NCHRP 20-111J

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

Prepared for:

AASHTO Research Advisory Committee

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1. INTRODUCTION

This is the final report for National Cooperative Highway Research Program (NCHRP) project 20-111J: Successful Practices for State Transportation Research Office's Compliance with 2 CFR 200.

1.1 Research Objectives

The objective of this research was to produce comprehensive guidance on successful practices for complying with 2 CFR 200 for state transportation research programs using federal aid. The guidance addresses implementation challenges identified by transportation agency staff and the vendors and/or sub-recipients and provide potential alternatives. These challenges included — but are not limited to—implementing Uniform Guidance requirements, at both the program and project levels, related to:

- Performance period end dates;
- Project closeout;
- Risk assessment;
- Cost sharing;
- Procurement;
- Indirect cost rates;
- Reporting; and
- Performance measurement.

1.2 Background

Administrative guidance in any hierarchical setting represents a precarious balancing act between overbearing micromanagement and absolute absence of regulation. Our Federal government re-distributes billions of dollars to state and local entities, covering a broad spectrum of needs from housing assistance, local program aids, and community policing, to research support and transportation planning activities. In December 2014, following years of preparation and fact-finding, reforms to the multitude of guiding documents on this Federal distribution of funding to other public entities went into effect. The Office of Management and Budget (OMB) streamlined the Federal government's guidance on administrative requirements, cost principles, and audit requirements for Federal awards by creating an "Omni Circular"—also known as "Uniform Guidance"—through 2 CFR part 200. The stated goals of this reform were to streamline guidance for Federal awards by easing administrative burdens and strengthen oversight to reduce waste, fraud, and abuse. The Omni Circular principally addressed three areas:

- Reforms to administrative requirements,
- Reforms to cost principles, and
- Audit requirements.

Uniform Guidance was designed to encourage efficiency by more effectively focusing Federal grant resources on improving ***performance*** and ***outcomes*** while ensuring financial integrity of taxpayer supplied funding. Over the years, the proliferation of multiple individual circulars addressing a variety of topics allowed inconsistencies to develop in the treatment of certain expenses and practices.

Uniform Guidance allows the government to better administer grants and other types of financial assistance by decreasing the administrative burden for recipients and reducing the risk of waste, fraud, and abuse. The Trump Administration, in the summer of 2017, set aside many of the data collection requirements (see OMB Memorandum M-17-26) stipulated under Uniform Guidance, but the general parameters and changes to other provisions remain in effect.

The Federal Highway Administration (FHWA), as with all Federal agencies responsible for grant and award funding, developed an implementation guidance strategy. This implementation strategy included coordination, communication, training, documentation updates, and other requirements (HCFB-31, December 4, 2014). FHWA provided additional guidance in its memo from July 2017 specific to use of SP&R funding for research. The impact on FHWA pass through entities, including State DOTs, provides the strongest area of concern for transportation research offices.

As part of FHWA's approach, several state transportation agencies participated in a National Process Review on Subpart B of State Planning and Research (SPR). After concluding that there were no uniform metrics for successful implementation for State DOT research programs and general grant administrative procedures, the Process Review Team recommended a set of processes for monitoring unexpended federal funds beyond the work program time frame including (1) implementation of processes that allow follow up on audit findings; (2) documentation of research monitoring procedures; and (3) and review of department practices related to federal procurement law. To date, little additional specific guidance has been provided to transportation research program offices.

2 CFR 200 remains a complex regulation with significant ambiguity in its provisions. As such, this has caused frustration and concern as State DOT agencies/departments attempt to implement the regulations, including cost sharing, time extensions, period of performance, subrecipient monitoring, closeout, and indirect costs. The FHWA process review included expectations that each State transportation research program would develop their own individual procedures for compliance with 2 CFR 200, but there was no national discussion of successful practices leading up to the implementation guidance. State transportation agencies are, however, expected to revise their processes accordingly to ensure compliance.

The aforementioned FHWA July 2017 guidance indicated that for most SP&R funded transactions, the subrecipient is not considered a pass-through entity. 2 CFR 200.330 indicates that "a non-Federal entity may concurrently receive Federal awards as a recipient, a subrecipient, and a contractor, depending on the substance of its agreements with Federal awarding agencies and pass-through entities." The 2017 guidance from FHWA demonstrates how this determination may be made for common applications by SROs. Specifically, FHWA held that the status of SPR funds used to pay for State DOT research conducted by universities is determined by the

substance of the relationship. The factors used to determine whether funds are being spent under a "pass through" grant, subaward, or a contract are described in detail in 2 CFR 200.330 and described in greater detail below:

1. When a State DOT issues or awards a grant to a university to conduct transportation research where the principle purpose is to carry out a public purpose for the benefit of the university and not to acquire property or services for the State DOT (see 2 CFR 200.330(a)), the relationship is a “pass through”. FWHA cites an example that would fall under this scenario as if the State provides financial support for a university to carry out research at the university's discretion with limited direction from the State DOT.

2. If a State DOT issues a fee-for-service contract to conduct specific studies, where there is no programmatic discretion for the university, the substantive transaction is generally not considered a "pass-through" grant or "subaward." As such, the state DOT could negotiate to either pay the prevailing overhead/indirect cost rate or negotiate with the university to pay a lower rate. Other provisions would subsequently follow as well. Since most SPR research is conducted as directed by the State DOT under a contractual agreement, it is not subject to pass through/subaward provisions. Research projects are chosen by and regularly reported to the State DOT.

Discussions in the transportation research community at American Association of State Highway and Transportation Officials (AASHTO) Research Advisory Committee (RAC) meetings have provided an avenue to advance a better national understanding of how state research programs are influenced by the new consolidation of regulations. In October 2016, the New Jersey Department of Transportation identified implementation guidance as a core need for its periodic research peer exchange. The participating states identified key challenge areas, including measurement, risk assessment, time, and procurements. The peer exchange participants (including the states of New Mexico, Maryland, Idaho, New Jersey, and California) identified this set of recommendations to help adhere to 2 CFR 200 practices:

• Conduct risk assessment on institutions of higher learning,

• Develop realistic project schedules,

• Include a buffer to ensure performance period,

• Require final invoices 90 days post contract end,

• Report project terminations, and

• Link financial data to performance measurement.

Figure 1-1: Research life cycle

These recommendations continue to shape the expectations of research officers. The research lifecycle (Figure 1-1) guides the state transportation research office (TRO). 2 CFR 200 influences all seven of these phases.

Identification of projects and potential researchers requires risk assessments. Prioritization of project ideas opens the door to a host of considerations on timeframes and reporting requirements. Selection is rooted firmly in procurement while the research itself is conducted in the regulatory environment for purchasing. Determinations of what might be allowable, allocable, reasonable, permissible, necessary, and consistent influences the work. At the implementation stage, concerns on procurement and allowability emerge once again. Measurement, data collection, and evaluation is firmly ingrained in the Uniform Guidance. The intent is to help focus on outcomes and performance, rather than artificial measures of compliance. The research life cycle concept rests on stakeholders – the research customers, the leadership in the agency, a collection of researchers and performing organizations, and the larger transportation community. For all of these stakeholders, different elements of the Uniform Guidance will shape their view and expectations of the projects and activities of a TRO.

The Ahead of the Curve Training Program currently includes discussion on application of 2 CFR 200 in its Transportation Research Funding course. It is included as a special topic. This training course is currently under development under NCHRP 20-105(A) with a finalization schedule for the fall of 2019. One of the tentative slides (Figure 1-2), presented here, shows the "procurement bearclaw" used to discuss options for purchasing and acquiring research services.

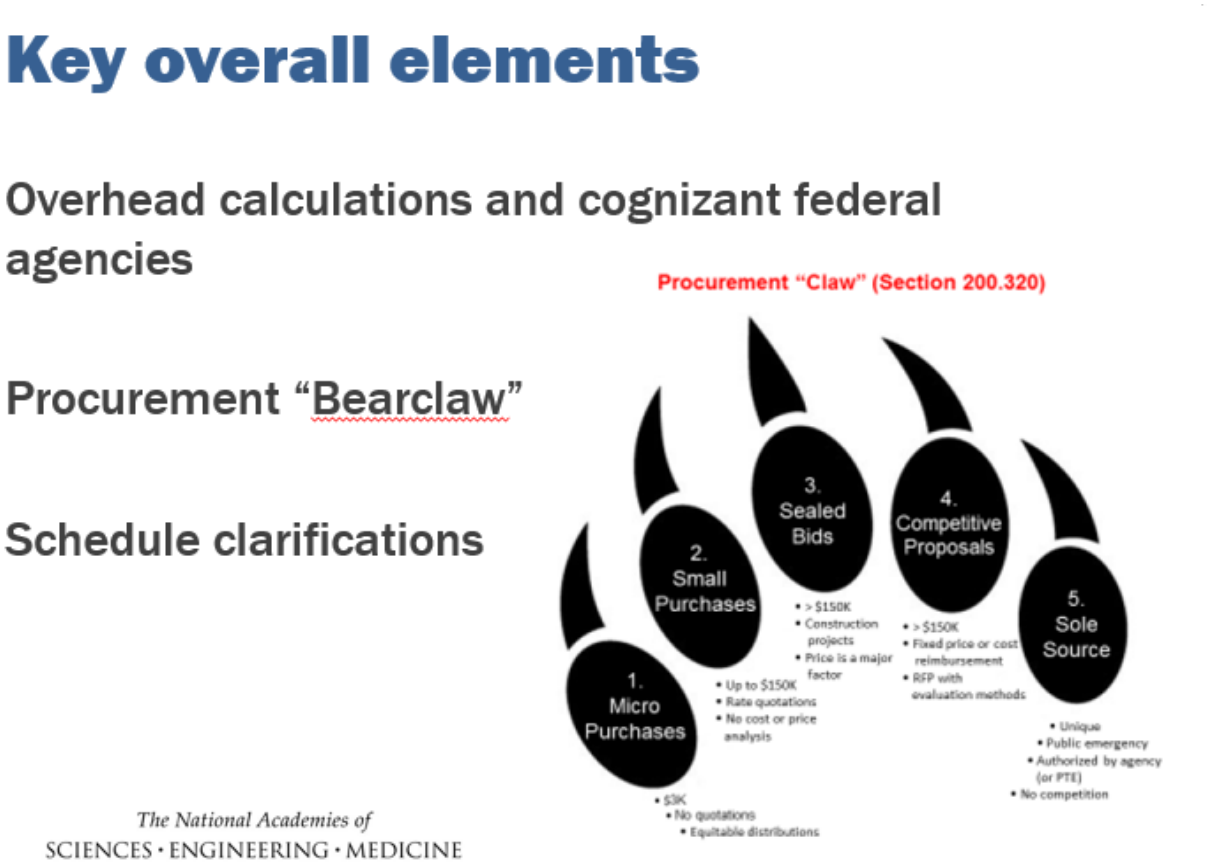

Figure 1-2: Procurement "Bear Claw" from Ahead of the Curve Training.

Other critical topics related to the implementation of Uniform Guidance presented in the Transportation Research Funding course include costs of computing devices, administrative and clerical support, participant support costs, travel, solicitation cost limits, prompt payment provisions, cost sharing, and final reporting and closeout. In other courses, the instruction design team has also included elements associated with risk assessment and project no-cost time extensions. NHI also offers a class Highway Research 101: Administering the FHWA Highway Research Program (course number FHWA-NHI-310124).

The SPR Subpart B Research Program Review of November 2014 showed that there is substantial opportunities to expand upon knowledge related to running State research programs. Lack of an effective orientation program for FHWA Research Coordinators to help staff understand the program rules, regulations, policies, and expectations was one such opportunity. This guidance could be incorporated into such training programs. This research effort can help bring clarity to the entire research community on Uniform Guidance.

Throughout this report various areas of 2 CFR 200 and the associated concerns with compliance are addressed; however since the focus of this report is on the effects to State Transportation Research Officers, several key areas of interest for state TOR managers are described below.

1. Maintaining progress reporting throughout the project timeline assists in 2 CFR 200 compliance

Using a performance-based approach to measure progress will aid states in quantitatively measuring indicators of project status. These provide critical information on project advancement and aids in improvement strategies as well as help to prevent schedule slippage.

2. Strong kickoff meetings breed success throughout the project and aid research managers in adhering to timelines

Well-defined project kickoff meetings establish expectations, aid in answering questions early on in the project and engages multiple parties the planning process. This helps avoid surprises later on, which can lead to schedule delays.

3. Project end date buffers built into schedules allow flexibility in meeting project deadlines

Unplanned complications often occur in projects; with adherence to project end dates and closeout requirements put forth in 2 CFR 200, it behooves research programs to build in buffer time around project end dates. This allows for delays and complications to be accommodated without compromising project schedules and closeout procedures.

4. Understanding contractor-vendor relationships versus pass-through funding remains a critical concern

Continuous monitoring ensures lower risk of non-compliance and better adherence to project timelines. Proactive monitoring includes thoroughly reading contract documents, clarifying points of confusion, documenting transactions as well as keeping documentation well organized.

5. Compliance is rooted in a good understanding of the definitions

Research managers need a clear understanding of the key terms and technical differentiation between various definitions. A comprehensive and standardized glossary for use across states will aid in compliance. If guidance is too complex, it poses a higher risk of non-compliance.

6. Written and documented policies for invoice review, project design, conflict of interest, and project closeout expectations will be helpful

Not many research programs have extensive knowledge of reporting and documentation requirements set forth by 2 CFR 200 and many manuals that do exist do not contain specific information. Due to this, many research programs may not have written documentation that is sufficient to address issues arising during projects.

7. Clearly documenting and reviewing research management processes encourages compliance; each stage of the life cycle requires attention

Documenting policies and procedures and making them available for use and review allows for consistent approaches to common questions and processes and allows for easier interpretations.

8. A peer exchange among research managers can highlight additional preferred practices and identify chokepoints for these processes

A common finding is that many parts of 2 CFR 200 do not clearly relate to research programs and the parts that are required may not be clear or familiar to research offices. Collaboration among research managers can aid in this process. Additionally, many states felt they had a good working relationship with local FHWA representatives; these relationships can be utilized more fully and more uniformly from state to state.

1.3 Organization of Final Report

This NCHRP 20-111J final report is organized as follows:

- **Chapter 2: Survey Results and Literature Assessment** – This chapter synthesizes the findings from a review of the state of the practice in the application of 2 CFR 200. It follows a literature review and document scan and includes definitions and foundational information. Findings from the August 2018 survey as well as additional survey responses received in April of 2019 are also included in this chapter.

- **Chapter 3: Interview Findings** – This chapter provides summary information on the interviews conducted form the panel-approved list of interview subjects.

- **Chapter 4: Principal Challenges** – Based on the findings from the state of the practice review, surveys, interviews, and FWHA guidance teleconferences, this chapter presents the principal challenges including gaps, barriers, and needs for transportation research offices with respect to providing best practices for 2 CFR 200 implementation.

- **Chapter 5: Implementation Guide** – This chapter provides a summary of lessons learned as well as the implementation guide and associated glossary of key terms.

- **Chapter 6: Opportunities for Further Research**

- **Chapter 7: Conclusions and Recommendations for Implementation** – This chapter summarizes key findings and conclusions as well as provides recommendations for implementation of 2 CFR 200.

- **Appendix A – Presentation Agenda**

- **Appendix B – Survey Instrument**

- **Appendix C – Interview Guide**

2. SURVEY RESULTS & LITERATURE ASSESSMENT

As noted above, there has been a substantial amount of time and effort devoted to compliance with 2 CFR 200 regulations. The focus of this project is on the impact for state transportation agency research offices.

Aligning Prior Memoranda

In order to better understand the changes, the following graphic was developed by the Council on Financial Assistance Reform (COFAR) [since disbanded]. The graphic shows the circulars and cost-principles for various non-federal organizations and governments and how they relate to the new provisions.

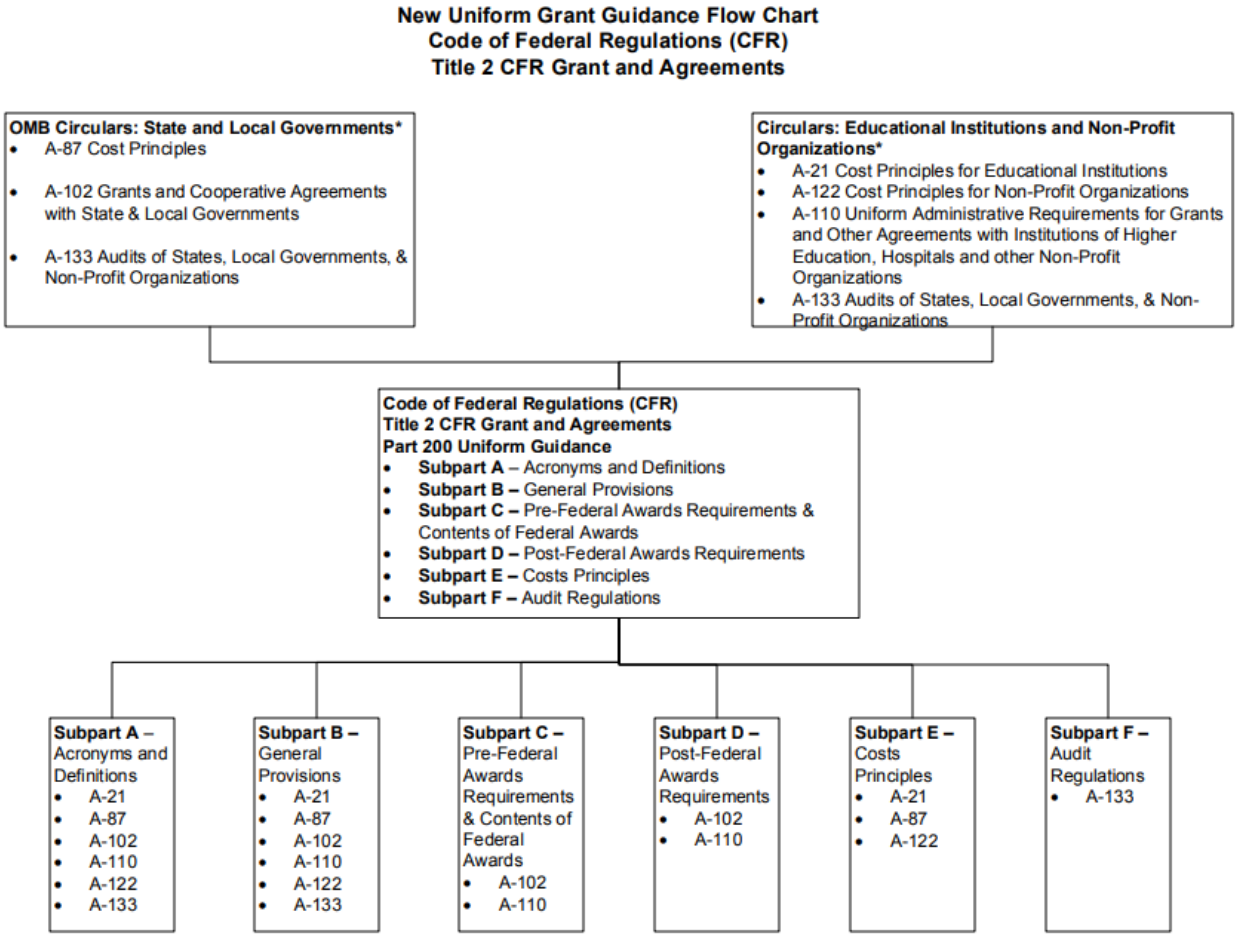

Figure 2-1: Comparison between former circulars and new CFR (source: COFAR, 2015)

Ultimately, each of the provisions is addressed and or revised. Even with the crosswalk, some ambiguity remains.

