roles for progress reports, annual documentation, and associated information	**Data Management** • Most or all desired data is collected. • Data collected is used for decision making and performance tracking. • Process documentation is reviewed and updated. • Address: How is data collection currently accomplished? What specific performance measures are collected?

Reporting	• MDT provides guidance and forms for monthly and quarterly reports for suite of project activities. **Based on this review, this is a strength of the MDT Research group**	• Quarterly reports, supplemented by regular project reporting throughout the life cycle. • Financial programs monitored against research performance.
Sub Monitoring	• Sub-recipient chart of accounts, journals, payroll, and general ledger must be collected and follow Generally Accepted Accounting Principles. We did not identify specific requests or collection of this information as part of the formal closeout procedures. • Could not identify how the research management system is used to collect and keep information and matching details under programs like MPART to conform to post-award requirements of Uniform Guidance	**Subrecipient Monitoring** • Implement regular review of subrecipients including site and desk reviews. • Sub monitoring should include ensuring timely and appropriate action is taken on all deficiencies pertaining to any award. • What risk assessment process is used to monitor subs and prove a formal risk assessment has been taken? • Maintain records showing source, amounts, and timing for matched contributions. Records of matches that exceed required matching portions must be included and maintained.
Project Termination	• Research Review Committee reviews technical panel recommendations, including project termination	**Termination** • What are the grounds for termination? How does MDT define these thresholds and how do they determine when

	recommendations, for each research project. Contracts include language about breach of contract by consultant and MDT.	they are reached/exceeded? • If termination is sought, what is the process for this?
Linking Financial Info to Research Outcomes	• Monthly invoices submitted to MDT with backup documentation.	• Financial reporting included in progress and final closeout documentation. • Strict adherence to budget parameters as possible • Good collaboration between financial offices and research unit
Training Needs	• Technology Transfer mentioned in Chapter 5 of the Research Manual • Training is provided as requested basis	• Training regularly offered. • Training provided for research customers and research managers
General	• MDT Research does not have a standalone strategic plan aligning with Agency Goals and Priorities; does have 1–2-year tactical plans within the strategic plan	• Developed relationships and network with principal investigators. • High level of interaction and familiarity with division office staff
Report Structure/Content	• No mention of 2 CFR § 200 or other federal laws • Has not been updated since 2011	• 2 CFR § 200 not referenced directly in preamble or purpose statements. Does provide reference to OMB Uniform Guidance. 2 CFR § 200 mentioned in contract template

2.9 California Implementation Guide

As with most efforts to implement new approaches and strategies, there are several things that an agency can do to facilitate effective implementation. This report provides initial assessments with respect to the practices outlined in the Implementation Guide for Compliance with 2 CFR § 200.

Information Review

To complete the task, the research team collected standard research agreements, research manual information, selection processes, and other details necessary to align with 2CFR§200 activities. We have completed detailed analysis of existing research program websites to collect relevant forms and research management guidance. Additional information was provided by the California DOT Panel Member.

The documents reviewed included:
- 2021 Research Manual Revision – final draft
- DRISI Directive #: 10-007: Identification and Disposition of Contract Equipment Purchases
- DRISI Directive #: 19-012: Pooled Fund Participation
- Service Contract Request
- Research Final Report Distribution Process
- Research Manual
- MOU Research Dissemination
- Indirect Cost Rate (IDCR) for University Contracts
- Caltrans Acquisitions Manual
- DRI Charging Practices Policy and Guidelines
- DRISI Business Plan
- DRISI Directives Overview
- Consultant and Contractor Out of State Travel
- Research Contingency Funding Request Process
- Travel Approval Requirements
- Communication Documents for Research Tasks
- Time Limits on Funding Availability
- DRISI Strategic Plan
- Research Closing Guidelines

The research team also completed a review of website documentation posted at https://dot.ca.gov/programs/research-innovation-system-information. A general internet search query was initiated through Google that provided summary information on Caltrans sponsored workshops and research events, including activities with the existing California based University Transportation Centers.

