# University Transportation Center
## Research Administration Manual

**2024 Edition**

# University Transportation Center

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# Abbreviations & Acronyms

| | |
|---|---|
| CSD | Contract Services Division |
| FAM | Focus Area Manager. The staff member who oversees research program development in a focus area and advises the Research Advisory Committee about research related to that focus area. |
| FAST | Fixing America's Surface Transportation Act |
| FHWA | Federal Highway Administration |
| IIJA | Infrastructure Investment and Jobs Act |
| ISTEA | Intermodal Surface Transportation Equity Act |
| MAP-21 | Moving Ahead for Progress in the 21st Century Act |
| MDOT | Michigan Department of Transportation |
| NOFO | Notice of Funding Opportunity |
| OST-R | Office of the Assistant Secretary for Research and Technology |
| PI | Principal Investigator. The lead researcher of a project. |
| PM | Project Manager. The MDOT staff member who manages the technical aspects of each research project. |
| PS | Problem Statement. A description of the research problem and detailed project elements to address the problem. |
| RAC | Research Advisory Committee. An advisory-level committee for SPR, Part II, Program research management at MDOT. The RAC, composed of focus area managers and chaired by a bureau head, advises the Research Executive Committee. |
| RAd | Research Administration |
| RAP | Research Advisory Panel. A project management-level committee of MDOT staff that oversees a research project. |
| REC | Research Executive Committee. The senior Executive Committee that sets strategic priorities for the research program and approves the annual program prior to submittal to FHWA. |
| RIM | Research and Implementation Manual |
| SAFETEA-LU | Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users |
| SPR | State Planning and Research |
| STURAA | Surface Transportation and Uniform Relocation Assistance Act |
| TEA-21 | Transportation Equity Act for the 21st Century |
| US DOT | U.S. Department of Transportation |
| UTC | University Transportation Center. The UTC Coordinator is the MDOT Research Administration staff member who performs the administrative duties and tasks associated with MDOT's participation in the UTC program including selection, project development, and project management. |

# 1. Introduction

University Transportation Centers (UTCs) were established by the U.S. Department of Transportation (US DOT) in 1987. UTCs are comprised of eligible nonprofit institutions of higher education that are part of an on-going federal government effort to improve transportation research, transportation education and to strengthen the country's competitiveness in the global transportation industry.

Only U.S. non-profit institutions of higher education as defined under 20 U.S.C. § 1001(a) are eligible to apply. Non-profit institutions of higher education may include qualifying two-year institutions that meet the requirements of 20 U.S.C. § 1001(a).

The program is sponsored and coordinated by the Office of the Assistant Secretary for Research and Technology (OST-R) of the US DOT. Federal funding of UTCs is provided by two federal agencies in the US DOT, OST-R, and the Federal Highway Administration (FHWA).

Each center awarded a federal grant is required to obtain matching funds.

# 2. Program Purpose & Center Objectives

As stated in 49 U.S.C. § 5505, the purpose of the UTC Program is for eligible nonprofit institutions of higher education, including qualifying two-year institutions, to establish and UTCs. The objectives of each of these centers are to:

- Advance transportation expertise and technology in the varied disciplines that comprise the field of transportation through education, research, and technology transfer activities.
- Provide for a critical multimodal transportation knowledge base outside of the US DOT.
- Address critical workforce needs and educate the next generation of transportation leaders with respect to statutory research priorities.

Although every center has the same broad objectives, the US DOT encourages diversity among the program participants and in the approaches individual centers take to achieve program objectives.

To achieve its transformative vision of a fully connected, integrated, accessible, and interoperative multimodal transportation system that is centered on the seamless movement of people and goods, the US DOT desires UTCs to engage in breakthrough, advanced, and transformative research, education and workforce development, and technology transfer activities that cut across disciplines and span multiple modes of transportation.

UTCs have an important role to play in helping to transform the Nation's surface transportation system to achieve this vision, inclusive of rail, maritime, highway, pipelines, transit, and any surface links to aviation.

# 3. Program History

The history of the UTC Program begins with its initial authorization in the Surface Transportation and Uniform Relocation Assistance Act (STURAA) of 1987. After a nationwide competition, in 1988 the US DOT awarded grants to create a UTC in each of the ten standard Federal regions. The primary purpose of the program at that time was conducting research.

The Intermodal Surface Transportation Equity Act (ISTEA) of 1991 reauthorized the UTC Program through Fiscal Year 1997 and expanded its mission to include education and technology transfer, as well as research. In addition to the ten regional centers, ISTEA created three "national" centers and six University Research Institutes at universities that were named in the Act. The program expansion led the US DOT to adopt a strategic planning approach to program management based on a unified mission and goal set for all 13 centers and six Institutes.