2.1 General Parameters for 2 CFR 200

Key Definitions and Discussion

Definitions were revised and broadened to cover all the requirements and the categories of assistance. (Definitions noted in HUD guidance documentation with additional commentary.)

Cognizant Agency.

Generally, the cognizant agency is the Federal agency with the largest dollar value of total Federal awards with a governmental unit or nonprofit entity. (See 2 CFR 200.19). The cognizant agency is the lead agency that a non-Federal entity deals with on issues. For example, the lead agency for some grant recipients for indirect cost rates may be HHS if HHS provides the most funding to the recipient. (See also the explanation under §200.108. Inquiries). Many other agencies, including the Department of Defense (DOD) or the United States Department of Agriculture (USDA), can be the cognizant agency. FHWA is rarely the cognizant federal agency for state DOT research office performing organizations. However, nearly all agencies may be designated as a cognizant agency for purposes of 2 CFR 200. The cognizant agency is responsible for reviewing, negotiating, and approving cost allocation plans; indirect cost rate and similar rates; monitoring non-Federal audit reports; conducting Federal audits as necessary; and resolving crosscutting audit findings.

Contractor.

Contractor is used rather than the term "vendor," which was used in OMB Circular A133. This relationship becomes important as it is differentiated from a subawardee, subrecipient, or grant recipient. A contractor means any entity that receives a contract. (See 2 CFR 200.23) This definition is revised, as the new definition looks at the nature of the relationship, rather than what the document/agreement is called (2 CFR 200.22.) (See also 2 CFR 200.330. Subrecipient and contractor determinations.)

Federal award.

Federal award, depending on the context, can mean either (a) Federal financial assistance, or (b) the documentation that provides the assistance, e.g. the grant, cooperative agreement or cost reimbursement contract. (See 2 CFR 200.38)

Fixed Amount Award.

In this type of award, the Federal Agency or pass through entity provides a specific level of support without regard to actual costs incurred. Accountability is based primarily on performance and results. (See 2 CFR 200.45). Fixed amounts could be provided as general support for a conference or other activity without separate provisions.

Micro-Purchase.

This is a new category of supplies or services that uses simplified acquisition procedures that can be used by non-Federal entities. The micro-purchase threshold (floor) is set by the Federal Acquisition Regulation. (See 48 CFR 2.101) At the present time, it is generally $3,000. The threshold is periodically adjusted for inflation. (See 2 CFR 200.67). This option allows for sole source agreements and professional services acquisitions underneath a threshold amount.

Non-Federal entity. (New)

Non-Federal entity means a state, local government, Indian tribe, institution of higher education (IHE), or nonprofit organization that carries out a Federal award as a recipient or subrecipient. This is the term that is used in the regulation instead of, for example, grantee. (See 2 CFR 200.69) States no longer includes Indian tribes. (See 2 CFR 200.90). Local governments, which are specifically defined, include local agencies for planning (See 2 CFR 200.64). Research awards directly to these entities could require adherence to 2 CFR 200 guidelines.

Pass-Through Entity.

Pass-through entity means a non-Federal entity that provides a subaward to a subrecipient to carry out part of a Federal program. This could include a state, which could "pass funding through" to a county or local government, or nonprofit. (See 2 CFR 200.74). As noted previously, this is differentiated from a contractor or research performing organization.

Subrecipient.

Subrecipient means a non-Federal entity that receives a subaward from a pass-through entity to carry out part of a Federal program. This definition is revised from the prior circulars and has been addressed in the FHWA memoranda noted previously. (See 2 CFR 200.93).

Cost Sharing or Matching.

This chapter clarifies policies on voluntary committed cost sharing. Matching funds remain an important part of some research programs. This chapter stipulates that voluntary committed cost sharing is not expected under Federal research proposals and cannot be used as a factor during the merit review of the proposal. Cost sharing may only be considered when required by regulation and transparent in the notice of funding opportunity. (See 2 CFR 200.306(a)) Only mandatory cost sharing or cost sharing included on the project budget must be included in the organized research base for computing the indirect cost rate or reflected in the allocation of indirect costs. Valuation of cost sharing remains largely unchanged from OMB Circular A-110.

Period of Performance.

States may charge to Federal awards only allowable costs incurred during the period of performance and any costs incurred before the Federal awarding agency or pass-through entity made the Federal award authorized by the Federal awarding agency or pass through entity. (See

2 CFR 200.309.) Federal awarding agencies may authorize no-cost extensions of the period of performance (See also 200.308, Revision of budget and program plans.).

Supplies.

The definition of supplies in existing guidance includes all tangible personal property that fall below the threshold for equipment. (See 2 CFR 200.314) Since, as technology improves, computing devices (inclusive of accessories) increasingly fall below this threshold, (currently $3,500) the guidance makes explicit that when they do, they shall be treated consistently with all other items below this level.

Performance Measurement.

This chapter of the regulations provides stronger guidance to measure performance in a way that encourages entities to improve program outcomes, share lessons learned, and spread the adoption of promising practices. (See 2 CFR 200.301.) The original requirement was for Federal awarding agencies to require recipients to use OMB-approved standards to provide financial and performance information. Recipients were to be required to relate financial data to performance accomplishments, and must also provide cost information to demonstrate cost effective practices. The Trump Administration set aside this requirement.

2.2 Procurement Standards

States must use their own policies and procedures. (See 2 CFR 200.317) for procurement. All other non-Federal entities, including subrecipients of a state, *must* have and follow written procurement procedures that reflect the procurement standards in part 200. This chapter does not require use of a contract administration system; it is a matter of judgment as to how the non-Federal entity will maintain oversight of contracts and contractors. (See 2 CFR 200.318)

2.2.1 Methods of Procurement

There are five options. (See 2 CFR 200.320):

1. Small purchase procedures contracts not exceeding the Simplified Acquisition Threshold (currently $150,000) but considered to be increasing to $250,000 in FFY2019
2. Sealed bids (formal advertising)
3. Competitive proposals
4. Noncompetitive proposals- clarified to specify that it can be used only under certain conditions with documentation, and
5. Micro-purchases (generally under $3000).

2.2.2 Contract Provisions

2 CFR 200 designates important provisions that must be included in contracts of non-Federal entities.

The Appendix provides a description of each requirement. It generally gives the legal basis (regulations or statutes) of the provision) so that the non-Federal entity can determine whether the provision is applicable to a contract (See 2 CFR 200.326). These include financial reporting and submission frequency (no less frequently than annually, nor more frequently than quarterly (with some provision if deemed necessary), performance reports subject to the Paperwork Reduction Act requirements (See 2 CFR 200.328.), and other provisions.

2.2.3 Subrecipient Monitoring and Management

The roles and definitions of subrecipients and contractors provide for the applicability of requirements. A non-federal entity provides a subaward to a subrecipient for carrying out a portion of a federal award and creates a Federal assistance relationship between the non-Federal entity and the subrecipient. This definition, affirmed by FHWA, allows that an agency can direct a contractor to provide services and therefore not be deemed a subrecipient. A non-Federal entity provides a contract to a contractor for obtaining goods and services and creates a procurement relationship between the non-Federal entity and the contractor. It is important to note that it does not matter whether the document itself is called- an agreement or a contract; the relationship is the basis for determining which requirements are applicable.

2.2.4 Requirements for pass-through entities. (See 2 CFR 200.331.)

If applicable, a state TRO must put specific information in the subaward, including indirect cost rate and complete a risk assessment to determine appropriate subrecipient monitoring. Pass through entities must monitor subrecipients. It is also noted that the TRO would need to consider actions that address noncompliance.

Modifications to a SPR Subpart B research project per 2 CFR 200.308

Changes in principal investigator, project leader, project partner, or scope of effort must receive the prior written approval of the Federal awarding agency or pass-through entity. Recipients are also required to report deviations from budget or project scope or objective, and request prior approvals from Federal awarding agencies for budget and program plan revisions. In addition, a change in the scope or the objective of the project or program (even if there is no associated budget revision requiring prior written approval) requires approvals.

After approval and authorization of the work program, it is not necessary for a State to submit to FHWA, individual, detailed work statements or proposals for review and approval. A State, at its discretion, may wish to submit specialized or highly technical proposals or work statements to FHWA for comments or technical assistance.

2.2.5 Closeout

Closeout is based on "period of performance" which must be stated in the federal award. (See 2 CFR 200.343). Recipients are required to submit all eligible incurred costs and required performance and financial reports or project records specified in the project agreement or stewardship and oversight procedures within 90 days after the agreement end date. The project should then be closed no later than one year after receipt and acceptance of all required final reports.

2.2.6 Threshold for Audits

An audit is required if a Non-Federal entity expends $750,000 or more during the non-Federal entity's fiscal year. The non-Federal entity must have a single or program-specific audit. This threshold is new (formerly $500,000). (See 2 CFR 200.501)

2.3 FHWA Implementation of 2 CFR 200

Pursuant to 23 U.S.C. 505(a), Federal funding for State Planning and Research programs are provided through a 2 percent set aside of the funds apportioned under 23 U.S.C. 104(b)(1) - (5). State DOTs may then use those funds to carry out transportation activities identified in their research program. State DOTs may sub-grant funds to or enter into contracts with universities and other entities to carry out the transportation research program and other eligible activities. The distinction between a contract and subgrant is essential.

The implementation of 2 CFR 200 will require the coordination of many FHWA offices. The initial step to this coordinated effort was the development of the Supercircular implementation plan, which included a listing of the required activities to comply with the requirements in the Supercircular. FHWA designated a task force to coordinate and facilitate the implementation.

A webinar was held in October 2018 to highlight the implementation efforts.

Of note, FHWA requires that cost principles follow 2 CFR 200. Under 2 CFR 200.401(a), cost principles must be used in determining the allowable costs of work performed by the non-Federal entity under Federal awards. These principles also must be used by the non-Federal entity as a guide in the pricing of fixed-price contracts and subcontracts where costs are used in determining the appropriate price. The principles include:

- §200.403(a) Necessary and reasonable. Costs incurred by the State DOT or the sub-recipient are allowable provided the costs are necessary and reasonable for proper and efficient accomplishment of research program objectives.
- §200.407 Prior authorization. State DOTs and sub-recipients shall not incur costs prior to FHWA's grant approval and funding authorization for SPR Subpart B Work Program.
- §200. 403(g) Verifiable. Incurred cost reimbursements must be verifiable from the State DOT or the subrecipient's records.

- §200.56 Indirect costs: Costs that cannot be assigned to a single program or objective and, rather, benefit multiple approved programs and objectives approved in the work programs. State DOTs, contractors, and subrecipients may incur indirect costs if those costs are supported by a cost allocation plan and/or an approved indirect cost rate proposal as applicable.
- §200.330(c) Relationship. In determining whether an agreement between a pass-through entity and another non-Federal entity creates a sub-recipient or a contractor relationship, the substance of the relationship is more important than the form of the agreement.

2.4 Survey Dissemination & Results

The Office of Management and Budget's (OMG) Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards (2 CFR 200), commonly called Uniform Guidance, is the cornerstone of Federal grants and financial assistance. Implemented in December of 2014, it is an authoritative set of rules and requirements for federal awards that aids in synthesizing and overwriting guidance from earlier OMB documentation. It applies to all new awards and amendments to add incremental funding on and after December 26, 2014.

The survey questionnaire is provided in Appendix A.

2.5 Implementation & Understanding of 2 CFR 200

Agencies were contacted to assess their approaches to implementing the 2 CFR 200 policy guidelines within their individual states using the AASHTO Research Advisory Committee (RAC) distribution lists. The survey results led the research team to identify states willing to provide additional information through formal interviews. Contacts at the state agencies that participated in the interviews included research engineers, research program managers, research coordinators, and directors in the office of research.

In total, over 60.0% of respondents reported that they were the research manager or research director or engineer for their state agency and 55.6% reported having been in that role for more than five years. States that participated in the survey included Arkansas, the District of Columbia, Georgia, Idaho, Illinois Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, New Hampshire, New Mexico, Ohio, Oregon, Rhode Island, Utah, Virginia, Wyoming, the Federal Emergency Management Agency (FEMA), and the FHWA. As part of the interview, state Transportation Research Offices were asked to rate their familiarity with 2 CFR 200 and the current status of the implementation of 2 CFR 200 and what processes have changed to reflect uniform guidance. States were also asked if a written policy exists describing the management of federal funds and if they are familiar with the updated FHWA 2 CFR 200 implementation guidance memorandum as well as the biggest challenges with respect to implementing these changes.

Survey results revealed that in response to the assessment of the status of the implementation of 2 CFR 200, 44.4% of interviewees report that it has been fully implemented with 25.9% reporting mostly implemented. No one reported no implementation, as reflected in Figure 2-2.

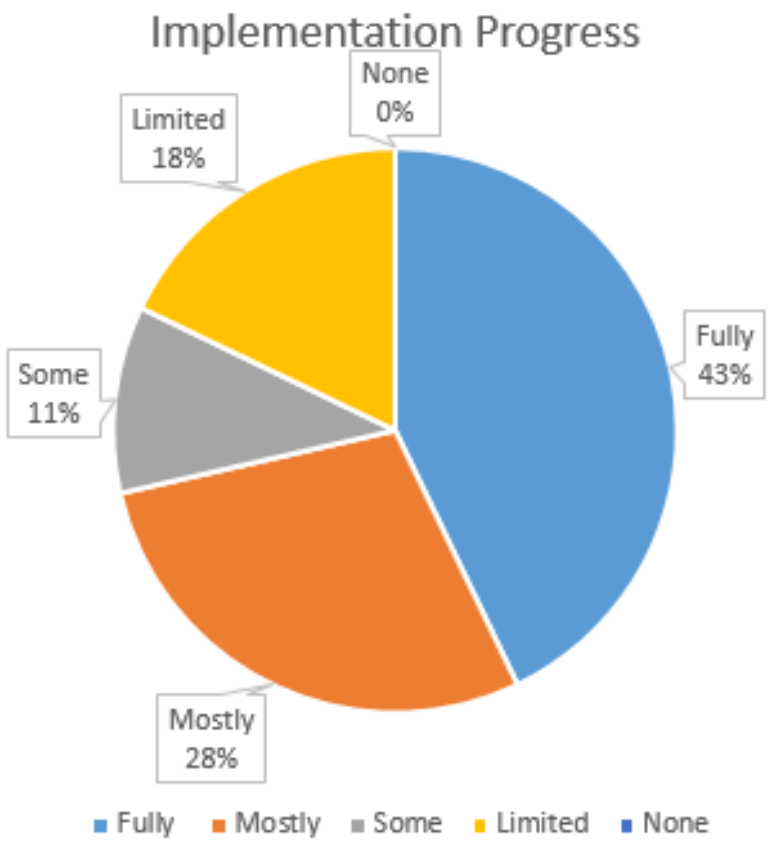

Figure 2-2: Implementation results.

When asked if the agency has changed its processes to reflect Uniform Guidance, 53% of interviewees reported that they had changed processes; additionally, 55% of interviewees reported that their agency had written policies or clearly defined procedures in place to describe the management of federal funds within their research manuals. Regarding where this guidance is located, some reported it was in a subsection of their research manual (many of which are published on the agency's website, some accessible externally and some accessible only internally) while others reported distributing it with contracts.

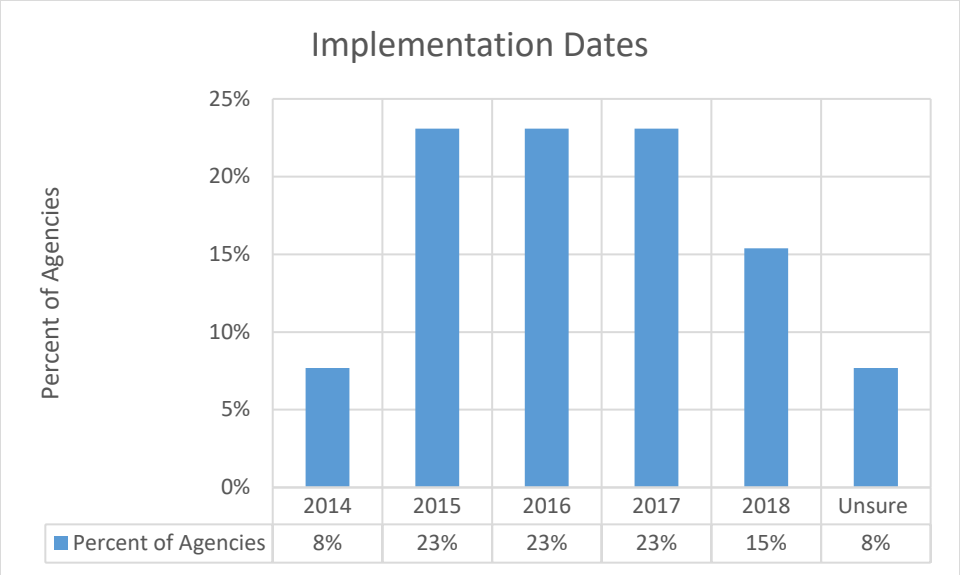

Figure 2-3: Implementation by year.

Interviewees were also queried on when these updates took place and responses are shown by year in Figure 2-3 above. While most states (60%) reported that they believe they are meeting the requirements of Uniform Guidance well, 36% of interviewees still reported that they were unsure if they were meeting the requirements well or not. This implies that guidance may be required to aid state agencies in determining the success of programs and policies in place to meet the Federal requirements of 2 CFR 200. Similarly, interviewees were asked to report on familiarity with the impacts 2 CFR 200 has on research programs within the agencies. Here, responses indicate that most interviewees feel that they are familiar with the research impacts of 2 CFR 200, as shown in Figure 2-4.