2 CFR § 200 Foundations

To properly assess the state's responses and preparation for the gap assessment, a series of foundational principles are reviewed first.

Accountability Basics and Performance Management

Performance Accountability and Federal Awards

Performance measures provide useful baselines for assessing accountability. Many components of the Federal Government Performance Plan are required by the Government Performance and Results Act Modernization Act of 2010. The legislation creates a more defined performance framework by prescribing a governance structure and by better connecting plans, programs, and performance information. The law requires more frequent reporting and reviews (quarterly instead of annually) that are intended to increase the use of performance information in program decision-making. Further the implementation of the GPRA Modernization Act allows for a rebalance of compliance efforts with a focus on results for the American taxpayer; standardization of grant reporting data, and improved data collection to increase efficiency, promote evaluation, reduce reporting burden, and benefit the American taxpayer. Ultimately, a performance-based approach will provide a means to measure progress and share lessons learned and best practices to inform future efforts.

Current practice in California

The current draft of the research manual does not reference 2 CFR § 200 directly in the Federal Laws preamble. The Acquisitions Manual for Non-Information Technology and Information Technology Goods and Services (December 2020) does provide some guidance on funding authority and property acquisition.

Approaches to Performance Management

Implementing a Performance Measurement System

There are currently no uniform metrics collected by a state TRO to assess the performance of the research enterprise. In order to fully implement a performance measurement system, a state TRO needs to adopt overall performance reporting, monitoring, and management practice.

A first step is to identify what data will be collected – and determine how that data fulfills broader agency goals and objectives. The identification of data to monitor and measure against objectives to achieve is a vital element of a performance measurement practice. Performance measures benchmark accomplishments against historical or international measures and advocate for particular actions. These measures show how programmatic improvement or decline occurs.

Preferred practice: use performance measurement to assess how to track the progress of strategies in place and use performance management to understand how to manage the strategy put into place.

Current practice in California

DRISI uses performance management and research project evaluation to manage the research program more efficiently. Section 6 of the Draft Research Manual addresses the approaches to performance management and associated information.

Data Collection and Analysis

State TROs collect a variety of data on the health and general direction of their programs. This data can include information on progress reporting, budget expenditures, personnel hours expended, implementation statistics, and a range of other leading and lagging performance indicators. Most of the data collection requested under Uniform Guidance is related to audit information.

Preferred practice: use a variety of data measures and indicators to assess program healthy and compliance. Different types of data such as leading, lagging, and diagnostic measures allow for more varied analyses both internally and externally.

Current practice in California

DRISI measures products outcome, efficiency, and stakeholder satisfaction types for its performance management

Reporting Process

Non-Federal entities are required to submit performance reports at intervals no less frequent than annually nor more frequent than quarterly. This reporting requirement allows for effective and regular controls for progress monitoring.

> *Preferred practice: regardless of the time periods addressed in progress reporting, the project manager needs to communicate directly with the performing organization principal investigator to address concerns or questions and circumvent potential disruptions to schedule or budget.*

Current practice in California

Annually each Program Steering Committee will review their portfolio of projects and determine if each project should be continued, modified, or canceled. The Project criteria used for this effort will include:

- Financial performance as determined through the performance measures
- Success to-date in meeting the objectives according to the schedule as determined through the performance measures
- Potential for ultimately meeting the project objectives within scope, on schedule, and within the budget.
- Potential risks impacting implementation
- Alignment of the project with the goals and priorities of Caltrans
- Availability of continued project funding
-

Considerations for Performance Measurement and Management

> *Preferred practice: use kickoff meetings as a jumping off point for establishing expectations, questions, and concerns about project plans and can also help to engage stakeholders early in the project progress.*

Current practice in California

Research project managers generally complete a kickoff, however the documentation for these meetings was not included in the materials reviewed. Caltrans Project Manager's handbook (**https://dpac.onramp.dot.ca.gov/downloads/dpac/files/handbook.pdf**) provides a reference document for completing this information.