In 1998, the Transportation Equity Act for the 21st Century (TEA-21) reauthorized the UTC Program for an additional six years and increased the total number of centers to 33. In addition to the ten regional centers, which were selected competitively in 1999, TEA-21 created 23 other centers at institutions named in the Act. TEA-21 established education as one of the primary objectives of a UTC and institutionalized the use of strategic planning in UTC grant management.

The Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), enacted in 2005, provided the most significant expansion of the UTC program to date. SAFETEA-LU increased the number of UTCs from the 33 established in TEA-21 to 60, including the ten regional UTCs plus a new group of ten competitive centers called tier 1 centers; the other 40 UTCs were located at institutions named in the Act. Annual authorized funding for the UTC program also increased from $32.5 million in TEA-21 to $85.9 million in SAFETEA-LU.

The Surface Transportation Extension Act of 2010, sec. 411(e)(3), gave the US DOT the discretion to redistribute funds allocated to specified research projects and programs designated in SAFETEA-LU. The Fiscal Year 2011 funds were made available through full and open competition following the framework of the competitive UTC programs under SAFETEA-LU sections 5506(e) and (f). Grants of approximately $3.5 million each were awarded to ten tier 1 UTCs, two tier 1 Transit-Focused UTCs, and ten regional UTCs. Fiscal Year 2012 funds were added to these grants following additional extension legislation.

In 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) continued the UTC program, authorizing the competitive selection of 35 UTCs to receive a total of $72.5 million in funding for each of Fiscal Years 2013 to 2014, with continued funding from extension acts through Fiscal Year 2015. Following a competition in 2013, grants of approximately $3 million each were awarded to five National UTCs, $2.75 million each to ten regional UTCs, and $1.5 million each to twenty tier 1 UTCs.

The Fixing America's Surface Transportation (FAST) Act was enacted in December 2015, establishing the UTC Program similarly to MAP-21 with 35 UTCs to receive funding from Fiscal Years 2016 to 2020. The FAST Act was later extended through Fiscal Year 2021. Authorized funding increased incrementally from $72.5 million per year to $77.5 million per year. Congress provided one-time funding and authorizations for additional grants in 2018 for two additional National UTCs (total authorization $15 million) and in 2020 for additional tier 1 UTCs (total authorization $5 million). These competitive grants were awarded in 2019 and

2020 respectively and operate similarly to the FAST Act-authorized UTCs except for a shorter period of performance and smaller award amounts.

The Infrastructure Investment and Jobs Act (IIJA) was enacted in November 2021. The IIJA's reauthorization of the UTC Program both sustains existing and establishes new and vital initiatives in transformational research, education and workforce development, and technology transfer that benefit the U.S. traveling public, freight movement, and the safety and efficiency of the U.S. transportation system. At the same time, UTCs work to address concerns of climate change and environmental impacts caused by and affecting transportation systems and vulnerable communities, and issues of transportation accessibility and equity.

The most significant changes in the UTC Program between the IIJA and the previous FAST Act are:

- Addition of a seventh research priority, Reducing Transportation Cybersecurity Risks;
- New candidate topic areas under each of the seven research priorities;
- Award amounts are expected to be higher throughout the life of the grant; and
- Institution of higher education may receive only one grant as the lead of a consortium.

Additional information about the UTC Program is available on the UTC Program website, https://www.transportation.gov/content/university-transportation-centers.

# 4. Types of Centers

There are three types of centers: national, regional and tier 1. Each of these centers must focus their efforts on national transportation issues as identified by one of the statutory research priority areas classified by OST-R in their grant competitions.

## 4.1 National Centers

National centers may be based in any region and may include consortium members that are not in the same Federal region as the lead institution.

## 4.2 Regional Centers

Regional centers are located one in each of the ten standard Federal regions listed below. They are distinct from the National and tier 1 centers in that they must also address what the regional UTC identifies as regional needs. While a National or tier 1 center may be based in any region and may form a consortium with universities that are not located in its region, a regional center, including all consortium members, must be located within the Federal region to be served. Each regional center must serve as a focal point within its respective region to help coordinate UTC transportation research and education programs with regional needs and initiatives. At a minimum, a regional center should work with the other UTCs in its region to maximize the effectiveness of the region's collective services and programs.

**Standard Federal Regions**

| Region | States |
|---|---|
| Region 1 | Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, |
| Region 2 | New Jersey, New York, Puerto Rico, U.S. Virgin Islands |
| Region 3 | Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia |
| Region 4 | Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee |
| Region 5 | Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin |
| Region 6 | Arkansas, Louisiana, New Mexico, Oklahoma, Texas |
| Region 7 | Iowa, Kansas, Missouri, Nebraska |
| Region 8 | Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming |
| Region 9 | Arizona, California, Guam, Hawaii, Nevada |
| Region 10 | Alaska, Idaho, Oregon, Washington |

## 4.3 Tier 1 Centers

Tier 1 centers may be based in any region and may include consortium members that are not in the same Federal region as the grantee university.