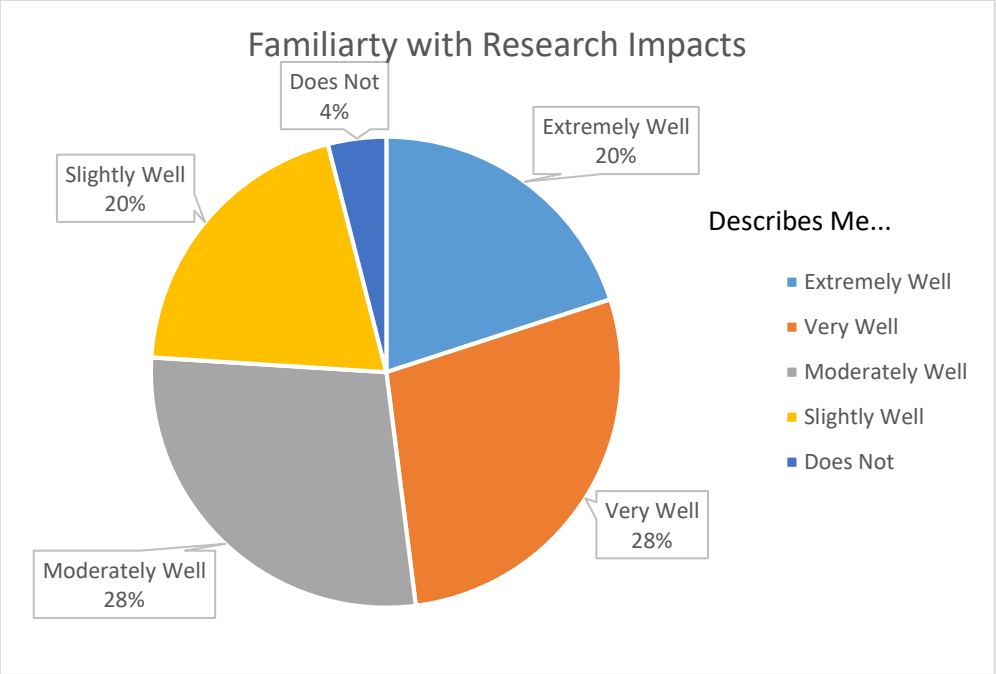

Figure 2-4: Familiarity with research impacts of 2 CFR 200.

While familiarity with the impacts of 2 CFR 200 on transportation research seemed moderate, many agency representatives still indicated an interest in additional information on how to respond to specific elements of the Uniform Guidance. Here, a total of 52% of respondents reported a desire for additional information while 20% were neutral, and 28% did not indicate a need for additional information. In regards to familiarity with the current 2 CFR 200 Implementation Guidance memorandum from the FHWA, 72% of respondents stated that they were familiar with this memorandum and its contents. Survey results indicate that there may still be some uncertainty on implementation of 2 CFR 200 and states were asked to report the biggest challenges with implementation of these changes.

Some agencies reported that the updates to the State Planning and Research (SPR) Program Manual were a challenge and that meeting performance end dates on research projects were challenging during the modification period. States with small research programs found it challenging to implement these changes without reliance on other areas within the state agency.

Many states expressed concerns or challenges with the period of performance requirements and how this affected multi-year research projects. Some agencies expressed that they were struggling with managing research program funding as grant funding, when this does not best describe the project or its goals. Additionally, state-wide agencies found it challenging to uniformly apply updates statewide and to modify all documents including standard contracts and internal forms to reflect the guidance. Combined with personnel fluctuations, the implementation of these changes has been challenging.

Overall, 60% of interviewees reported that their agency does conduct internal risk processes and reviews; these processes include annual risk assessment processes that is performed within the

organization or in conjunction with outside aid from agencies such as FHWA. Internal audits as well as biannual review processes exist where state agencies look at risk in relation to preauthorization contract reviews and performance period end dates. Some agencies utilize outside evaluations as well as internal evaluations within their research program and the timelines of when these reviews happen ranged from annually to each 2 or 4 years.

2.6 Procurement Processes

Nearly 70% of agencies interviewed reported that their transportation research office has procurement processes that are unique from other areas of their agency. Some agencies described these processes; one research office reported contracting with public universities within the state including master agreements that are approved by the Deputy Attorneys General. New projects are requested and approved for funding and then appropriate researchers are selected to perform the work and develop the task orders. Task orders include specific objectives, tasks, deliverables, schedule and budgets for the project. Agreements and contracts are then signed by the Office of Sponsored Programs at the university and the state agency's Division Administrator. Sometimes Requests for Qualification and Interest are used to identify researchers within a given university for work on specific projects. When working with private consultants, contracts are generally done through the Contracting Office and that office's procurement process is used.

Another agency reported that for requests for proposals (RFPs), a dispensation from the State Procurement Bureau states that they only need to go through the DOT's procurement process and that the research office could award contracts to any public entity without restriction. Others reported having a master contract with a given university to administer and manage research program contracts. This partnership includes contracting with researchers within the university system and well as researchers across the country outside of the university. Many agencies that reported having unique procurement processes included work with a research university within their state. The types of procurement processes in use are shown in Figure 2-5.

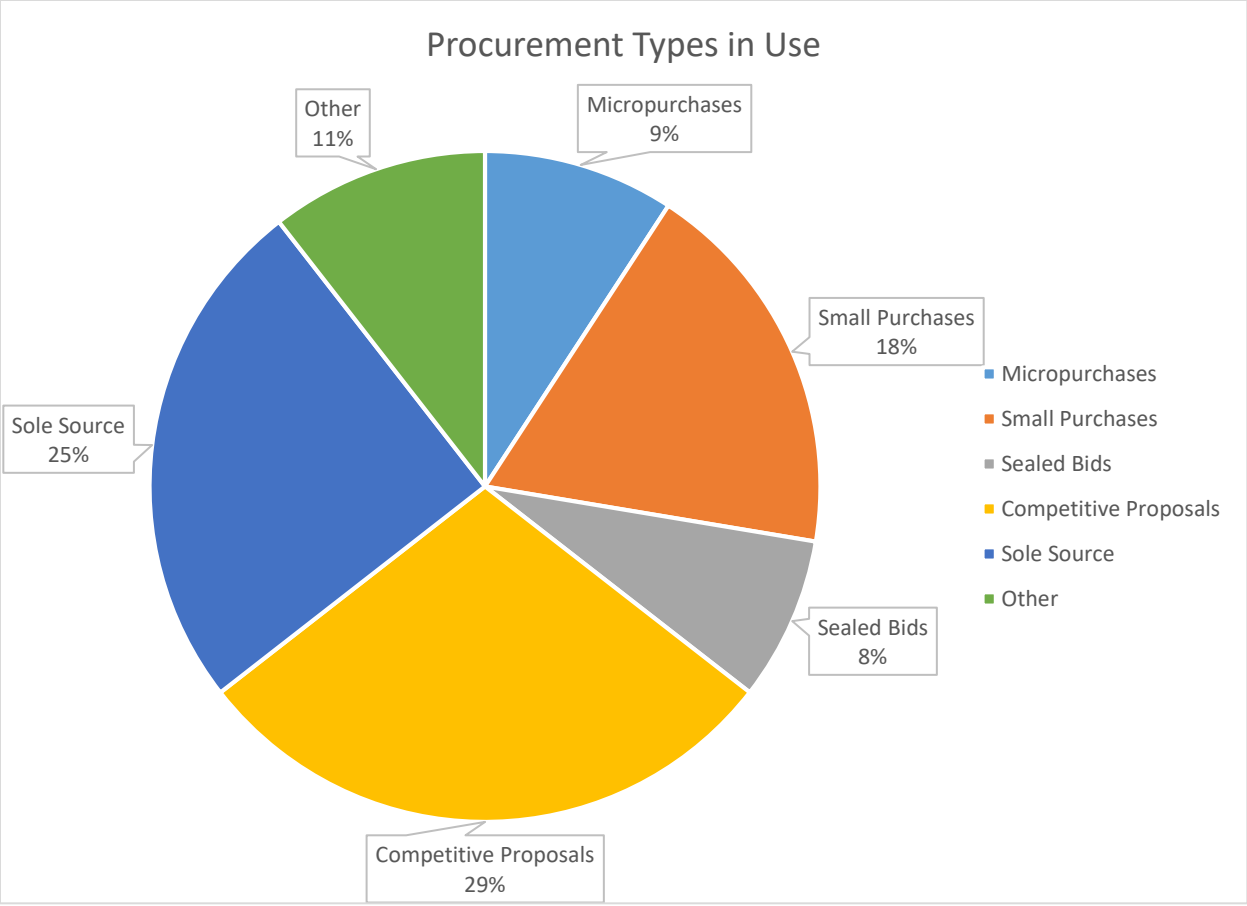

Figure 2-5: Procurement processes.

Of the states interviewed, 82% reported maintaining a written policy for procurement standards and 69% report addressing conflicts of interest (COIs) within these procurement policies. Still, another 17% of respondents reported that while they do address COIs, this may not be sufficient to address the issues. Some states reported having written policies with a number of methods for addressing conflicts of interest. Proposal evaluation teams are sometimes required to sign statements regarding COIs or other acknowledgments are made. Some agencies require any COIs to be identified in the proposal process and others cover these issues in the standard contracting language. A total of 63% of states interviewed have a procurement checklist, which is used for acquisitions; however, only 25% use the System for Award Management (SAM), which was formerly the Excluded Parties List System (EPLS) before making any award.

2.7 Subrecipient Monitoring

Figure 2-6 shows states' use of risk assessments on sub-recipients and Figure 2-7 shows the frequency of completion of data quality reviews.

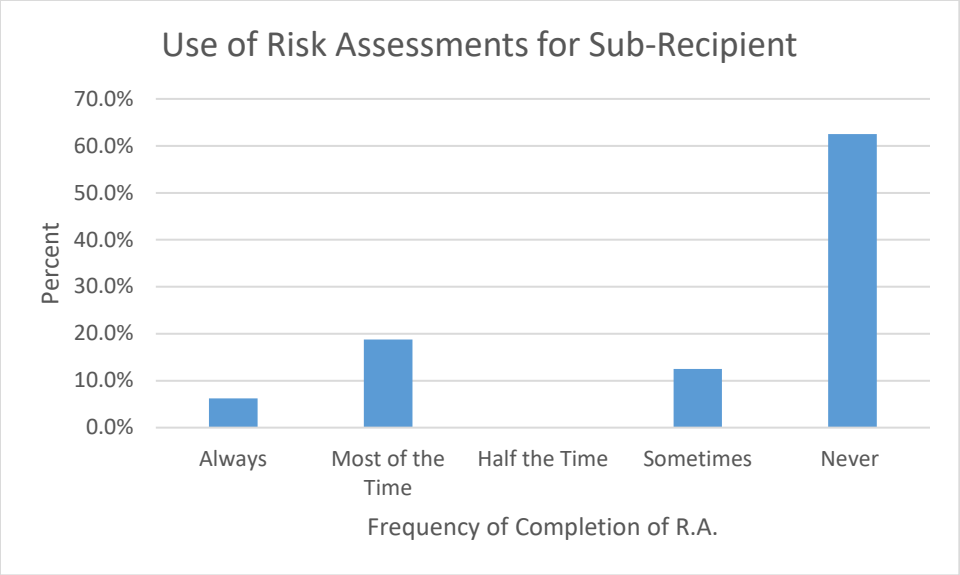

Figure 2-6: Risk assessment frequency.

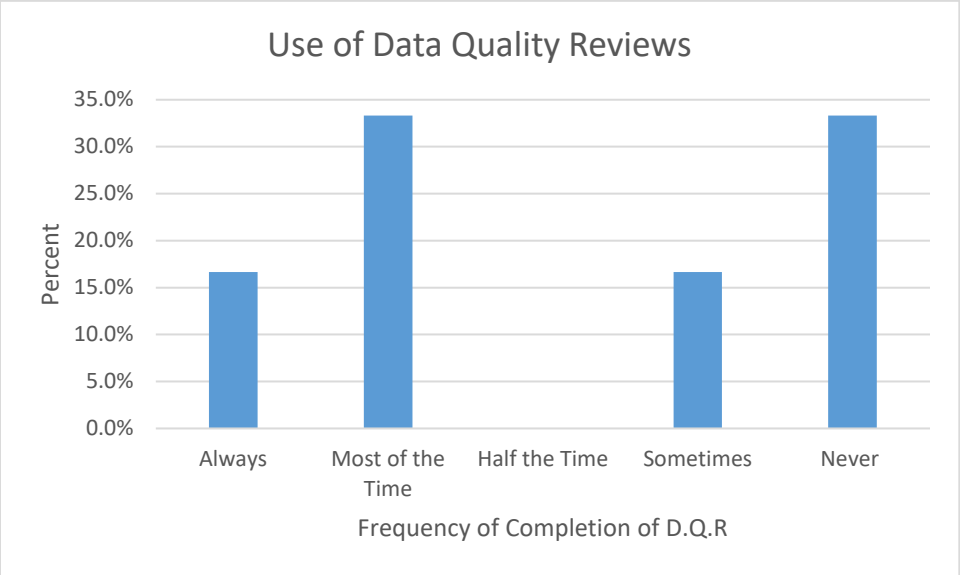

Figure 2-7: Data quality review frequency.

In addition, reporting for subrecipients are instituted 75% of the time and site and desk reviews have been used by just under 37% of agencies interviewed. A total of 20% of respondents reported having completed a compliance audit on a sub-recipient and 25% of those surveyed reported having developed corrective action plans for use of one or more sub-recipients. States still have varied approaches to sub-recipient monitoring including requiring funding recipients to

become licensed vendors as well as requiring completion of quarterly progress reports and reviewing data collected.

Other states report that research projects are contracts not sub-awards and that funding is used to meet department research needs. These contracts include objectives, tasks, deliverables, schedules and budget information and in most cases, contractors are required to invoice monthly for actual costs incurred. Monthly progress reports may also be used in conjunction with expenditure reports to support invoices. Progress reports and invoices are often reviewed by department project managers and others and quarterly project meetings may be held including the research team. Some states also stated that only certain entities were considered sub-recipients as opposed to a contractor; for example, the Local Technical Assistance Program (LTAP) is the only sub-recipient considered while any other are considered contractors. Other states reported that sub-recipient monitoring is done in a separate office such as the contracting office and not in the research office.

2.8 Project Closeout & Administrative Topics

A majority of states reported completing project closeout activities within 90 days of project completion, with a total of 95% stating that they complete closeout within the 90-day window some to all of the time. Specific breakdown of responses are shown in Figure 2-8.

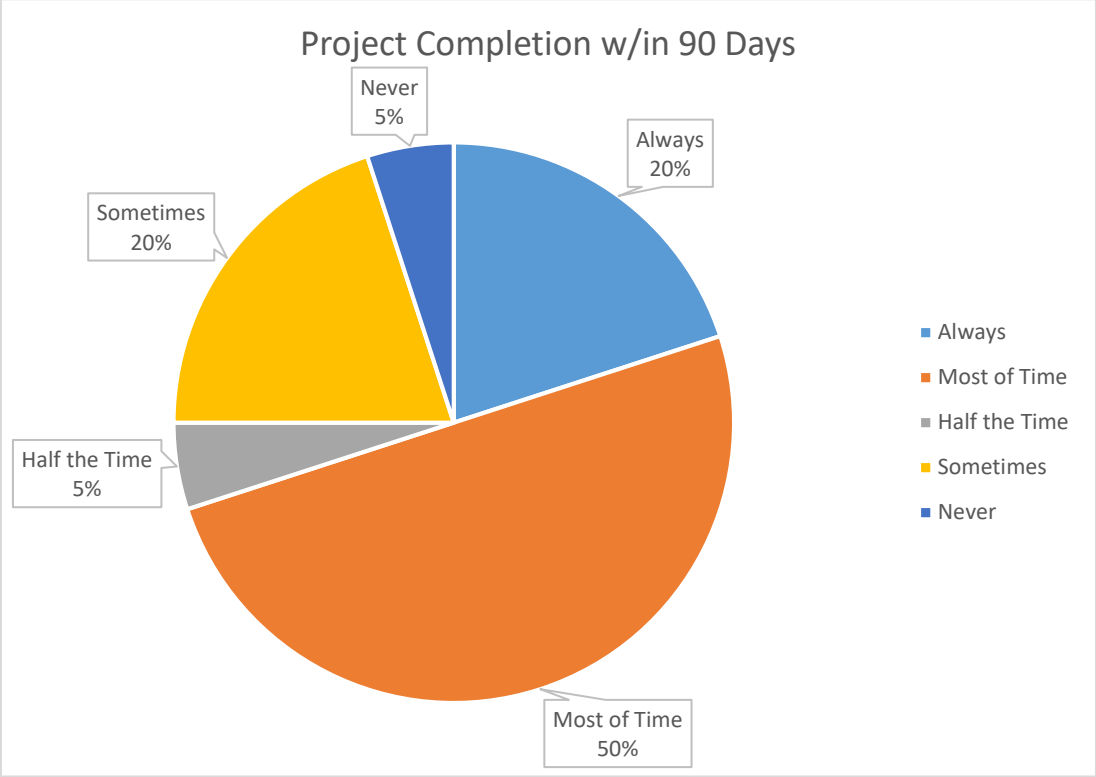

Figure 2-8: Frequency of closeout completion in 90-day window.

Most states also reported that they did not always provide more than one no-cost time extension for research projects, with 71% reporting that this was only done sometimes. No states reported always completing this and a total of 20% reported providing a no-cost time extension half or most of the time. As few as 9% reported never providing a no-cost time extension. Additional extensions may be given if a project has had a change in scope since original contract signing. The breakdown of providing project closeout guidance to project managers and principal investigators (PIs) is shown in Figure 2-9.