Procurements and Cost Principles

Procurement activities for the transportation research office generally follow state agency purchasing procedures. Procurement is a critical component of federal cost principle requirements. To address Uniform Guidance, all procurement procedures must be fair, open, and well documented. All purchases must follow specific written procedures and should be approved by an appropriate responsible party.

In practice, TROs must ensure their procurement activities are completed using permitted approaches. Most research will fit into either the small purchases or competitive proposal categories. When using the non-competitive proposal or sole source options, TROs will need to provide a well-documented justification for not seeking competitive proposals.

There are many concerns with respect to procurement. The following situations are considered restrictive and as such, should not be used in the procurement:

- Placing unreasonable requirements on firms for them to qualify to do business;
- Requiring unnecessary experience, unreasonable insurance, or excessive bonding;
- Noncompetitive contracts to consultants that are on retainer contracts;
- Organizational conflicts of interest;
- Specifying a "brand name" product instead of allowing "an equal" product to be offered; and
- Any arbitrary action in the procurement process.
-

Preferred Practice: Document potential conflicts of interest; collaborations can potentially include conflicts of interest, which are mitigated by the disclosure of these collaborations pursuant to agency requirements and to document this material.

Current practice in California

No current practices for risk assessments were identified in the document review. Caltrans does use a competitive award process.

Terminology and Application

2CFR 200 does not change or modify any existing statute or guidance otherwise based on any existing statute. It does, however, define and revise certain cost principles and terms used in award management. A State TRO must demonstrate strong internal controls. In accordance with 2 CFR § 200.302, state agencies must have financial management systems in place that include written procedures for ensuring all expenditures conform the Uniform Guidance Cost Principles.

Current practice in California

No current references to 2 CFR § 200 practices and procedures were included in the documents reviewed although an update is being completed that will provide such updates.

Agency, Program, and Award Planning

Accounting Responsibilities

In order to properly maintain accountability and assure that funds are used for the transportation research purposes intended, a subrecipient needs to have certain policies and procedures in place that address budget, internal, and accounting controls. It is the responsibility of the state transportation research office to ensure these controls are in place. Accounting controls address the processes in place to track what money is taken in and what money is spent. Having accurate and comprehensive documentation of revenue and expenses is a regulatory requirement, and it is also a necessary part of a subrecipient's organizational responsibilities.

All accounting efforts should follow Generally Accepted Accounting Principles (GAAP). These uniform accounting standards exist to ensure consistency and transparency and can be understood readily by many. Most basic accounting software will meet these minimum standards, however, most transportation research performing organizations will have extensive project management systems. Accounting records for funds expended must be supported by original source documentation.

To meet regulatory requirements, a sub-recipient organization's accounting system should include at least the following elements:

- Chart of accounts: A list of account names and the numbers assigned to them.
- Journals: A chronological listing of when funds were received, in what amounts, and from what sources and how much was paid, when, and to whom payment was made.

- Payroll: A chronological listing of payroll amounts, benefits, and payroll taxes
- General ledger: A comprehensive depiction, with details by account, of the activities recorded in each account of an organization. Entries transferred to the general ledger are cross-referenced to the applicable subsidiary journal or supporting documentation to permit the tracing of any financial transaction, thereby creating an 'audit trail.'

Current practice in California

The research team did not identify a chart of journals or payroll information specific to research.

Aligning Program Goals, Objectives, and Measures to Agency Goals and Priorities

Agency Priority Goals are a performance accountability structure of the GPRA Modernization Act that provides agencies a mechanism to focus leadership priorities, set outcomes, and measure results, bringing focus to mission areas where agencies need to drive significant progress and change. APG statements are outcome-oriented, ambitious, and measurable with specific targets set that reflect a near-term result or achievement agency leadership wants to accomplish within approximately 24 months. In some instances, agencies are also utilizing the APG structure to drive progress and monitor implementation of agency management reforms and priorities, a modification of the traditional APG statement format.

Current practice in California

The current DRISI strategic plan provides several goals related to the alignment of agency priority goals with contract awards and spending. Goal 1: Strengthen the Division's contributions to Department wide problem solving is clearly in alignment. The 24-month window for objectives is a bit unclear, but this is a strong example compared to other states.

Pre-Award Requirements

Pre-Award Performance Measurement Requirements Under 2 CFR § 200

Typical approaches to pre-award requirement include financial review to ensure that recipients and contractors are financially capable and have the financial integrity to administer Federal funds in a research project.

Preferred practice: for non-Federal entities that have not received an award within the past 3 years be subject to additional financial review as part of the risk assessment exercise. State TROs can require subrecipients to include milestone plans with applications.

Current practice in California

Pre-award financial review does not appear in the research manual or project manager's handbook. *This may be an area where additional documentation of practice is needed.*

Risk Assessment and Evaluating Recipient Capabilities

Entities receiving federal awards are required to review and assess the potential risks presented prior to making an award (2 CFR § 200.205).

Preferred Practice: State TRO managers should regularly meet with key personnel from performing organizations and their offices of sponsored programs. These site visits and risk assessments provide valuable information for all parties and clarify expectations. In addition, these partnerships provide forums to address minor problems before they turn into larger concerns.

Current practice in California

No risk-based approaches are used in the current research practice for DRISI.

Other Requirements

Pass through entities are treated differently as subrecipients of Federal funding. The distinctions throughout the UG have been confirmed in FHWA interpretations. As such, pass-through entities must accept an indirect F&A cost rate negotiated with a federal agency or notify the OMB as to why the negotiated rate is not accepted and make publicly available the criteria to support the deviation. In a state where there is a negotiated rate amount, it would only apply in cases where the university is performing contracted work. If the funding allows for substantial independent work, the state TRO would need to contact USDOT for additional guidance.

Preferred practice: become familiar with the SAM and ensure that performing organizations are included. Additionally, develop and document your organization's policies and procedures for indirect cost rate negotiation.

Current practice in California

Project managers identified familiarity with SAM. However, there is no mention of it in the research manual or other reviewed documentation. The team did not identify how recipients being registered and considered for additional work for Caltrans. All research is being done by institutions outside of the agency at preset.

Post-Award Requirements

Performance Measurement Requirements in 2 CFR § 200

There are multiple post-award requirements in 2 CFR § 200. Recipients of Federal awards must relate financial data to the performance accomplishments of an award. Recipients must also provide cost information to demonstrate cost effective practices. Uniform Guidance did not change requirements for property records; requirements for property records ensure that non-Federal entities maintain an equipment inventory system. Recipients and subrecipients must maintain records which clearly show the source, amount, and timing for all matched contributions.

Preferred practice: maintain records showing sources, amounts, and timing for matched contributions. Records of matches that exceed required matching portions must be included and maintained.

Current practice in California

Time Extensions and Period of Performance

Period of performance refers to the dates during which the non-Federal entity may incur new obligations to carry out the work authorized under the Federal award. The Federal awarding agency or pass-through entity must include the start and end dates of the period of performance in the Federal award. Due to the nature of the work to be carried out by the recipient, the usual periods of performance may not routinely be appropriate for research, evaluation, and statistics awards. Accordingly, a research, evaluation, or statistics award may exceed a 3-year initial period of performance (and/or a 5-year total period of performance, and more than two continuations awards), when appropriate under the particular circumstances of that project.

> *Preferred practice: build in a six-month buffer to the period of performance to allow for delays and follow through on behaviors that consistently cause delays. Deliverables may still be scheduled within the windows as appropriate and preferred by the State TRO.*

Current Practice in California

Several practices will need to be addressed to ensure compliance. The need for a change in a research project can happen at any time after the project's initiation. The Research Manual provides that a research project may need to be changed due to new information being discovered, modifications in funding possibilities, or modifications in research priorities.

Monitoring Responsibilities for Federal Awarding Agencies and Pass-Through Entities

The purpose of subrecipient monitoring is to ensure that the subaward is being used for the authorized purpose. The pass-through entity must have written policies on subrecipient monitoring, as described in 2 CFR § 200.331. The pass-through entity is required to monitor the subrecipient's use of Federal funds during the program period. Risk assessments continue post-award.