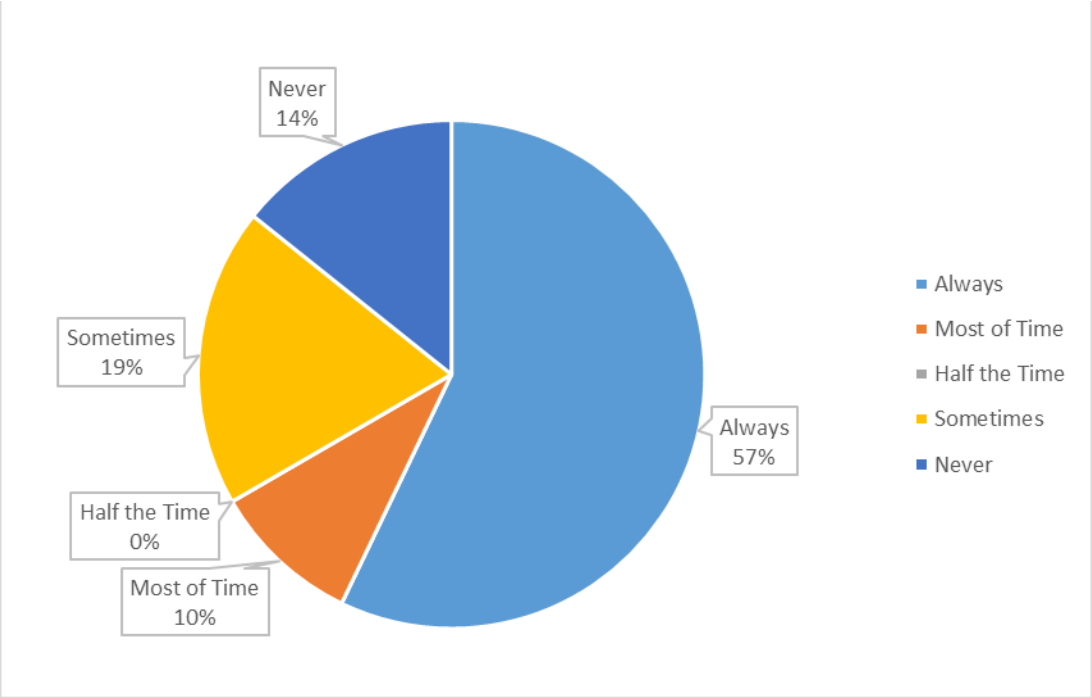

Figure 2-9: Frequency of providing closeout guidance.

Some states reported that their PIs and project managers do not receive any closeout guidance, but that they are made aware of the final deliverables of the project. Others reported that no specific guidance about closeout exists, but some states are updating procedures and intend to address this in the updates. In regards to the use of computing devices for awardees and acquisitions, most states interviewed believe that they have clear policies on this device usage. Only 20% of interviewees disagreed with this statement.

A total of 35% of respondents reported that their agency does not accept administrative or clerical salaries as a direct expense on projects; the remaining breakdown is shown in Figure 2-10. Figure 2-11 shows the breakdown of responses regarding the use of cost share as an acceptable consideration during the proposal review process.

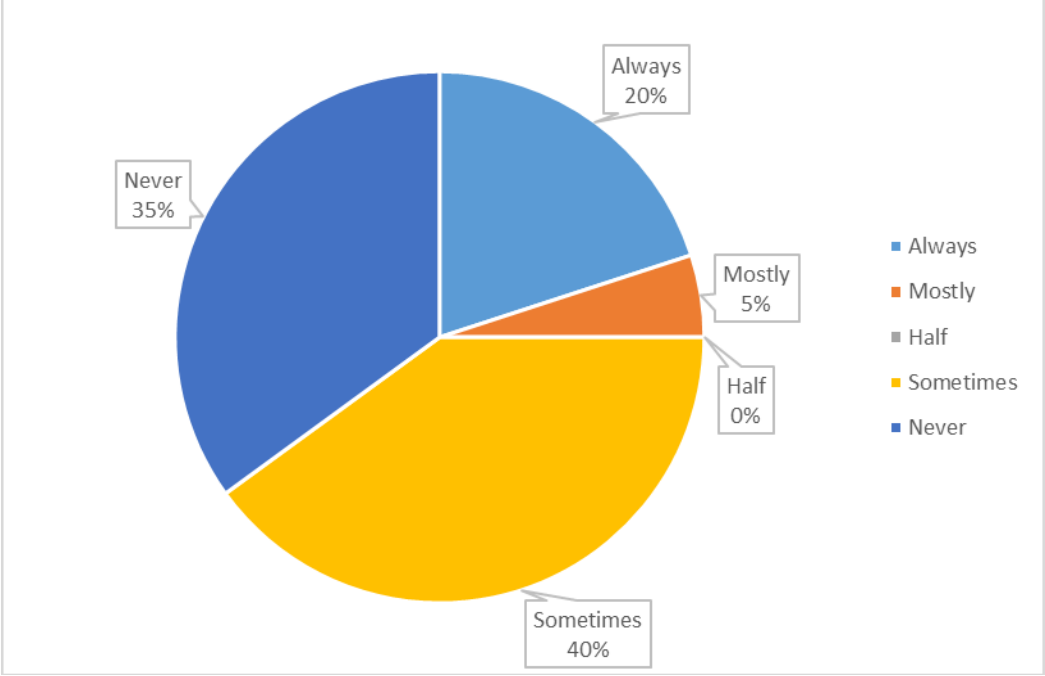

Figure 2-10: Acceptance of salary as direct expense.

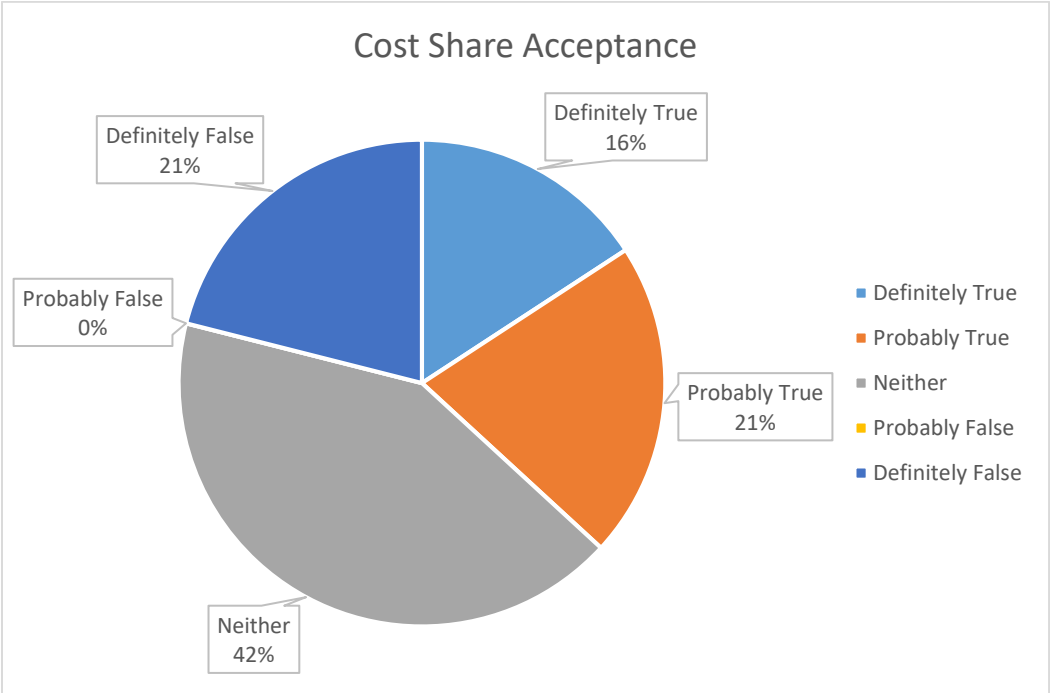

Figure 2-11: Acceptance of cost shares in proposal review.

A majority (79%) of agencies reported that PI costs of professional association memberships could not be expensed on federally sponsored research projects and in regards to the inclusion of participant support and travel costs in the indirect cost rate calculations only 28% always include them. The remaining 72% report that they are usually or never included. Additionally, only 20% of states interviewed report that university tuition cannot be charged to federal research projects within their agency; of the remaining 80%, 25% report it is always allowed and the remaining 40% say it can be allowed dependent on circumstances.

Some states have guidance on federally funded programs regarding direct cost inclusions and exclusions, which may be based on costs (such as no equipment over $5,000.00 can be considered a direct cost for externally funded programs). Some salaries and wages such as those for hourly and college work-study wages or graduate student salaries do not use the full fringe rates. States that do pay tuition costs report that this is done for graduate students who work on projects based on written guidance from FHWA on allowable costs. Other state's contract structure does not factor in cost shares, but travel costs for projects can be listed as specific line items on projects. Administrative support for programs may also be a line item and tuition costs may be covered if it is part of the cost of a graduate research assistant and tuition is not paid separate form project costs to conduct the work. Additionally, some agencies report that paying college tuition tends to reduce overall labor cost for projects and some universities do not charge indirect rates on tuition costs.

2.9 Additional Survey Results

An additional survey was sent out to gain more information on 2 CFR 200 implementation and understanding. The questions included in the additional survey are shown below:

1. Are you the main contact for 2 CFR 200 implementation as it relates to research? If no, then who is responsible for this within your organization?
2. Do you feel your research office has (fully) (mostly) (somewhat) (not at all) implemented 2 CFR 200 practices as they relate to your research program? (Choose one).
3. How familiar are you personally with the 2 CFR 200 provisions?
4. Has your transportation research office changed business practices to comply with these policies?
5. How engaged is your FHWA division office with your transportation research program? Please describe.
6. Do you feel you need additional training in order to address 2 CFR 200?
7. Is there any additional information could you share with us that might help shape the recommendations from NCHRP 20-111J?

2.10 Interview Process & Survey Results

Additional agencies were contacted to assess their approaches to implementing the 2 CFR 200 policy guidelines within their individual states. Contacts at the state agencies that participated in the interviews included research engineers, research program managers, research coordinators,

and directors in the office of research. States that participated in the follow-up interviews included Arizona, California, Connecticut, Indiana, Mississippi, and Oklahoma. As part of the interview, state Transportation Research Offices were asked to rate their familiarity with 2 CFR 200 and the current status of the implementation of 2 CFR 200 and what processes have changed to reflect uniform guidance. States were also asked if a written policy exists describing the management of federal funds and if they are familiar with the updated FHWA 2 CFR 200 implementation guidance memorandum as well as the biggest challenges with respect to implementing these changes.

Survey results revealed that in response to the assessment of the current status of the implementation of 2 CFR 200, 50% of remaining interviewees report that it has been fully implemented with 17 % reporting mostly and somewhat implemented. Additionally, 17% of remaining responders indicated no implementation, as reflected in Figure 2-12 below.

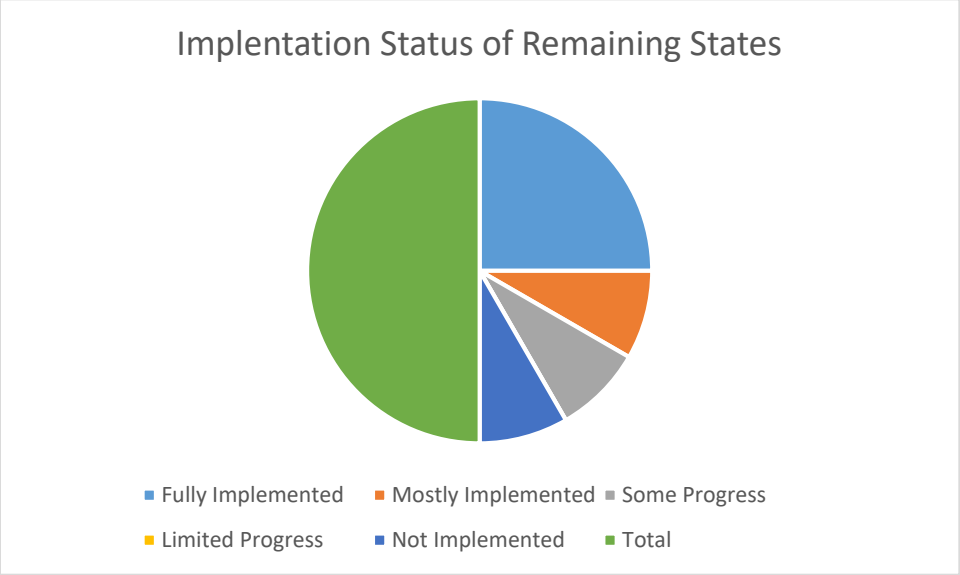

Figure 2-12: Implementation results second survey.

States were also asked to report on their familiarity with the 2 CFR 200 provisions. Most remaining responses indicated moderate or better familiarity with the provisions. Connecticut DOT indicated that they reach out to their FHWA Division Office contacts when questions arise. In California, the agency indicated familiarity with some provisions, but would like to see more guidance to compare what has been done in California with what is expected for full compliance. Oklahoma DOT reported being unfamiliar with the provisions as 2 CFR 200 has not been fully reviewed by the Office of Research and Implementation (ORI) or the ODOT SPR program manager and no direct discussion has been had with the FHWA Oklahoma office.

When asked if the agency has changed its processes to reflect Uniform Guidance, Arizona, California, and Mississippi responded yes. Oklahoma has not changed processes as they have not implemented 2 CFR 200 as of yet. In Arizona, the agency was in compliance before the combining of the OMB circulars effort. Business practices for procurement efforts did not need to be changed. Research reporting and the like remained unchanged. Additionally, audit

requirements did not affect the research group. In Mississippi there is a requirement for any equipment purchased as part of a research project by public entities valued over $5,000.00 to revert to MDOT at the close of the study. Formerly, MDOT agreed up front which public entity would get the equipment (the DOT or the university). In Connecticut, they are working on changing some of the business practices; as one example, their program is small and may not need an oversight committee per 2 CFR 200. However, they are still working on establishing an oversight committee to align research goals with that of the agency. Connecticut DOT also intends to put into practice a process to perform benefit-cost estimation for applicable research projects and the implementation of research is also being emphasized. Indiana reported that all research projects have a project end date and a dedicated employee who ensures project end dates do not lapse unless the project is complete. They also enforce the 90-day payment rule. All other implementations such as performance measurements are the responsibility of the research office.

All states queried reported that the FHWA division offices they work with have been involved and helpful in the process. Arizona reported that the FHWA Division Office assigned a staff member to be the liaison to our research program; the research program invites this person to serve on the technical advisory committee for each research study, but they generally do not actively participate. All draft final reports are sent to the liaison for approval. California reported that the FHWA is engaged with the approval of the State Planning and Research (SPR Subpart B) Annual Work Programs and oversight of the research program management practices and research portfolio performance. Connecticut DOT has a very good relationship with our FHWA Division Office. All of the research proposals, proposal scope revisions, budget revisions, project final reports, performance reports and the like are reviewed and commented upon by the Division Office. There is an in-person meeting once a year to discuss the performance and progress. Connecticut has worked together with the FHWA Division Office to organize the annual Northeast Connected and Automated Vehicle Summit and the FHWA is also involved along with CDOT in supporting the local technical assistance program.

Indiana DOT reported that the FHWA Division Office is very involved and familiar with the projects being completed. Mississippi DOT also has an excellent relationship with their FHWA Division Office. They have a local research liaison and enjoy great communication, guidance, interaction with FHWA headquarters when necessary, and the local liaison advises the DOT of anything upcoming of importance (such as upcoming Federal rulemakings and compliance requirements). While Oklahoma is still working on 2 CFR 200 implementation, they report that they have a good relationship with FHWA and the FHWA Oklahoma staff participate as panel members in several core program projects and are active with technical assistance to research efforts through the ORI, academic contractors, and general ODOT staff.

Figure 2-13: State thoughts on additional training needs.

States were also asked whether they felt additional training was necessary in order to address 2 CFR 200; Figure 2-13 above shows the breakdown of responses. A total of 50.0% of the states responded that additional training would be helpful during this process. In Arizona, where implementation and compliance efforts are well established, the DOT responded that many aspects of the CFR are not required for research staff to know and it would not benefit them to understand the many details. Centralized efforts from finance, administration, and contracts take care of those components on behalf of staff in research and elsewhere. Some areas where more training may help staff not as involved in the processes include research and development, procurement by states, competition, contract cost and price, bonding requirements, and Federal awarding agency or pass-through entity review.

Indiana DOT reports that they are unsure if additional training is necessary; the research office was unable to respond to the survey and that office may benefit from additional training. In Oklahoma, the DOT recalled that some webinars were previously presented, however ODOT did not participate. If the webinars are recorded and available and per implementation over the past few years answer the prevalent questions, then no additional training may be needed. ODOT would also look to other DOTs and the FHWA who have directly engaged with this topic for insight as to whether any lessons learned would be of such consequence that additional training would provide benefit to the community.

In closing, Indiana shared that there is a need for those creating rules and regulations to better understand the needs of the states. They expressed that when given a code to implement, states tend to implement by the written word and do not tend to bend this written word. However, when pushback comes from other entities (such as local governments) it is apparent that the written word is not to be interpreted strictly. This creates a hardship on the state who has put into

practice rules according to the tenets. In Mississippi, the DOT expressed interest in any training developed as result of this project effort to be understandable in terms of what is necessary for compliance (as opposed to being full of legal-ese). Lastly, in Oklahoma, a request for a “Lessons Learned to Date” section was made; this type of information would be of benefit and could give value to other states.

3. INTERVIEW FINDINGS

The research team completed nine interviews and compiled information from state, federal, and industry perspectives. Planned to be 30-45 minute telephone interviews, the intent was to collect additional information. Size of the research program, geography (including AASHTO Region), size of program staff, and other characteristics were used to identify the eight participants.

3.1Interview Concepts

In order to better understand the concepts and information queried in the survey, a series of short interviews was completed. The interviews were guided, with recipients receiving the questions in advance. In order to simplify information gathering and reduce the amount of time required, the team used a call template to guide the collection of relevant information. The actual interviews, however, allowed flexibility for developing critical materials in individual case studies.

These interviews followed the script presented in Appendix B.

3.2 One-on-One Telephone Interviews

In all, nine telephone interviews were conducted.

The following states were contacted:

- Arkansas DOT, Elisha Wright-Keener
- Louisiana Transportation Research Center, Tyson Rupnow
- Michigan DOT, Rebecca Petri and Michael Townley
- New Hampshire DOT, Ann Scholz
- Ohio DOT, Vicky Fout
- Oregon DOT, Michael Bufalino
- Virginia DOT, Mike Fitch and Emily Pudliner

In addition, we discussed the project with Calvin Edghill, FEMA, and Danial Parker, FHWA Office of the Chief Financial Officer. Ms. Michelle Eckstein provided industry perspectives from a large private government contractor. They provided additional input and guidance.

The chapter herein provide information from each of the interviews and are benchmarked in Table 3-1.

3.2.1 Arkansas Interview Findings

Arkansas provided information on substantial changes to their research manual to update practices and references after the application of 2CFR200. They have also changed their monitoring activities – they added new reporting on progress to improve accountability. They

also have expanded the number of reviewers on reports and deliverables. All of their processes are documented in their research manual, updated in 2018.

Their biggest reported challenges involved adding performance measures and trying to encourage implementation activities throughout their project. These activities are not always well – defined at the start of the project, so they add a layer of uncertainty to the efforts. They'd like to expand implementation efforts, but have found that there is limited guidance on how to effectively award add-on projects or access other Federal funding to provide this.