Some of the mechanisms that may be used to monitor subrecipient activities throughout the year include:

- regular communication with subrecipients and contactors by phone and email
- appropriate inquiries concerning program level activities;
- performing subrecipient site visits to examine financial and programmatic records;
- observing overall operations; and
- reviewing detailed financial and program data and information submitted by the subrecipient.

> *Preferred practice: maintain simple rules and easy to follow compliance requirements. Research has shown that complex rule and requirements for monitoring or reporting have a higher risk of non-compliance.*

Current Practice in California

Regular meetings are held, and progress meetings are documents. A QPR template has been established.

Closeout and Post-Closeout

Closeout Requirements

Project closeout refers the systematic process by which the state TRO determines that all required technical work under a contracted agreement has been completed by the recipient and the TRO, and all applicable administrative requirements are met. The closeout period begins when final deliverables are accepted by the agency within the period of performance.

Clear kickoff meeting procedures set the stage for project closeout and recordkeeping. Project kickoffs should clearly establish expectations. Document the workflow to close out projects and align the process with the 120-day window allowed under the Uniform Guidance.

> *Preferred practice: use a project management software package for tracking and monitoring research project management. Other options include programs like Workfront, Asana, or Mavenlink.*

Current Practices in California

According to the Research Business Plan, upon completion, the project manager follows DRISI's close-out procedures to close the research project. The project manager also produces the RRs document that gives a general audience an overview of the research findings. RRs are also posted on DRISI's RR website.

The project manager works with the researcher to share the research results with customers and other stakeholders.

Recordkeeping and Post-Closeout Requirements

As with other elements of project execution, the records retention elements should be included in contract language and in kickoff meeting discussions.

Preferred practice: keep electronic copies in searchable format. When scanning documents, ensure information is available with character recognition. While the cost for digital storage may be significantly lower than keeping hard copy documents, there is still a cost for e-storage.

Current Practices in California.

To close a DRISI task activity the designated manager needs to follow and complete 12 Research Closing steps. While these address a series of activities to close out the project, none are specifically in reference to searchable.

2.10 California Gap Assessment

The objective of this task is to assess current gaps in state practices as they relate to 2 CFR § 200 implementation against the identified benchmarks in the document 2 CFR § 200 Implementation Guidance: Preliminary State Report California DOT provided by ARA, Inc. to CDOT in October 2021, which outlined preliminary findings on data collection in relation to 2 CFR § 200 compliance.

This gap assessment is meant to be used in tandem with the implementation guide to further compliance with 2 CFR § 200.

Red = Critical Issue for High Benchmark

Green = Recommended Approach

Item	CDOT Current Practices	High Benchmark for 2 CFR § 200
Risk management	- Competitive award process - PSC annual review of portfolio includes reviewing potential risks that may impacting implementation. No mention of specific risks identified. - No current practices for risk assessments were identified in the documents reviewed. - No references to 2 CFR § 200 practices and procedures concerning internal controls and financial management systems for ensuring all expenditures conform to Uniform Guidance Cost Principles - Pre-award financial review does not appear in the research manual or project manager's handbook – additional documentation of practice is needed.	**Risk assessments on subrecipients** - No mention of risk assessments being done on subs - Recommendation: include some discussion on risk assessments for performing organizations **Penalty for high risk performing organizations.** - No mention of any penalties for high risk - No mention of the process used to assess and manage risk. - Consider approaches for non-award to poor performing organizations or PIs (understanding the risk associated with agency wide bans/delays) **Risk Assessment Documentation** - Include an example risk management table/matrix and go through sample assessment and mitigation strategies with a flow chart to show how meeting this area. - Provide details on the risk assessment process used. - Include example Pre-award risk form in Research Manual

Project Scheduling	• Research project managers complete a kickoff meeting. • Documentation for kickoff meetings was not included in the materials reviewed.	**All data stored** • Data stored in a functional data lake architecture and stored for as long as possible to support current and future analyses. • Data stored in a well-known, modern format. **Recommended approaches** • Include a sample project schedule. • Include clear kickoff meeting documentation. • Several practices may need to be addressed to ensure compliance with time extensions and period of performance including building in a six-month buffer to the period of performance to allow for delays.
Closeout	• PM follows DRISI's procedures and produces the RRs document and shares research results. • PM documents DRISI's 12 Research Closing steps. None of the Research Closing steps are specifically in reference to searchable formats. • Project evaluations done by the PM only at the conclusion of each project. • All canceled projects are still reviewed	**Process** • Include a section on closeout discussing closeout period after contract completion. • Expectations provided in kickoff meeting and separately documented. • Six-month lead times on project close out • Keep electronic closeout copies in a searchable format and ensure info is available with character recognition
Data Collection/Management	• DRISI uses performance management and research project evaluation outlined in section 6 of the Draft Research Manual	**Data Management** • Most or all desired data is collected. • Data collected is used for decision making and performance tracking.

	• Measures products outcome, efficiency, stakeholder satisfaction • Uses RPMD to track research requests	• Process documentation is reviewed and updated. • Address: How is data collection currently accomplished/what specific performance measures are collected? • Recommend using a variety of data measures and indicators, such as leading, lagging, and diagnostic measures, to assess program health and compliance
Reporting	• Annual Program Steering Committee portfolio review • Regular meetings are held, and progress meetings are documented. A QPR template has been established. • Current research projects require two-page research notes brief. • End of project requires two-page research results and final report.	• Quarterly reports, supplemented by regular project reporting throughout the life cycle. • Financial programs monitored against research performance. • Include chart of accounts, journals, payroll, and general ledger in subs accounting systems to comply with GAAP
Sub Monitoring	• Familiarity with SAM? No mention of sub review in research manual	**Subrecipient Monitoring** • Implement regular review of subrecipients which could include site and desk reviews. • As per 2 CFR § 200, CDOT is responsible for monitoring activities of the award recipients and their subs to ensure that the: sub award is used for authorized purposes, sub award performance goals are achieved including deliverables and completion of the final report package in accordance with contract language, financial status reports are accurate, complete,

		and submitted in a timely manner, final invoice is submitted on time, and completed projects are closed timely in the federal accounting system
		• Sub monitoring should include ensuring timely and appropriate action is taken on all deficiencies pertaining to any award.
		• What risk assessment process is used to monitor subs and prove a formal risk assessment has been taken?
Project Termination	• Research project may need to be changed at any time after project's initiation, due to new information being discovered, modifications in funding possibilities, or modifications in research priorities. • Changing a research project scope process clearly defined • Termination of a research project goes through the same steps as changing a research project	**Termination** • What are the grounds for termination? How does CDOT define these thresholds and how do they determine when they are reached/exceeded?
Linking Financial Info to Research Outcomes	• PSC conducts annual review of portfolios to determine financial performance as determined through performance measures. • Performance measures recorded include list of questions, including a question on if the project is on or below budget.	• Financial reporting included in progress and final closeout documentation. • Strict adherence to budget parameters as possible • Good collaboration between financial offices and research unit • Discuss how the budget is developed and who works on this.

	• Recipients of Federal awards must relate financial data to the performance accomplishments of an award – little mention outside of project reporting on or under budget	• Consider review and financial review of outcomes six months after project closeout. • Address: how specifically is financial info linked to research outcomes and what performance measures are collected in this regard
Training Needs	• Caltrans PM receive formal contract management training. • Training mentioned as part of Technology Transfer	• Training regularly offered. • Training provided for research customers and research managers
General	• N/A	• Developed relationships and network with principal investigators. • High level of interaction and familiarity with division office staff • Include info on submission of problem statements, how to rank and select problem statements, development of RFPs, guidance on proposal writing, and selection of proposals. • Address: does the current research manual mention Government Performance and Results Modernization Act of 2010 and use performance measures to assess accountability?