Arkansas also reported that they do complete risk assessments on contracts. Via a committee, Arkansas DOT officials review adherence to the terms in the RFP and look at how previous projects were handled by that performing organization. It is scored in the review process. Projects are only typically reviewed if there is a substantial problem.

Technical editing is completed outside of the research group. As a result, these activities are not included in indirect costs. ARDOT is allowed to sole source projects up to $30,000 and one year efforts. If the project exceeds those limits, it is awarded through competitive proposal processes. These policies are provided in their research manual.

ARDOT did indicate difficulty in meeting the 90 day closeout period requirements. At present, almost all of the closeout is handled on the ARDOT side and this provides challenges. They do allow no-cost time extensions but prefer to only allow them in extreme circumstances. They also noted that many final reports are delivered on the very last day of the contract, regardless of what the work plan was set to do.

ARDOT uses a university indirect rate of 15%.

ARDOT indicated that the 2CFR200 implementation has not fundamentally changed any of their existing practices as they were already meeting all requirements. They recognize that research is somewhat different than other procurements and offered that research managers should be able to map their practices against the CFR.

3.2.2 Louisiana Transportation Research Center Interview Findings

Louisiana noted that they are fully implemented with 2 CFR200 activities as they have typically followed these processes in the past, prior to the consolidation of the circulars. They did notice a much greater scrutiny on equipment purchases now to ensure that all of the policies are being met. Justifications have been expanded to include additional details (and to address cost allowability and allocation).

Mr. Rupnow noted that a lot of the new procedures have come easily for Louisiana. Their projects follow clear tasks and strong kickoff meetings. The research section doesn't provide risk assessments of performing organizations but they are taking a harder look at the distribution and allocation of research across various entities. Once in a great while, if there is a new performing organization or a concern, LTRC may complete a desk or site review to verify.

Louisiana also indicated that one of the biggest challenges they face with respect to meeting the 2 CFR200 requirements is in the context of billing. Universities can sometimes pool 3-5 months' worth of invoices, even with deliverable based activities. LTRC is moving toward a stronger use of deliverables based invoicing as a result and trying to accommodate more aggressive contract language in projects to keep projects moving.

They expressed more concerns with meeting Section 508 accessibility requirements than the 2 CFR200 clauses. They also reported a strong desire to impose report and contract deadlines ahead of the closeout periods. No-cost time extensions are requested by the PIs and are typically granted if the need is justified.

LTRC does use a contractually negotiated overhead rate of 25% on university projects but do not allow tuition to be charged against its projects.

Overall, they are satisfied with their implementation efforts and believe that these have not interfered with any existing practices.

3.2.3 Michigan Interview Findings

Michigan DOT also believes that they are fully implemented and meeting all requirements. Their primary efforts to comply involved minor changes to contracts to reference CFRs properly, and added job numbers and clearly defined periods of performance. They explored indirect rates and provided additional transparency on what the rates meant and what was included. They also standardized project evaluations and provided more details on a competitive proposal selection process. These changes made their way into the revised research manual. MDOT noted that their current research manual does not incorporate all of the changes, but specific contract language boilerplate picks up what is not in the manual.

The biggest challenge for MDOT in implementing these requirements was enduring several staffing changes in the contracting office. As a result, there was a relatively steep learning curve before things were perceived as a better operating practice.

Performance is tied to research contract adherence and is part of the risk assessments MDOT completes during proposal review. It is not, however, a formalized risk assessment. Data reviews are provided by the technical committees overseeing projects and the research office provides qualitative assessments of project progress as well.

MDOT encourages members of its technical panels to attend field demonstrations and pilot tests that are part of its research projects. In this way, the technical oversight committee provides quality assurance for its projects.

MDOT doesn't typically apply corrective action plans, and often will try to "work through" problems. The office can use payment withholding as an enforcement mechanism. Terminations are infrequent, but do happen.

MDOT expressed interest in additional job training associated with adhering to these topics. Some general level of awareness is evident, but there are additional needs for job training based on longevity and exposure to these topics.

MDOT offered that a key to subrecipient relationships is based on taking the time to make personal contacts and address issues as they arise rather than waiting. Regular contact is important to keep researchers focused and involved in the success of the overall program, not just the project. In addition, implementation is a partnership between procurement, contracting, legal, and research offices. It is depending on ensuring transparent relationships and allows for more trust in the system.

Transparency is also good for innovation according to Mr. Townley and Ms. Petri.

3.2.4 New Hampshire Interview Findings

New Hampshire developed a standard operating procedure agency-wide to address compliance with 2CFR200. These SOPs led to updates in their research manual and outlined approaches that were standard for all contracts in the agency, regardless of status (pass-through vs. contractor).

They identified similar issues with other states in updating fields within the FMIS system that would be useful for tracking and complying. The project finance group led this effort.

While New Hampshire is not using formal risk assessment processes, contracts are reviewed and financial matters are reviewed regularly for inconsistencies. Quarterly progress reports are used on all projects, but regular performance based reporting is just getting started. They also use an electronic management tracking system to keep compliance information.

A statewide on-call contract is used for research activities. In this manner, task orders can be issued for research tasks.

With respect to project closeout activities, the goal is for 90 days while they check final charges against project deliverables. A committee is used to oversee this and potential implementation activities that arise from the work. The research manual does document the closeout process.

Indirect costs are detailed in a memorandum of agreement with the University of New Hampshire and set at 25%.

New Hampshire identified some training needs – mostly focused on state planning and research funded projects and the applicability of the 2CFR200 requirements. There is a recognition that research is different than other procurements in the agency and as such follows slightly modified processes (even though they are standardized under NH policy).

New Hampshire noted that development of clear documented guidance and specifying clear processes has been a great leap forward for their research program. It has removed some of the ambiguity from the process for reporting, performance management, and procurements. New Hampshire noted, similar to Michigan, a strong relationship with FHWA division personnel. In

addition, a recommendation was made to document best practices on the Research Project and Program Management website (http://rppm.transportation.org).

3.2.5 Ohio Interview Findings

Ohio DOT has mostly implemented 2 CFR 200 policies as they pertain to research. They updated contract references, implemented additional competitive selection processes, and changed their standard agreements and master contracts. Conflict of interest provisions were added to the contract language and also strengthened.

Ohio also noted that their strong relationship with their division office has made this a strength under their existing programs.

While they have not implemented a formal risk process assessment, they do follow an "informal" process whereby some checks and balances are evident among their performing organizations. The Department of Administrative Services does provide risk assessments on major contracts, but these are not done routinely and are handled outside of the DOT. They have included some penalty for not meeting performance criteria. New contracts can be withheld if performance issues arise.

Ohio currently does not have a formal checklist for procurements, but they do follow a checklist for setting up project material. Ohio does not do formal data reviews or management plans but they do have technical panels assigned to research projects to review their activities.

An example of a site review was offered in their local programs office, but not as part of the research offices. Periodically, the agency completes financial audits of its subcontractors and subrecipients but it is not done in the context of the research enterprise. Ohio also has not had any experience in formally issuing corrective action plans, although they have provided extra training on invoicing when repeated problems occurred with a specific contractor.

Ohio DOT has typically been successful at meeting the project closeout requirements and keeping projects on schedule. However, they also noted that quality deliverables are more valuable than timely, and have provided some unofficial extensions in the past to ensure that the final product is of higher quality.

All purchasing requirements for computing equipment are addressed in the ODOT research manual – typically costs are approved for data acquisition but not equipment. It is also in need of documentation when a project is required to attain equipment.

Technical editors are sometimes questioned as an administrative expense.

ODOT reported that they have not noticed significant changes with respect to the research program as a result of the 2 CFR200 modifications. It has not altered their business practices. The primary advice that they offered related on the importance of documenting everything. Ms. Fout noted that they have been successful in correcting "problem" projects by referring to the

written processes provided in their manual. This approach is important to comply and maintain consistency in operations.

3.2.6 Oregon DOT Interview Summary

In general, Oregon DOT reported that implementation has been seamless in the research program. They've made some changes but were anticipating it. Among the key changes were focuses on project scheduling. They attempted to decrease the occurrence of no cost extensions. Part of that was on the front end in better scoping the project. The publication process is often not included in the project scheduling. ODOT reported that most of its research is done on time, and that reporting ultimately slows projects down.

ODOT has a research procedures manual which describes SPR process as part of the dollars. More procedure than policy

Standards manual that is based on uniform guidance. A good amount of contracts deal with management of federal funds.

ODOT noted that they do not want to close out projects until edits are completed to final report.

State policies have greater impact on research procurement than CFR200. For the most part, the interview generally revolved around the key question of subrecipients versus contractors. They reported that they had few challenges with respect to implementation.

Given nature of the guidance, ODOT reported that the responsibility for compliance is shared between financial procurement and the research office. Research needs to implement agency policy. More specific implementation information is necessary for research based on uniqueness of the research program and its unique opportunities for procurement.

The process is largely approached as a partnership with the federal government where open discussion fosters the delivery of high quality projects. Over time, a lot of trust has been built between ODOT and the division office as well as DC.

3.2.7 Virginia DOT Interview Findings

Virginia indicated that their efforts are fully implemented. They have provided policy updates, modified boilerplate contract language, updated CFDA information, and modified their federal agreements. They also added new fields to their tracking system to ensure that compliance activities are fulfilled.

They did not report many challenges in ensuring compliance. They did report some challenge related to coordinating the FMIS system and including CFDA fields. They have also standardized their processes over the years so there is more consistency in the data entered in the systems.

They use quarterly reporting to keep projects on target and provide invoicing on a similar schedule. Purchasing and procurement decisions are generally handled outside of the research office. About a year ago, Virginia changed its processes for contracting researchers. Expressions of interest are sent to all interested researchers at state universities. A panel scores the EOI statements and projects are identified.

VTRC does not complete risk assessments on individual performing organizations, but does provide closeout evaluations to capture information relevant to research performance. Progress reporting is required and reviewed by the technical panel. Both monthly and quarterly reports are used.

Instead of regular site or desk reviews, the agency uses field or laboratory components of projects to evaluate activities. They are not aware of using corrective action plans. Virginia stressed the importance of working with the researchers to learn first-hand from VDOT research customers. The interaction between researcher and customer is crucial.

VTRC sets the end date for projects 6 months in front of the contract end date to allow for project closeout and schedule slippage. A 26% indirect rate is standard.

They identified a potential need for training on allowable costs; perhaps a need to identify a table of allowable costs as they apply to research efforts. Since they are mainly working with university partners, they also noted that equipment issues are a key consideration on their projects.

Ms. Pudliner noted that this is the only environment she's known, so was uncertain if the changes have caused any substantive changes to processes. However, they noted that their FHWA division office has been very helpful in the learning process.

3.2.8 FHWA Controller Interview Findings

As part of the project we also completed an interview with the FHWA Office of the Chief Financial Officer. This interview highlighted many of the key findings noted by the states above and reiterated the importance of communication with division officials, documentation of needs, and continued work efforts around performance management and reporting.

Mr. Parker noted his involvement in the task force to discuss implementation across the FHWA and also provided some guidance on the implementation and SPR Subpart B. Parker alluded to a potential effort within FHWA to bring all of the rules together into a single document that establishes a framework for compliance. He emphasized the role of the division office as it relates to each state DOT research office.

A final note discussed was that the intent that these processes would bring research efforts in alignment with all other contracted processes.

3.3 Key Findings

We've used a concept of benchmarking to organize these findings. This is derived directly from the work performed to synthesize key principles, with the goal being to assess the maturity of each implementation effort in adhering to these 2 CFR 200 principles.

For each research lifecycle management component, several concepts have been identified to provide ideal implementation. We have categorized responses that primarily focus on:

- Completing and developing risk assessment practices for institutions of higher learning and other research performing organizations
- Developing realistic project schedules to identify expected end dates and periods of performance
- Project closeout activities to address timely invoicing and contract completion,
- Data collection and reporting information,
- Practices to ensure subrecipient monitoring,
- Procurement concerns and "sister-agency" expectations,
- Report project terminations, and
- Better linkage of financial information to research performance measurement and outcomes.

Table 3-1: 2 CFR 200 benchmarking from interviews

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

4. PRINCIPAL CHALLENGES

Common findings from our interviews and reviewed documentation have been synthesized into the lists of gaps, barriers, and needs presented herein.

Gaps are areas where the state of the practice for compliance and implementation within state transportation research offices DOTs are insufficient to meet their intended goals.

Barriers are common challenges that these offices have faced, both expected and unexpected, that have required particular care or special efforts to overcome.

Needs are actions, trainings, guidance and other support that might be necessary for transportation research offices to successfully implement and comply with 2 CFR 200.

4.1 Gaps

- Lack of data collection as it relates to 2 CFR 200
    - Data is not a part of the culture (i.e., do not rely broadly on data to make decisions) so therefore there is little collective information on delivery, compliance, NCTE, etc.
    - Planning and building systems to collect information is challenging.
    - There appears to be a lack of interest in collecting and storing data for these purposes.
    - Overlooking data opportunities while overemphasizing liabilities of this information.
- Limited application for contract services versus pass through awards
    - Missing or insufficient documentation for policies and procedures across several agencies.
- Lack of inter-department coordination between procurement, research, and consultant services, etc.
    - Some agencies are establishing their own practices rather than learning from each other.
    - Internally, there may be several different approaches to compliance (teams within a DOT unaware or unsupportive of research efforts).
- Lack of documentation as it relates to 2 CFR 200
    - Research manuals are generally reflective of updated information, but some still resides in contract boilerplates.
    - DOTs unable to check the quality and accuracy of data generated under research projects.
    - If the data is not understood, it cannot be effectively used in project activities.
- Limited use of risk based practices
    - Risk assessments are not being used in the research offices.
    - Several tools exist to consider risk-based approaches
- Performance management models are receiving focus
    - Implementation and ROI concepts are slowly being added to research office repertoires

4.2 Barriers

- General lack of interest in subject
  - Performing organizations haven't taken this seriously
- IT Systems are not set up to track and monitor progress
  - Infrastructure-focused consolidated IT approaches versus management practices.
- Expectation that others in agency will be responsible for compliance
  - Procurement, contracting, and other business units versus research enterprise
- University based practices
- Legacy environments
  - Old models of commonly allowable no-cost time extensions, etc.

4.3 Needs

- Research Administrators need a clear understanding of the technical differentiation between contractors and subrecipients.
- Organizations need top-down support for compliance.

To be effective, implementation of 2 CFR 200 requires:

- Accountability and ownership
- Transparency and traceability
- Data quality and trustworthiness
- Comprehensibility and flexibility
- Accessibility and collaboration
- Documentation

Without these elements, the research office cannot achieve its primary mission – advancing the state of the practice. This would result in business decisions based incomplete data, free from understanding risks, which can be costly in revenue and loss of reputation, productivity, and missed opportunities.

4.4 Risk Assessments and Processes

One of the critical areas for activity is looking at risk. There are a number of tools available for assessing risk:
The following tools may be useful, depending upon the risk assessment. No listed tool is required nor is the list of tools all inclusive. Determination on which tools to use is a matter of judgment for the pass-through entity based upon its assessment of risk. (200.331(e))

- Providing subrecipient training and technical assistance
- Performing on-site reviews
- Arranging for agreed-upon-procedures engagements under 200.425, Audit services [in Cost Principles]

4.5 Project Closeout Time Extensions (Period of Performance)

- Clear kickoff meeting procedures
- Extend 6 month buffer on contracts
- Document processes for NCTE
- Identify reasonable expectations for deliverable based invoicing
- Establish progress reporting
- Follow through on penalties for late products

4.6 Procurements

In general, research contracting appears to be a unique process within the DOT. As the research enterprise completes efforts with fairly specific directed goals, they meet the definition of a contracted service. Understanding use of micro-purchases and other procurement devices for websites, technology transfer, technical editing, and peer exchange facilitation would be valuable.

4.7 Training Needs

Some identified training needs included:

- Applicability of contracted research
- Definitions of terms
- General research administration
- Project closeout and implementation guidance
- Managing throughout the lifecycle

5. IMPLEMENTATION GUIDE

This chapter provides lessons learned and an implementation guide for NCHRP project 20-111J: Successful Practices for State Transportation Research Office's Compliance with 2 CFR 200.

5.1 Lessons Learned

The Office of Management and Budget's (OMG) Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards (2 CFR 200) [Uniform Guidance] is the cornerstone of Federal grants and financial assistance. This cornerstone provides a number of key lessons and improvements for managing and monitoring research activities. This chapter of the report highlights the primary lessons learned from the research team's assessments on State Transportation Research Offices based on the literature, interviews, and survey materials.

In the project's interim report, we provided benchmarking to address the key findings from the interviews. Low, moderate, and high benchmarks were identified for several of these key lesson areas. This chapter of the final report highlights some of these benchmarked activities but also expands upon other key lessons. We have grouped these lessons into six areas:

- Implementation and Understanding of 2CFR200
- Sub-recipient determination and monitoring
- Project closeout and administration
- Risk assessments
- Training needs
- Implementation barriers

5.1.1 Implementation & Understanding of 2 CFR 200

As noted previously, there is some confusion about the applicability of 2 CFR 200 with respect to Federal funds administered by state agency transportation research offices. Current interpretations define Federal State Planning and Research Awards as vendor and contractor relationships, and not pass through funding or subrecipient relationships in most research project award cases. However, there remains a number of lessons that 2 CFR 200 implementation creates. This chapter provides these lessons. States completing research internally or providing general support for university based programs would need to adhere to 2 CFR 200 standards.

Common Observation: Research is unique

While there remains a desire to consistently apply similar contract language across a university, contracted research – either to another state institution (i.e. a University) or a private firm – generally is viewed as a different type of purchase. The close relationships between state institutions and other public entities clouds this purchase environment. Many states reported that they viewed their research programs and contracting as exceptions to general rules for contracting in their states. States reported that their own internal contracting processes made exceptions for

choosing in-state researchers or limiting competition. Nearly 70.0% of agencies interviewed reported that their transportation research office has procurement processes that are unique from other areas of their agency. Some agencies described these processes; one research office reported contracting with public universities within the state including master agreements that are approved by the Deputy Attorneys General.

One of the larger goals of the Uniform Guidance was to eliminate some discrepancies in contracting for services and purchases. Uniform Guidance was designed to bring research efforts in alignment with other contracted processes. In practice, from our survey and the interviews, a number of individualized processes and protectionist approaches remain in transportation research.

Common Observation: 2CFR200 doesn't apply to us

As noted previously, FHWA has issued an interpretation that State Planning and Research funding does not automatically carry pass through determinations. Contracted research provides a vendor relationship. As such, the processes provided for in the Supercircular can be viewed as best practices for research management and not mandates. There is a limited application for contract services versus pass through awards in most state agencies. There are certain circumstances where the state transportation research office may provide funding with very few stipulations. In these cases, the funding would likely have the requirements of 2 CFR 200.

Another agency reported that for requests for proposals (RFPs), a dispensation from the State Procurement Bureau states that they only need to go through the DOT's procurement process and that the research office can award contracts to any public entity without restriction. Others reported having a master contract with a given university to administer and manage research program contracts. This partnership includes contracting with researchers within the university system and well as researchers across the country outside of the university. Many agencies that reported having unique procurement processes included work with a research university within their state.

There are many similarities to other procurement processes within an agency – however, many agencies have noted unique features of the research process that may force accommodations.

Common Observation: Missing or insufficient documentation for policies and procedures across several agencies

Very few research programs have detailed knowledge of the reporting or documentation requirements for 2 CFR 200. In fact, most research manuals do not address the specifics. Many transportation research offices work collaboratively with contracting or purchasing units to maintain compliance. When working with private consultants, many states noted that contracts are generally done through another branch that will follow its own procurement process.

Of the states interviewed, 83% reported maintaining a written policy for procurement standards and 70% report addressing conflicts of interest (COIs) within these procurement policies. Still, at least 17% of respondents reported that while they do address COIs, this may not be sufficient to address the issues arising from conflicts of interest.

Common Observation: The research community already manages research well

Current practices in place have worked for many years. A collegial relationship between performing organizations and the state DOTs has emerged as a strong model for research management. Improved tools for tracking and monitoring research have also emerged as performance enhancers. The overall process has led to some improved practices. The Ahead of the Curve research management training program, and the AASHTO RAC mentoring process provide valuable resources for efficient and effective research management.

Commonality: There is a lack of data collection as it relates to 2CFR200

Data collection efforts, aside from small efforts associated with performance indicators and measurement, is not a part of the research management culture (i.e., research managers and their supervisors do not rely broadly on data to make decisions) so therefore there is little collective information on research delivery, compliance with established policies, no-cost time extensions, etc. There appears to be a lack of interest in collecting and storing data for these purposes.

Commonality: States are planning and building systems to collect information

Overlooking data opportunities while overemphasizing liabilities of this information is a common concern among states. Assessing research projects for their implementation success and identifying return on investment is a common theme in state agencies. However, there is limited effort currently to collect data and information – although this is rapidly changing as data becomes more accessible, and useful in management decision making.

5.1.2 Subrecipient Monitoring

Common Observation: Risk and Data Reviews are not common in the transportation research management community

Figure 5-1 shows states' use of risk assessments on sub-recipients and Figure 5-2 shows the frequency of completion of data quality reviews. Risk assessments and data reviews are not common features in research programs.

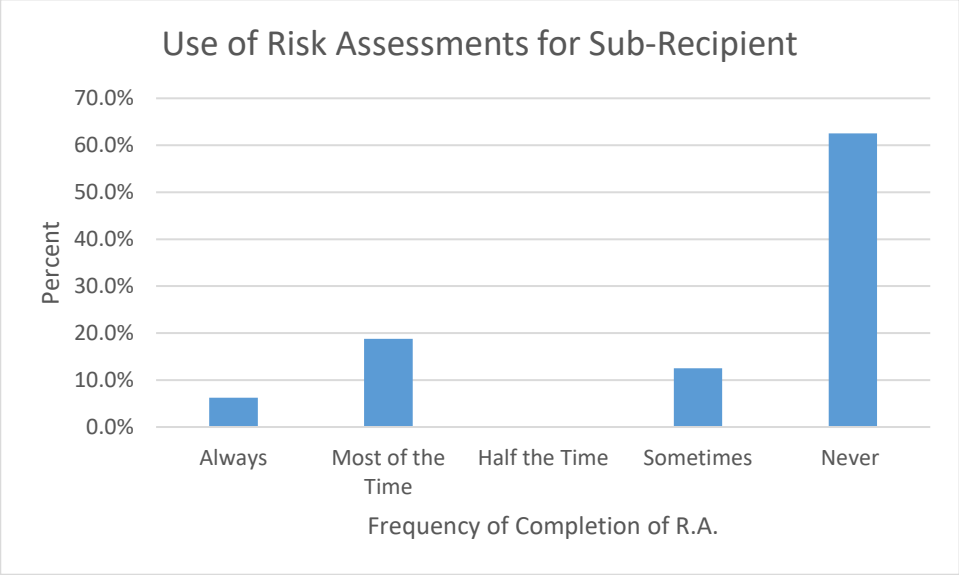

Figure 5-1: Subrecipient risk assessments.

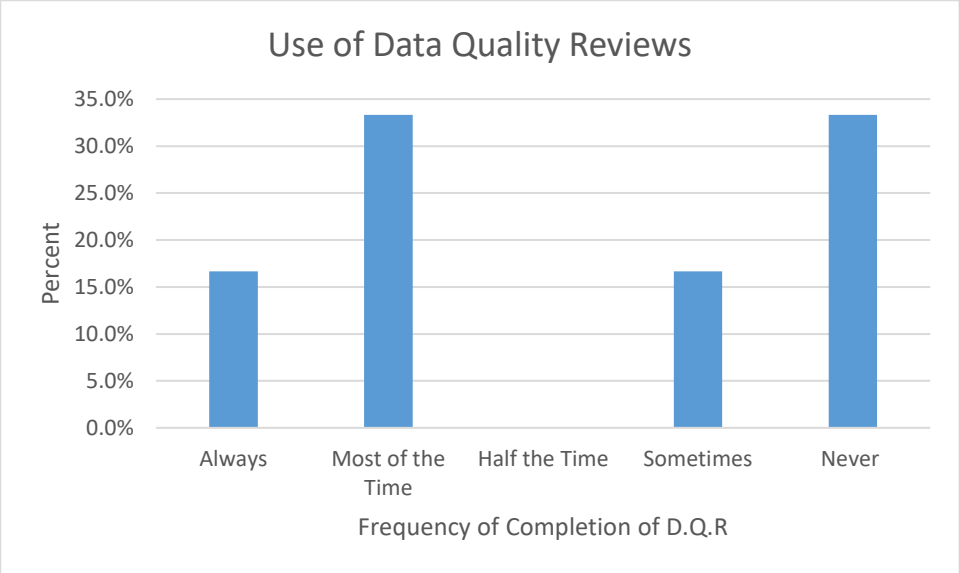

Figure 5-2: Subrecipient data reviews.

In addition, reporting for sub-recipients are instituted approximately 75% of the time and site and desk reviews have been used by 37% of agencies interviewed. Only 20% of respondents reported having completed a compliance audit on a sub-recipient and only 25% of those surveyed reported having developed corrective action plans for use of one or more sub-recipients. States still have varied approaches to sub-recipient monitoring including requiring funding recipients to become licensed vendors as well as requiring completion of quarterly progress reports and reviewing data collected.

5.1.3 Project Closeout & Administrative Topics

A majority of states reported completing project closeout activities within 90 days of project completion. However, there remain several concerns with project closeout and administration in the context of 2 CFR 200.

Common Observation: Research is unique and can't be forced into a schedule

While it may seem repetitive, many subjects for this research noted that research cannot (and in some cases should not) be forced together with other acquisition or purchasing techniques and processes. Among the primary lessons that emerge from the interview conversations and survey is that many research managers view the unique nature of research as a feature that does not allow standardized processes for closeout and administration. Several lessons and common themes emerged along this line. However, there is a concurrent desire to have standardized approaches for contracting regardless of the subject.

Commonality: Project can't be closed out if the university is waiting on invoices

One common cited problem with project closeout is that performing organizations are not typically responsive for final invoicing. As such there is often a lag between the final report acceptance and final invoicing by university partners. Some states did report this was also an issue with private research organizations.

Common Observation: Processes are not too cumbersome to close in 90 days

As states are asked to close out projects more rapidly, many have made substantial improvements in closing their projects much more quickly. This approach has allowed the state agencies to effectively establish streamlined processes to ensure that paperwork and accounting issues are addressed within 90 days of the project's completion.

Commonality: FHWA approves our effort

Many states identified concurrence with the Federal Highway Administration processes as an indicator that their internal processes were sufficient. Division offices have generally accepted state research office procedures. The New Jersey peer exchange and review findings are the only published case where division recommendations were offered to make process improvements.

Common Observation: Our research manual provides for additional technical editing and readability enhancements

Some state agencies identified delays associated with advanced technical editing, implementation assistance, and additional technology transfer product development as potential barriers to administrative efficiency measured purely in terms of project time to completion.

Observation: There is inconsistency among the states with respect to closeout efforts

Several states noted that they have been offering multiple extensions on project activities. Some states reported that their PIs and project managers do not receive any closeout guidance, but that they are made aware of the final deliverables of the project. Others reported that no specific guidance about closeout exists, but some states are updating procedures and intend to address this in the updates.

Several practices ensure these guidelines include clear direction on addressing project closeout and time extensions. In particular, the following items are featured in the guide:

- Clear kickoff meeting procedures
- Extend 6 month buffer on contracts
- Document processes for no cost time extensions
- Identify reasonable expectations for deliverable based invoicing
- Establish progress reporting
- Follow through on penalties for late products.

5.1.4 Risk Assessment and Processes

Many state agencies are looking closely at risk management as a practice. Very few agencies conduct risk assessments or provide for risk based approaches to project management as noted in the subrecipient monitoring information above.

Several risk assessment tools may be useful, depending upon the risk assessment. No listed tool is required nor is the list of tools available for risk and project management all inclusive. Determination on which tools to use is a matter of judgment for the pass-through entity based upon its assessment of risk. (200.331(e))

Among the strategies that are included in the guide are:

- Providing subrecipient training and technical assistance
- Performing on-site reviews
- Arranging for agreed-upon-procedures engagements under 200.425, Audit services [in Cost Principles]

These processes help minimize risk and develop a better approach to overseeing complicated projects and programs.

5.1.5 Training Needs

As with most change management activities, there are training and workforce development needs that should be considered. Some identified training needs included:

- Applicability of contracted research for compliance with 2 CFR 200
- Definitions of terms and key tenets
- Managing throughout the lifecycle

A lack of inter-department coordination between procurement, research, and consultant services, etc. provides other proof for training and development needs.

5.1.6 Barriers

The research team identified several barriers to enhanced implementation of 2 CFR 200 principles.

Barrier 1: General lack of interest in subject

Many of the state agencies have not viewed this as an impetus for substantial change. Many universities have established practices to remain compliant, but not because of state transportation funding, but rather as they are the recipients of other Federal grants.

Barrier 2: State IT Systems are not set up to track and monitor progress

Current practices in most states do not include project tracking activities nor do they use sophisticated database systems. As such, the triggers for certain practices are not well defined.

Barrier 3: Expectation that others in state agency will be responsible for compliance

Procurement, contracting, and other business units seem to be the preferred channels for administrative and fiscal compliance for the research enterprise.

Barrier 4: Legacy environments

Research has been engrained in standardized processes for many generations. It revolves around a partnership between state DOTs and universities. These legacy models provide some start differences with emerging regulations. Some examples include commonly allowable NCTEs, policies on travel and non-allocable costs, and slow invoicing and project closeout.

These barrier are presented as obstacles that a state may need to address to apply the principles and practices that 2 CFR 200 promulgates.

5.2 Guidance for State Transportation Research Offices

This subchapter provides a draft guide for State Transportation Research Offices. It is based on the findings of the project and includes the lessons learned and strategies developed by panel members. The research team has provided a general outline, approved by the project panel, for the guide. This guide will be used to address adherence to the regulations and may be incorporated in state Research Manuals or other operating documents.

5.2.1 Outline

The following outline was proposed for the guide. The remaining part of this chapter follows this guide.

Introduction & How to Use This Guide

Accountability Basics and Performance Measurement

- Performance Accountability and Federal Awards
- 2 CFR 200 overview and history
- Research Life Cycle
- Recent Developments, including Trump Administration modifications

Approaches to Performance Measurement

- Implementing a Performance Measurement System
- Data Collection and Analysis
- Reporting Performance
- Considerations for Performance Measurement

Procurement Focused Activities

- Source Selection and Identification
- Terminology and Application: Allowable, allocable, reasonable, permissible, necessary, and consistent

Agency, Program, and Award Planning

- Agency Responsibilities for Developing Performance Measures
- Aligning Program Goals, Objectives, and Measures to Agency Goals and Priorities

Pre-Award Requirements

- Pre-Award Performance Measurement Requirements Under 2 CFR 200
- Risk Assessment and Evaluating Recipient Capabilities
- Requirements for Pass-through Entities

Post-Award Requirements

- Post-Award Requirements in 2 CFR 200
- Time Extensions and Period of Performance
- Monitoring Responsibilities for Federal Awarding Agencies and Pass-through Entities
- Corrective Actions
- Auditing Performance Measurement and Reporting Systems

Closeout and Post-Closeout Requirements

- Closeout Requirements
- Recordkeeping and Post-Closeout Requirements

Glossary of Terms & Resources and Training Materials

5.2.2 Introduction and Purpose

This guide is designed to provide general direction and preferred practices to state transportation research offices for the successful management of federally funded projects. It provides roles and responsibilities of parties and describes regulations and requirements of federal grants. This guide designed to remain consistent with FHWA memoranda.

5.2.3 Fundamentals to Improve and Enhance Implementation

As with most efforts to implement new approaches and strategies, there are several things that an agency can do to facilitate effective implementation.

1. Consult with relevant stakeholders.
    a. This step allows a research manager to develop strategies or policies that reflect multiple viewpoints. It also provides some sense of ownership for the research monitoring, reporting, and related activities.
    b. 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, this guide highlights the value in new approaches and practices that several states have adopted. 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.

5.2.4 How to Use this Guide

This guide is intended to help states comply with the 2 CFR 200 associated principles. The guide does not replace any FHWA direction or interpretation, but rather provides information for research managers to effectively align their agency practices to these policies.

This guide is divided into four primary chapters. First, there is some discussion on *accountability* basics, including an overview of the research life cycle and its importance related to 2 CFR 200. This first chapter also provides information on voluntary activities to achieve the accountability measures the government requests under Uniform Guidance.

The second chapter addresses *performance management* practices. This chapter provides details and steps to implement a performance and data-driven decision making process. It also provides general considerations for establishing performance measures associated with the TRO.

The third chapter addresses *procurement* practices and highlights the unique elements a transportation research agency must coordinate closely with other business units in the state transportation agency.

Fourth, the guide provides *agency, program, and project management* tenets. This chapter highlights general best practices for research project management, as well as highlighting practices targeting compliance and quality management. Both pre-award and post-award discussions follow, covering a range of options for addressing requirements for reporting, monitoring, and correcting projects. These activities are followed by project closeout best 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.

The guide concludes with a basic glossary and training resources available.

5.2.5 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.

Research Life Cycle

The transportation research lifecycle includes several elements that work together to provide better, and UG affects every stage of the lifecycle. The Research Life Cycle is emphasized to provide clear categories where different activities are completed under the purview of the State TRO research manager. 2 CFR 200 influences activities and requirements of all components.

Identify

At the identification stage, principles associated with project selection under 2 CFR 200 and the efforts related to conflicts of interest need consideration.

Prioritize

During the prioritization stage, research managers need to be aware of conflicts of interest, expectations for pass-through versus contractor relationships, and associated items.

Select

Procurement and contracting provisions are represented in this stage. Processes need to be competitive or justified. If entities are determined to be pass through relationships, a host of additional selection criteria must be documented.

Research

Monitoring performance, payments, project closeout, and periods of performance align with these lifecycle elements.

Implement / Technology Transfer

As products move from research into practice, additional information on the ownership of intellectual property, project closeout, vendor selection, and performance reports is collected.

Measure

Identification of data collection and performance indicators is critical to the research and innovation lifecycle. While many of these elements have been set aside by the current administration, the identification of the right indicators and measures remain important for judging the overall health of the research program.

Evaluate

Overall performance based planning activities are considered for program quality improvement and continuous learning.

All of these elements are discussed in greater detail later in this guide.

5.2.6 Approaches to Performance Management

Implementing a Performance Measurement System

Description

There are currently no uniform metrics collected by a state TRO to assess 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.

Example Practices

Nearly all state TROs have begun to collect performance measurement data. Data is collected to reflect how processes are working, and that information is used to drive decisions over time. Typically, performance is measured and compared to organizational goals and objectives. Results of performance measurement provide information on how an organization's current programs are working and how its resources can be allocated to optimize the programs' efficiencies and effectiveness.

Standard transportation research performance measures are divided into five different types:

Outcome: extent to which research project or product achieves desired results such as cost savings or reduced crashes.

Output: count the number of deliverable units related to a specific attribute (number of research projects that improve safety and the number of products from research projects that positively impact environment

Resource allocation: capture the deployment of agency dollars, such as percent of research funding awarded to minority contracts or number of research projects being funded in attempts to improve safety

Efficiency: rates or ratios which compare what is accomplished to the effort expended (% of research products being implemented by the agency and the % of research projects being completed within budget.

Stakeholder: gauge the involvement of customers in the research process as well as their level of satisfaction. Percent of satisfied customers, number of participating agency personnel, number of project needs statements submitted are some examples.

The goal is to balance the performance measures used across the five types. A strong program will have measures across all the areas.

Consider adding language to a State's Research Manual that says it has been edited to assist the State with compliance with 2 CFR 200. This will show FHWA and our stakeholders that the manual is now the roadmap for compliance. This will help with audits.

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.

Implementation Challenges

It is important to start with developing a common language and discussion.
Performance *measurement* and performance *management* may sound similar, but while they are complementary to one another, they are entirely separate strategic practices.
Performance *measurement* deals specifically with performance *measures.* These are the quantitative indicators a research manager puts in place to track the performance (or progress) of research program work against your strategy. Measures provide important information about the research unit's produces, services, and processes and tools to help understand, manage and improve.

Data Collection and Analysis

Description

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.

Example Practices

States with a mixture of leading, lagging, and diagnostic measures and indicators can provide regular updates on the health of their overall program and its ability to comply with performance management practices espoused in 2 CFR 200. Leading data is focused on the future and measure the input that should be introduced to achieve better results. Lagging measures look at programmatic outputs. For example, past due research deliverables are an example of a lagging measure. Lagging measures tell stories about the current state of your research deliverables, but don't tell you how to change this state. Diagnostic measures help address internal programmatic issues (and not temporally focused). These diagnostic indicators include things like internal customer satisfaction and specifically 2 CFR 200 practices.

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.