Report Structure/Content	• No current references to 2 CFR § 200 practices and procedures • Current DRIS Strategic Plan provides several goals related to the alignment of APG with contract awards and spending. This is a strong example compared to other states	• Example chapters/sections: Pre-Award activities, research project activities, development of annual research work program, research implementation, performance tracking & monitoring, evaluation and reporting, technology transfer program, project closeout • Consider explicitly referencing 2 CFR § 200 in the Federal Laws preamble

3.0 Summary and Conclusion

The Uniform Guidance (2 CFR § 200) is the cornerstone of Federal grants and financial assistance but can be complicated to understand, especially for new USDOT grantees. How it applies to research programs and the ultimate adherence to policy has been set by USDOT interpretations.

Compliance with 2 CFR § 200 requires an organization to have the right resources and expertise in place to ensure that all processes and procedures are in line with the regulations.

This project collected information on the current state of compliance for five state research programs and aligned current practices against a benchmark study for further adherence to these principles. Each state identified practices where they could improve their efforts.

An envisioned peer exchange to share these practices and advance a continuing discussion is recommended for future efforts.   Based on the timeline that was afforded this project, it was unable to be scheduled.

4.0 Updated guidance for 2 CFR § 200 Implementation

There are several sources for additional information to support the implementation of 2 CFR § 200 policies. Provided here is a short reference list describing additional compliance information.

Office of Management and Budget. 2 CFR Part 200, Appendix XI Compliance Supplement. April 2022. https://www.whitehouse.gov/wp-content/uploads/2022/05/2022-Compliance-Supplement_PDF_Rev_05.11.22.pdf.

> In April of 2022, the Office of Management and Budget released a compliance supplement for 2 CFR Part 200, along with a section for the Department of Transportation. This overarching document covers general compliance requirements of uniform guidance and breaks down specific agency program requirements.

National Highway Institute. Understanding the Uniform Guidance Requirements (2 CFR § 200) for Federal Awards. Course FHWA-NHI-231034. 2023. https://www.nhi.fhwa.dot.gov/course-search?tab=0&key=231034&sf=0&course_no=231034&utm_source=GovDelivery&utm_medium=email&utm_campaign=231034coursepromo011723

> FHWA has published a web-based training (FHWA-NHI-231034) that provides an overview of Uniform Guidance by applying relevant provisions to the Federal-aid Highway Program (FAHP). The course is approximately 9 hours total and accounts for 0.9 units of CEU. The primary target audience includes State DOTs, regional and local transportation agencies, and FHWA division and program staff.

Federal Highway Administration. Federal-aid and Grant Management Overview Territorial Peer Exchange. http://prltap.org/eng/wp-content/uploads/2018/08/FHWA-Federal-aid-and-Grants-Management.pdf

> FHWA Resource Center released a PowerPoint from their Territorial Peer Exchange on Federal-aid and Grant Management Overview.

United States Department of Transportation. Federal Transportation Funding: Fiscal Year 2023 Discretionary Grant Preparation Checklist for Prospective Applicants. 2023. https://www.transportation.gov/grants/dot-navigator/fy-2023-discretionary-grant-preparation-checklist

> FHWA has published a FY2023 Discretionary Grant Preparation Checklist for Prospective Applicants to assist local agencies in complying with a variety of federal grant related requirements as well as tips and best practices.

Department of Housing and Urban Development. 2 CFR Part 200 Training. 2022. https://naihc.net/wp-content/uploads/2022/06/VT-2-CFR-200-Presentation-Handout.pdf

> The Department of Housing and Urban Development published a comprehensive slide deck outlining major 2CFR 200 requirements in tandem with the Office of Native American Programs. This includes general provisions as well as a list of different requirements based on the federal regulations.

Chief Financial officers Council. 2 CFR Frequently Asked Questions. May 3, 2021. https://www.cfo.gov/assets/files/2CFR-FrequentlyAskedQuestions_2021050321.pdf

> The U.S. Chief Financial Officers Council published a 2 CFR FAQ document that includes questions basic cost principles, audit requirements, procurement standards, and government software including SAM.