Implementation Challenges

As noted previously, OMB set aside many of the data collection and reporting requirements associated with 2 CFR 200 implementation. While many states proceed with data collection, implementation of specific performance indicators associated with the 2 CFR 200 compliance has been slow. In addition, there is a cost of compliance associated with collecting and maintaining regular inputs like this. Without the requirement to do so, implementation proceeds less rapidly.

Reporting Process

Description

Non-Federal entities are required to submit performance reports at the interval required by the Federal awarding agency or pass-through entity to inform improvements in program outcomes and productivity. Intervals must be no less frequent than annually nor more frequent than quarterly except in unusual circumstances, for example where more frequent reporting is necessary for the effective monitoring of the Federal award or could significantly affect program outcomes. Annual reports must be due 90 calendar days after the reporting period; quarterly or semiannual reports must be due 30 calendar days after the reporting period. If a justified request is submitted by a non-Federal entity, the Federal agency may extend the due date for any performance report.

In addition, non-Federal entities must submit performance reports using OMB-approved standard information collections when providing performance information. This information includes:

(i) A comparison of actual accomplishments to the objectives of the Federal award established for the period. Where the accomplishments of the Federal award can be quantified, a computation of the cost may be required if that information will be useful.
(ii) The reasons why established goals were not met, if appropriate.
(iii) Additional pertinent information including, when appropriate, analysis and explanation of cost overruns or high unit costs.

This reporting requirement allows for effective and regular controls for progress monitoring.

Example Practices

All of the state DOT TROs have some progress reporting requirement. While some require monthly progress reports, the information contained in the reports is essential. The contractual

requirement to submit this documentation regularly allows for mid-stream and interim adjustments as needed to mitigate any potential schedule slippage.

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.

Implementation Challenges

Progress reporting is the research manager's opportunity to hold researchers accountable. Without a regular and mandated process, project performance and timeliness slips. Shifting to this process requires some organizational change and willingness to adopt new practices.

Progress reporting can be a time sink for increasingly stretched research customers in the agency. If reporting and accompanying approval processes are too frequent or cover too many projects, the value of reporting regularly is diminished.

Considerations for Performance Measurement and Management

Description

FHWA defines Transportation Performance Management as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals.

In short, Transportation Performance Management:

- Is systematically applied and is a regular ongoing process
- Provides key information to help decision makers allowing them to understand the consequences of investment decisions across transportation assets or modes
- Improving communications between decision makers, stakeholders and the traveling public.
- Ensuring targets and measures are developed in cooperative partnerships and based on data and objective information

It includes continual improvement throughout the life cycle. Clear kickoff meeting procedures

Example Practices

Superior performance starts with project kickoff meetings. Well defined project kickoff meetings help establish expectations, and can be used to address shortcomings on project plans/responses to RFPs. In addition, a well-designed and structured project kickoff meeting helps engage all parties early on to prevent surprises as the projects proceed.

Performance management continues throughout the life cycle and addresses the Plan-Do-Check-Act approaches as well. Activities can be well planned and measures selected to reveal programmatic success.

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.

Implementation Challenges

Time constraints, participant availability, and external obligations are the biggest implementation challenge. Support from executives is mandatory for a move to a performance based program.

5.2.7 Procurements and Cost Principles

Source Selection and Identification

Description

Procurement provides for the transportation research office or 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.

Following proper procurement protocol promotes cost reasonableness and ensures that research services are purchased in a way that is fair and transparent. A state TRO should require Notices of Funding Availability, requests for proposals, or formal sealed bids.

The general procurement standards under 200.318 include the following key expectations:

- Full and open competition is mandatory.
- Conflict of interest and procurement policies in place; contractors that develop draft specifications, requirements, statements of work and invitations for bids or proposals must be excluded from bidding. Scientific collaborations on research and development projects are generally not eliminators but should be disclosed.
- Subrecipients must avoid purchase of unnecessary or duplicative items.
- The transportation research office must maintain proper documentation and records regarding procurements.

In practice, TROs must ensure their procurement activities are completed using permitted approaches. The following rules apply:

- Micro purchases < $3,000

- Small purchases <$150,000
- More than $150,000 (primarily construction activities or larger installation projects): Competitive sealed bids with formal advertising
- More than $150,000 (general procurement): Competitive proposals
- More than $150,000: Non-competitive proposals or sole source.

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.

Example Practices

For both small purchases and more substantial procurements, grantees and sub-recipients must have written policies and procedures that describe how their organizations will procure goods and services, what information they will require when receiving a price or rate quote, and who will have approval authority. The agency must document an adequate number of price or rate quotations from qualified source when using small purchases.

State TROs can widely advertise availability of funding and solicit proposals.

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.

Implementation Challenges

There are many concerns with respect to procurement.

The following situations are considered to be restrictive and as such, should not be used in the procurement:

- Placing unreasonable requirements on firms in order for them to qualify to do business;
- Requiring unnecessary experience, unreasonable insurance, or excessive bonding;
- Noncompetitive pricing practices between firms or between affiliated companies;
- 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.

Subrecipients may contract for services that cannot be provided by staff employed by the Recipient. Generally, these services are for a short-term period and provide a specific and identifiable product or service. Subrecipients are responsible for ensuring their contractors/consultants comply with applicable federal regulations and requirements. Contracting

out must not affect the Recipient's overall responsibility for the management of the project, and the Recipient must reserve sufficient rights and controls to enable it to fulfill its responsibilities for the project. Recipients must establish and follow a documented procurement policy, which conforms to applicable federal law and reflects applicable state, local and tribal laws and regulations. Reference 2 CFR 200.318 for additional information on general procurement standards. Competitive Process Federal regulations require all procurement transactions be conducted in a manner providing full and open competition and consistent with the procurement standards of 2 CFR 200.317 – 200.326.

Some implementation challenges occur because of fear for disrupting the status quo. Non-Federal entities may conduct noncompetitive proposals (or, "sole source" procurement), by procurement through solicitation from only one source when one or more of the following circumstances apply:

- The item or service is available only from a single source;
- The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;
- DOJ or the pass-through entity expressly authorizes noncompetitive proposals in response to a written request from the non-Federal entity; or
- After solicitation of a number of sources, competition is determined to be inadequate. Sole Source procurement should be used only when use of competitive solicitation procedures like sealed bids, or competitive proposals are not applicable to the requirement or is impracticable. All sole source procurements in excess of the simplified acquisition threshold must receive prior approval from the grant-making component before entering into the contract.

Adhering to all elements of the list does provide additional challenges for this project.

Terminology and Application

Description

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. Allowable costs (for all non-Federal entities, other than for-profit entities and hospitals) are those costs consistent with the principles set out in the Uniform Guidance 2 CFR § 200, Subpart E, and those permitted by the grant program's authorizing legislation. To be allowable under Federal awards, costs must be reasonable, allocable, and necessary to the project, and they must also comply with the funding statute and agency requirements. For more information about specific factors that affect whether costs are allowable, refer to 2 CFR § 200, Subpart E, including the list of specific items of cost in 2 CFR § 200.420 through 200.475.

Example Practices

For the most part, state TROs have been effective at ensuring expenditures on their projects are allocable, necessary, allowable, reasonable, and consistent. The ability to provide firm parameters on allowable costs helps maintain a healthy relationship with contractors and subrecipients.

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.

Purchases must meet all criteria to be considered compliant. Specific definitions of terms are provided in the Glossary. The Table 5-1 provides general cost principles and changes or clarifications under UG.

Table 5-1: Cost principle definitions and changes from prior circulars

Reference	Title	Additions or Changes from past circulars
200.425	Audit Services	Costs associated with audits not conducted in accordance with Single Audit requirements and audits that fall below the Single Audit threshold are unallowable.
200.428	Collection of improper payments	The costs incurred by a non-Federal entity to recover improper payments are allowable as either direct or indirect costs, as appropriate.
200.430	Compensation – personal services	Charges for employee compensation must be based on records accurately reflecting work performed; however, no specific types of documentation (e.g., personnel activity reports) are required.
200.432	Conferences	Requires conference hosts/sponsors to ensure that conference costs are appropriate, necessary and managed in a manner that minimizes costs. The costs of identifying, but not providing, locally available dependent-care resources are allowable.
200.433	Contingency Provisions	Allowable in limited circumstances, with appropriate methodology used to create estimates, and must be consistent with the cost principles and other requirements
200.435	Defense and prosecution of criminal and civil proceedings, claims, appeals and patent infringements	Language streamlined for consistency and now specifically references Whistleblower Protection Act
200.436	Depreciation	Change to GAAP standards. Donated assets valued at time of donation and may be depreciated or claimed as matching but not

		both. Eliminates the use allowance method of recovering costs associated with recovering building costs
200.437	Employee health and welfare costs	Employee morale costs are unallowable
200.438	Entertainment	Unallowable unless costs have a programmatic purpose and are authorized in the approved budget for the Federal award or costs have prior written approval from the Federal awarding agency.
200.441	Fines, Penalties, and other settlements	Added Tribal law violations. Now states that "alleged violations" and not just "violations" are unallowable
200.449	Interest	Non-Federal entities may be reimbursed for financing costs associated with patents and computer software.
200.453	Materials and supply costs	Some minor additions
200.455	Organization Costs	Unallowable to all organizations unless specific approval by the awarding Federal agency
200.460	Proposal costs	Changed the language that allowed for other than indirect treatment of these costs, though rule remains that these costs should normally be treated as indirect.
200.461	Printing	Specifies allowable costs of an award
200.463	Recruiting	Clarifies that special emoluments, fringe benefits, and salary allowances that do not meet the test of reasonableness or do not conform to the established practices of the entity are unallowable
200.464	Relocation costs	Repayment of funds is required if employee resigns for reasons within the employee's control within 12 months after hire date
200.465	Rental Costs	Revises policies specific to home office space
200.474	Travel costs	Provides that temporary dependent care costs that result directly from travel to conferences and meet specified standards are allowable.

These changes should be reviewed against existing policy and practices.

Implementation Challenges

Understanding the application of specific terms and cost principles is the responsibility of both the performing organization and the state TRO. There are a number of definitions that are refined or new in the move from the individual circulars to the updated UG. State TRO managers should ensure that the cost principles are addressed in research proposals and execution of project activities.

5.2.8 Agency, Program, and Award Planning

Accounting Responsibilities

Description

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.

Example Practices

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.'

CONTRACTING PRINCIPLES

Contracting Do's

1. Provide for full and open competition consistent with the Procurement Standards.
2. Develop and incorporate clear and accurate descriptions for technical requirements, specifications, statements of work, or other required documents used in procurement transactions.
3. Ensure any prequalified lists of persons, firms, or products used in acquiring goods and services are current and include enough qualified sources to ensure maximum open and free competition consistent with the Procurement Standards.
4. Only make procurement contracts to responsible contractors that can perform successfully in accordance with contract terms and conditions.
5. Maintain records sufficient to detail the history of any procurement action.

Contracting Don'ts

1. Don't include unreasonable (or otherwise unjustifiable) requirements that would be restrictive of competition.
2. Don't require unnecessary experience or other unnecessary criteria or elements that cannot be justified or supported with procurement procedures and the Procurement Standards.
3. Don't allow for, engage in, or facilitate noncompetitive pricing between firms or affiliated companies.
4. Don't forget to include all applicable contract provisions described in Appendix II to Part 200 in any procurement contracts.
5. Don't require unreasonable time frames or performance.

Implementation Challenges

Several implementation challenges apply to smaller performing organizations. In general, states did not report issues with university partners and other consultants being unable to meet the provisions under this section.

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

Description

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.

Example Practices

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.

Implementation Challenges

There are a number of challenges that are evident in aligning TRO goals with overall agency goals. Once such example is Copyright and Intellectual Property Consideration.

Under the Freedom of Information Act (FOIA), the awarding agency may be required to publicly release certain research data related to published research findings. In such cases, the awarding

agency must request, and the non-Federal entity must provide to the awarding agency, within a reasonable time, the research data requested. Research data means the recorded factual material commonly accepted in the scientific community as necessary to validate research findings, but not any of the following: preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, communications with colleagues; trade secrets, commercial information, materials necessary to be held confidential by a researcher until they are published, or similar information which is protected under law; and personal and medical information and similar information the disclosure of which would constitute a clearly unwarranted invasion of personal privacy, such as information that could be used to identify a participant.

5.2.9 Pre-Award Requirements

Pre-Award Performance Measurement Requirements under 2 CFR 200

Description

A number of pre-award practices are provided together in this section of the guide. The pre-award practices stretch from activities cost analysis to project selection efforts.

Example Practices

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. As part of this review, a State TRO might take all of the following steps:

- Perform a cost analysis of the project
- Obtain cost breakdowns, verify cost data, evaluate specific elements of cost, and examine data to determine the necessity, reasonableness, allowability, allocability, and appropriateness of the proposed cost.
- Review the current indirect cost rates and if the indirect cost rate has expired, the rate must be renegotiated. A current negotiated cost rate may be extended for up to four years. Once the cognizant agency has approved the extension, the rate must be used for the entire agreed-upon time period. No further negotiations regarding indirect cost rates may occur until the extension has expired. At the end of the extension period a new indirect cost rate must be negotiated. Subsequent one time extensions for up to four years are permitted if a renegotiation is completed between each extension request.
- Determine the adequacy of the subrecipient's accounting system and operations to ensure that Federal funds, if awarded, will be expended in a reasonable manner.

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.

Implementation Challenges

One of the primary challenges to implementing this course of activities is staff time and availability. In order to review cost structures, substantial time needs to be devoted. In many cases, the performing organizations for the majority of project activities will be in university settings where the cost rates and structures are approved by other non-transportation Federal agencies. They also likely have large federal programs and are familiar with these practices. Many states have established formal maximum indirect rate structures that are approved through cooperative master agreements and/or through state wide approaches. As such, the expectation to review indirect cost rates should very rarely be placed on the TRO manager.

Other implementation challenges include review of monthly reporting information and its associated expectations. This review process should be formally documented and clearly outlined as a pay item in deliverable based contracts.

Risk Assessment and Evaluating Recipient Capabilities

Description

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

Example Practices

Risk assessments are rare in the transportation research community. As shown in the survey, less than one third of states responding had established a formalized process for evaluating capabilities formally. In many cases however, states have provided evaluation criteria that is dependent upon a performing organization possessing adequate facilities to perform the work.

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.

Implementation Challenges

Adopting a full risk assessment and review process takes substantial time and effort. It also requires training in how to complete a risk assessment and what to do to enforce results.

Other Requirements

Description

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.

The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of the Central Contractor Registration (CCR), Federal Agency Registration (FedReg), the Online Representations and Certifications Application (ORCA), and the Excluded Parties List System (EPLS). SAM collects, validates, stores, and disseminates data on organizations to assist agencies. SAM registrations must be updated or renewed at least once per year to maintain an active status. If an organization is new to doing business with the Federal Government, the initial registration in SAM takes up to 5 days to become active. Organizations must maintain an "active" registration in https://www.sam.gov/portal/SAM/ for the entire period of the award.

Example Practices

In order to obtain the 10% de minimus rate, the subrecipient must have never had a federally negotiated indirect F&A cost rate. If a past rate has been established, a new rate subject to a cognizant federal agency signoff is required. Pass-through entities may not force a proposed subrecipient who lacks a negotiated rate to accept less than the 10% rate, regardless of past practices.

Develop a policy to document the rate agreed to for each pass-through award and the basis for the rate (negotiated, de minimus, federally negotiated, other). Particularly if the agreed-to rate is lower than what the sub-recipient might have been entitled to, document that the rate was voluntarily accepted by the subrecipient.

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.

Implementation Challenges

Some implementation challenges that emerged in this study are the general familiarity with the SAM tool and its use. State TROs rarely used this system. While many state TROs have formally documented processes with respect to overhead and indirect costs, few have substantial documentation on their exceptions and negotiated agreements.

5.2.10 Post-Award Requirements

Performance Measurement Requirements in 2 CFR 200

Description

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.

Example Practices

Recipients and subrecipients must maintain records which clearly show the source, amount, and timing for all matched contributions.

In addition, if a recipient or subrecipient has included a match that exceeds the required matching portion within the approved budget, the records of those additional amounts must be included and maintained as if they are a part of the regular match amount.

The award recipient has primary responsibility for meeting the match requirement and for ensuring subrecipient compliance with the match requirements.

Recipients must maintain records that clearly demonstrate the amount, source, and when the funds were contributed.

Recipients are required to report match on the quarterly Federal Financial Report (SF-425/line i).

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.

Implementation Challenges

Implementation of these practices require a document management process and clear audit ready monitoring practices. Documenting potential matching funding often is outside the purview of the state TRO and is a responsibility of the performing organization. This disconnect can sometimes cause challenges as the matching records are held near or in other facilities.

Time Extensions and Period of Performance

Description

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 (see §§200.210 Information contained in a Federal award paragraph (a)(5) and 200.331 Requirements for pass-through entities, paragraph (a)(1)(iv)).

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.

Example Practices

Generally, a no cost extension may be made:

- No more than one time to an award;
- Not to exceed 12 months;
- Only if the period of performance has not expired;
- Only for award recipients that have no significant performance or compliance issues;
- Only if justified by a "robust" narrative establishing that the extension is for the benefit of the government, and contains a plan and timeline for completion within the extension period; and
- For the benefit of the recipient or for the purpose of the enabling the recipient to use unobligated balances.

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.

Implementation Challenges

Several practices will need to be addressed to ensure compliance. All processes need to be documented and published widely to avoid issues. Follow through on penalties for late products requires a clear understanding and considerable upper management support.

Monitoring Responsibilities for Federal Awarding Agencies and Pass-Through Entities

Description

The purpose of subrecipient monitoring is to ensure that the subaward is being used for the authorized purpose. In addition, monitoring processes ensure compliance with the program and grant requirements, laws, and regulations, and the subaward performance goals. All pass-through entities are required to monitor their subrecipients, regardless of whether or not your TRO has established a subrecipient or contractor relationship. The requirements for subrecipient monitoring can be found in 31 U.S.C. § 7502 and in Title 2 CFR § 200.

Example Practices

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.

The methods of monitoring may vary based on prior experience with the same or similar subawards and contracts. Prioritize monitoring on a risk-based approach – namely, the larger program awards and higher percentages of pass through provide greater need for subrecipient monitoring and lager awards are of greater risk. 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.

Implementation Challenges

If a subrecipient fails to comply with Federal statutes, regulations, or the terms and conditions of a Federal award, the pass-through entity may impose additional conditions. However, if it is determined that noncompliance cannot be remedied by imposing additional conditions, the State TRO may withhold disbursements or further awards; disallow cost; terminate award; or pursue civil or criminal prosecution.

Corrective Actions

Description

A corrective action plan is a set of actions to correct an issue, problem, non-compliance or underperformance. It is essentially a plan to improve performance and/or reduce risk. Corrective actions include actions taken by a contractor or subrecipient that corrects identified deficiencies. Corrective actions can be requested by the State TRO to provide improvements. Corrective action plans may be requested by the government following audits or other concerns.

A corrective action plan may be a response to an incident or failure. Several organizations have developed templates to assist non-federal entities in ensuring that the corrective actions are clear and specific, milestones/timetables for completion of interim and final activities are established, and follow up actions are identified particularly when repeat findings are involved.

Example Practices

When requesting corrective actions, state TROs should clearly document the expected outcomes and findings. This can be through a formal audit plan or for regular monitoring transactions. The TRO should require a corrective action plan be documented. In the case of incidents, the corrective plan should identify root cause analysis that highlights any underlying problems or actions that would cause a repeat offense.

Preferred practice: follow a plan-do-check-act cycle for issuing corrective action plans. Corrective action plans can be used to address both contractor and subrecipient issues and corrective action plans are outlined in 2 CFR 200 in response to audit findings.

Implementation Challenges

Responding to the results of an audit would not be the only time to address corrective actions. If adequate communications channels are open between the TRO and a performing organization, there will be limited opportunities for misunderstanding and little need for a formal corrective action.

Other implementation challenges identified in the literature and through interviews include: a small researcher pool, sister-agency concerns that allow performing organizations to avoid corrective actions or penalties, and inadequate training and monitoring processes to follow through on corrective action plans.

Auditing Performance Measurement and Reporting Systems

Description

Non-Federal entities that expend $750,000 or more in Federal funds (from all sources including pass-through subawards) in the organization's fiscal year are required to arrange for a single organization-wide audit conducted in accordance with the provisions of Title 2 CFR Subpart F. Awards are subject to conditions of fiscal, program, and general administration to which the recipient expressly agrees upon acceptance of the award. See 2 CFR § 200.514.

The audit objective is to review accountability of funds and required non-Federal contributions to determine whether the recipient has done all of the following:

- Established an accounting system with adequate internal controls
- Prepared financial statements which are presented fairly and in accordance with generally accepted accounting principles.
- Submitted financial reports (including Federal Finance Reports (FFRs/SF-425s); cash reports; and claims for advances and reimbursements that contain accurate and reliable financial data
- Expended Federal funds in accordance with the terms of award agreements and those provisions of Federal law or regulations that could have a material effect on the financial statements or on the awards tested.

Example Practices

Best practices for audits include preparing documentation, responding to inquiries, providing adequate access, and responding to any findings.

It is the direct recipient's responsibility to ensure that subrecipient audit reports are received and that corrective actions on all audit findings have been implemented.

Preferred practice: prepare documentation, respond to inquiries, provide adequate access and respond to findings to ensure that subrecipient audit reports are received and any corrective actions are implemented.

Implementation Challenges

When subawards are made by the direct recipient to another organization or organizations, the direct recipient is responsible for making sure that subrecipients comply with the audit requirements set forth in 2 CFR § 200.331(f). In some cases, the TRO will not have the same level of access or knowledge necessary to provide this information.

5.2.11 Closeout and Post-Closeout

Closeout Requirements

Description

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.

Example Practices

Several practices provide favorable direction on addressing project closeouts. In particular, the following practices have emerged as preferred and recommended activities to maintain compliance with UG provisions.

As noted previously, clear kickoff meeting procedures set the stage for project closeout and recordkeeping. Project kickoffs should clearly establish expectations.

To avoid unnecessary administrative extensions, include a 6 month buffer on contracts past the end of the period of performance yet maintain that research efforts hold in the original schedule.

Use progress reporting and review progress reports to demonstrate adherence to schedule as closeout processes come into play.

Once materials are submitted and acceptable to the technical committees, ensure that final invoicing happens quickly and any additional internal reviews are completed.

Document the work flow to close out projects and align the process with the 90 day window allowed under the Uniform Guidance.

Preferred practice: use a project management software package for tracking and monitoring research project management. Some examples include systems developed an in use for Utah or Minnesota. Other options include programs like Workfront, Asana, or Mavenlink.

Implementation Challenges

Meeting a 90 day closeout target has proven challenging for some states. This is mostly due to internal practices and delays associated with handoffs from the TRO to other units in the state agency.

Recordkeeping and Post-Closeout Requirements

Description

2 CFR 200.344 addresses post closeout adjustments and continuing responsibilities. The closeout of a Federal award does not affect the right of the Federal awarding agency or pass-through entity to disallow costs and recover funds on the basis of a later audit or other review.

Retention and accessibility of financial records, project records, and supporting documents is governed by 2 CFR 200.333 and 2 CFR 200.337. Recordkeeping mandates that financial records, supporting documents, statistical records, and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three years from the date of submission of the final expenditure report.

Example Practices

Records that must be retained include:

- Timesheets and records that reflect the total activity (including descriptions) for which each employee is compensated;
- Actual expenditure invoices of direct costs charged to pass through funding;
- Employee reimbursement claims including lodging, per diem and transportation receipts;
- Documentation supporting calculation or methodology to determine indirect costs; and,
- All other supporting documentation related to the subaward agreement.

Preferred practices: keep electronic copies in a searchable format. When scanning documents, ensure that the 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 associated with storing your records electronically.

Support records retention and management functions with an appropriate level of resources.

Consider developing training that includes a records management acknowledgement. At the completion of the training, require employees and performing researchers to sign a document confirming their receipt of retention guidelines and detailing an understanding of records retention policies and procedures consistent with this practice.

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

5.2.12 Property and Equipment

Recipients must develop, complete, and maintain property records for scientific research equipment. This documentation should include a description of the equipment, a serial number or identification number, identification of the agreement under which the equipment was acquired,

the acquisition date, acquisition cost, percentage of Federal participation in the equipment cost, the location, use and condition of the equipment, and any ultimate disposition information.

If said scientific research equipment was purchased during the period of performance and has a fair market value of less than $5,000 at the close of the grant agreement, it is no longer considered equipment and is not subject to the federal regulations governing equipment.

If the fair market value is $5,000 or more at the close of the grant agreement, the use, management, and disposition of the equipment is subject to the provisions in 2 CFR 200.313. The state should prepare a Tangible Personal Property Report Disposition Report/Request (Federal form SF-428-C).

Implementation Challenges

Record Retention challenges include having to maintain three years of data and information – if the subrecipient is keeping the information, there is a risk to the state TRO. Developing a section of training and overview courses allows for broad input to the process but simultaneously forces the kickoff meeting into a series of protracted rules and guidance. To overcome this challenge, a state TRO manager may wish to prepare a handout highlighting these key elements that can be easily overlooked.

5.3 Glossary of Key Terms

Research Administrators need a clear understanding of the technical differentiation between contractors and subrecipients. To be effective, implementation of 2 CFR 200 requires:

- Accountability and ownership
- Transparency and traceability
- Data quality and trustworthiness
- Comprehensibility and flexibility
- Accessibility and collaboration
- Documentation

Without these elements, the research office cannot achieve its primary mission – advancing the state of the practice. Following these principles would result in business decisions based on incomplete data, free from understanding risks, which can be costly in revenue and loss of reputation, productivity, and missed opportunities. The following terms are commonly used in the Uniform Guidance and also provide a meaningful snapshot of agency relationships.

ALLOCATION means the process of assigning a cost, or a group of costs, to one or more cost objective(s), in reasonable proportion to the benefit provided or other equitable relationship.

ALLOWABLE costs may be subject to limiting statutory requirements. When the maximum amount allowable under a limitation is less than the total amount determined in accordance with

the principles in this part, the amount not recoverable under the Federal award may not be charged to the Federal award

AWARDING AGENCY is typically (depending on context) the Federal Government or the next highest authority, that is, the State agency administering the formula award or the Federal agency administering the discretionary award.

CLOSEOUT is a process in which the awarding agency determines that all applicable administrative actions and all required work of the award have been completed by the recipient and the awarding agency.

CONSISTENCY refers to costs. A cost may not be assigned to a Federal award as a direct cost if any other cost incurred for the same purpose in like circumstances has been allocated to the Federal award as indirect costs.

CONSULTANT is an individual who provides professional advice or services.

CONTRACT means a legal instrument by which a non-Federal entity purchases property or services needed to carry out the project or program under a Federal award. The term does not include a legal instrument, even if the non-Federal entity considers it a contract, when the substance of the transaction meets the definition of a Federal award or subaward. See 2 CFR § 200.22.

CONTRACTOR is an entity that receives a contract as defined in Contract

EXPENDITURE is a charge made to a project or program for which a Federal award was received.

INTERNAL CONTROLS means a process, implemented by a non-Federal entity, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: (a) Effectiveness and efficiency of operations; (b) Reliability of reporting for internal and external use; and (c) Compliance with applicable laws and regulations. See 2 CFR § 200.61.

MATCH is the recipient share of the project costs. Match may either be “in-kind” or “cash.” In-kind match includes the value of donated services. Cash match includes actual cash spent by the recipient and must have a cost relationship to the Federal award that is being matched. (Example: Match on administrative costs should be other administrative costs, not other matching on program costs).

MICRO-PURCHASE means a purchase of supplies or services using simplified acquisition procedures, the aggregate amount of which does not exceed the micro-purchase threshold. Micro-purchase procedures comprise a subset of a non-Federal entity’s small purchase procedures. The nonfederal entity uses such procedures in order to expedite the completion of its lowest-dollar small purchase transactions and minimize the associated administrative burden and cost. The micro-purchase threshold is set by the Federal Acquisition Regulation at 48 CFR

Subpart 2.1 (Definitions). It is $3,000 except as otherwise discussed in Subpart 2.1 of that regulation, but this threshold is periodically adjusted for inflation.

OMB means the Executive Office of the President, Office of Management and Budget.

PASS-THROUGH ENTITY means a non-Federal entity that provides a subaward to a subrecipient to carry out part of a Federal program.

PERFORMANCE GOAL means a target level of performance expressed as a tangible, measurable objective, against which actual achievement can be compared, including a goal expressed as a quantitative standard, value, or rate. In some instances (e.g., discretionary research awards), this may be limited to the requirement to submit technical performance reports (to be evaluated in accordance with agency policy).

PERIOD OF PERFORMANCE is the period for which implementation of a project is authorized. The project period may be equal to or longer than the budget period for an award, but cannot be shorter than the budget period.

REASONABLE means those costs that a prudent person would have incurred under the circumstances prevailing at the time the decision to incur the cost was made.

RESEARCH is defined as a systematic study directed toward fuller scientific knowledge or understanding of the subject studied. The term research also includes activities involving the training of individuals in research techniques where such activities utilize the same facilities as other research and development activities and where such activities are not included in the instruction function.

SUBAWARD means an award provided by a pass-through entity to a subrecipient for the subrecipient to carry out part of a Federal award received by the pass-through entity. It does not include payments to a contractor or payments to an individual that is a beneficiary of a Federal program. A subaward may be provided through any form of legal agreement, including an agreement that the pass-through entity considers a contract.

SUBRECIPIENT means a non-Federal entity that receives a subaward from a pass-through entity to carry out part of a Federal program; but does not include an individual that is a beneficiary of such program. A subrecipient may also be a recipient of other Federal awards directly from a Federal awarding agency.

UNIFORM GUIDANCE supersedes OMB Circulars A-21, A-87, A-110, A-122, A-89, A-102, A-133, and the guidance in circular A-50 on Single Audit Act follow-up and provides a streamlined format that improves both clarity and accessibility. It is located in Title 2 of the Code of Federal Regulations (CFR), Part 200.

5.4 Resources and Training Materials

There are dozens of resources and training materials available for understanding the 2 CFR 200 policies and procedures. Accounting organizations, independent consultants, and some university programs offer day long training sessions. This section of the guide highlights two programs of interest.

Ahead of the Curve

The Ahead of the Curve: Mastering Transportation Research Program Management training program offers 17 courses in various elements of transportation research program management. The core course "Running the Transportation Research Program" includes a module discussing many of the implementation challenges and practices described above. This program is tailored specifically to research managers in the transportation discipline and is based on a cohort learning approach. For more information, visit https://sites.google.com/site/conductofresearchcommittee/strategic-plan/goal-5-service/ahead-of-the-curve-subcommittee.

Uniform Guidance Fundamentals

A series of 10 short videos provided by the Office of Management and Budget detail requirements and common approaches to compliance. Available at https://www.ecivis.com/omb-training-videos.html. OMB also published Grants 101 Training for federal government employees, but provides eLearning modules as a resource for all Federal fund managers. This grants training is comprised of five modules, most of which contain multiple online lessons:

- Laws, Regulations, and Guidance
- Financial Assistance Mechanisms
- Uniform Guidance Administrative Requirements
- Cost Principles
- Risk Management and Single Audit

The training is accessed at https://cfo.gov/grants/training/.

6. OPPORTUNITIES FOR FUTURE RESEARCH

6.1 Recommendations for further work

This project has highlighted a number of opportunities for the research community to better assess the implementation of 2 CFR 200 policies.

- Several opportunities exist for working with the AASHTO RAC Management and Productivity Task Force to develop a handout and consistent approaches related to managing SPR funded work
- Developing a graphically appealing, professionally set standalone guide for compliance that includes photographs, testimonials, and other elements to reinforce its messages
- Hosting a multistate peer exchange on this subject and how states are advancing research management practices
- Developing and refining the modules associated with Uniform Guidance in the Ahead of the Curve research program
- Continued monitoring of FHWA interpretations with respect to pass through entities.
- Preparing a basic overview for inclusion in AASHTO RAC 101 presentations

7. CONCLUSIONS AND RECOMMENDATIONS FOR IMPLEMENTATION

The first critical step in this effort was to become highly familiar with the 2 CFR 200 regulations and identify key changes that affect the agencies. These changes could then be compared with the state of the practice in the various agencies surveyed and interviewed to realize gaps between compliance and practice.

Implementing new approaches to quality research management includes new practices across the research life cycle. This project developed a better understanding of these life cycle considerations and developed preferred practices for improving the process to comply with 2 CFR 200. Risk assessment and risk monitoring of research processes and projects is an emerging area that embodies all the compliance and quality improvement aspects of research management. Many agencies have not yet formed a concrete or established framework for accomplishing this risk based approach. Additionally, many states expressed concern or uncertainty over the period of performance regulations and how multi-year projects will be affected by this. Guidance is being provided for creating realistic project schedules while understanding the cost implications of any work that would fall outside of the period of performance requirements. However, risk assessment can go much further.

Similarly, agencies should be informed about building in buffers for performance periods to allow for unanticipated delays and modifications.

2 CFR 200.301 stipulates performance measurement must be accomplished by the recipients of Federal awards. In order to gain meaningful performance measures, reasonable metrics must be selected. The Ahead of the Curve training program and several NCHRP reports provide resources for research managers. Linking available financial data to performance measurement is key to this step; this allows for proactive oversight of projects to ensure major milestones are being met, which ultimately aids in adherence to the period of performance regulation as well.

In this study, the research team used benchmarking was to organize findings from the interview process and gap assessments. Looking at the benchmark assessment results, most organizations are in the early stages of developing any data focused practice. Typically, organizations deploying emerging transportation technologies have started thinking about open data policies, privacy protection, and data collection but have not yet finalized all their documentation and procedures. Few organizations have developed to the point that they have metadata catalogs, database diagrams, or comprehensive data quality monitoring in place. The most advanced departments commonly found success by a) maintaining control over the raw data in every contract, b) having a long-term vision where one data lake supports multiple data products, and c) using modern storage architecture built for big data rather than re-purposing old equipment. This data component, while not essential to be compliant with 2 CFR 200 is valuable for research management and should be incorporated into research operating procedures.

As noted earlier, there are several practices that this study has identified to assist states in complying with 2 CFR 200. Throughout this project various areas of 2 CFR 200 and the associated concerns with compliance were addressed; however since the focus of this report is on the effects to State Transportation Research Officers, several key areas of interest are described below.

1. **Maintaining progress reporting throughout the project timeline assists in 2 CFR 200 compliance**

Using a performance based approach to measure progress will aid states in quantitatively measuring indicators of project status. These provide critical information on project advancement and aids in improvement strategies as well as help to prevent schedule slippage.

2. **Strong kickoff meetings breed success throughout the project and aid research managers in adhering to timelines**

Well-defined project kickoff meetings establish expectations, aid in answering questions early on in the project and engages multiple parties the planning process. This helps avoid surprises later on, which can lead to schedule delays.

3. **Project end date buffers built into schedules allow flexibility in meeting project deadlines**

Unplanned complications often occur in projects; with adherence to project end dates and closeout requirements put forth in 2 CFR 200, it behooves research programs to build in buffer time around project end dates. This allows for delays and complications to be accommodated without compromising project schedules and closeout procedures.

4. **Understanding contractor-vendor relationships versus pass-through funding remains a critical concern**

Continuous monitoring ensures lower risk of non-compliance and better adherence to project timelines. Proactive monitoring includes thoroughly reading contract documents, clarifying points of confusion, documenting transactions as well as keeping documentation well organized.

5. **Compliance is rooted in a good understanding of the definitions**

Research managers need a clear understanding of the key terms and technical differentiation between various definitions. A comprehensive and standardized glossary for use across states will aid in compliance. If guidance is too complex, it poses a higher risk of non-compliance.

6. **Written and documented policies for invoice review, project design, conflict of interest, and project closeout expectations will be helpful**

Not many research programs have extensive knowledge of reporting and documentation requirements set forth by 2 CFR 200 and many manuals that do exist do not contain specific information. Due to this, many research programs may not have written documentation that is sufficient to address issues arising during projects.

7. **Clearly documenting and reviewing research management processes encourages compliance; each stage of the life cycle requires attention**

Documenting policies and procedures and making them available for use and review allows for consistent approaches to common questions and processes and allows for easier interpretations.

8. **A peer exchange among research managers can highlight additional preferred practices and identify chokepoints for these processes**

A common finding is that many parts of 2 CFR 200 do not clearly relate to research programs and the parts that are required may not be clear or familiar to research offices. Collaboration among research managers can aid in this process. Additionally, many states felt they had a good working relationship with local FHWA representatives; these relationships can be utilized more fully and more uniformly from state to state.

9. **Exploring NCHRP implementation funding to support a series of small workshops to discuss specific changes to TRO Research Manuals to help compliance.**

As noted above in number 8, a common finding is that many parts of 2 CFR 200 may not be clear or familiar to research offices. Implementation workshops can help bridge this gap in knowledge and allow states to develop language for inclusion in their research manuals that reflect business practices and processes that are 2 CFR 200 compliant.