# 5. Available Grant Competitions & Federal Application Process

When grant competitions are posted, the Notice of Funding Opportunities (NOFO), the application process and submission requirements, and other supporting materials are made available on https://www.grants.gov/ (the federal electronic grant identification and application system) and the UTC Program website, https://www.transportation.gov/content/university-transportation-centers.

The Research Administration (RAd) UTC Coordinator at the Michigan Department of Transportation (MDOT) monitors the UTC Program and Grants website for new NOFO opportunities for UTC participation.

When NOFOs are posted, the UTC Coordinator publicly posts information regarding the UTC grant competition through the MDOT's web-based email service to notify subscribers and provide guidance on submitting letters of intent to the RAd office to universities seeking MDOT financial support.

# 6. Determining MDOT Program Participation & Support

Historically, MDOT has financially supported and participated in UTCs located in Michigan and in other states. However, MDOT support has only been forthcoming when a Michigan university has been a member of a UTC.

MDOT support for UTCs has consisted of setting research priorities, providing technical advice, offering access to MDOT SPR II federal aid, assisting with setting project focus and supplying the administrative support necessary to meet federal funding requirements.

Universities requesting MDOT support may submit a request letter to the Engineer of Research. A Letter of Intent (maximum 4 pages) should include, at minimum, the following information for department review:

1. Name of the non-profit institution of higher education that will submit the application as the lead of the consortium.
2. Type of UTC for which the institution is applying; (1) national center; (2) regional center; or (3) tier 1 center. If applying as a regional center, they must indicate the Federal region in which they are located (as shown on page 7).
3. Statutory research priority area that will be the primary focus, along with reasons why MDOT UTC participation is beneficial to MDOT and the State of Michigan, in general.
4. The letter should provide a list of at least 5 possible research topics that address MDOT's research priorities found under the "Program Development Documents" heading at the following website: https://www.michigan.gov/mdot/programs/research/participating-in-research
5. Contact information for a person at the institution MDOT may e-mail or call with questions about the Letter of Intent.
6. Specifics about the funding requests the university is asking MDOT to contribute to. This should note the amount per year, the number of years, and a total dollar amount requested.

All letters of intent submitted to MDOT must be reviewed through the Research Committee Structure located in Appendix 1.2 of the MDOT Research and Implementation Manual (RIM). The UTC Coordinator will forward the university request to the appropriate Focus Area Manager (FAM) and Research Advisory Committee (RAC) chair for their recommendation or rejection. The Research Executive Committee (REC) will make the final participation determination. UTC proposals, accepted by MDOT, will receive an MDOT letter of support, signed by the director, that can be included in the UTC proposal to OST-R.

Letters of support will be sought after by universities before they submit their applications and preliminary proposals to the NOFO for consideration. Therefore, review of the Letters of Intent to MDOT should be done quickly with respect to the NOFO deadline to engage all levels of the Research Committee Structure.

# 7. Funding Requirements

Total funding for a UTC operation must include the US DOT funding plus matching funds. The matching funds may include federal funds provided to a recipient under 23 U.S.C. § 504(b) or 505 (local technical assistance and State planning and research (SPR) programs managed by FHWA). No other sources of federal funds, including from non-US DOT Departments and Agencies, may be counted toward the match requirement.

The matching funds may be cash or in-kind, must be used to accomplish program objectives and the purpose of the grant, and must be fully documented in the UTCs records. Grantees will have the length of the grant period to obtain and spend the full amount of required matching funds. Any restrictions under the grant or in Federal grant regulations 2 CFR Part 200 on allowability of costs apply to matching funds as well as the Federal funds.

National and Regional UTCs must obtain matching funds in an amount equal to the US DOT grant award amount. The match for tier 1 UTCs must be 50 percent of the US DOT grant award amount.

## 7.1 Michigan UTC Project

Michigan UTC projects are funded by a combination of university, federal OST-R grants and MDOT SPR II funds. Historically, MDOT has contributed federal SPR II funds and required university funding to match these funds. MDOT funding support cannot exceed 80 percent of the total identified project cost. MDOT state matching funds have not been allocated in previous arrangements. Past funding arrangements have been as follows:

**100% Local Match to OST-R**

| Funding Source | SPRII Match | OST-R Match |
|---|---|---|
| OST-R | | 50% |
| University | | 25% |
| MDOT Fed SPRII | 80% | 25% |
| University | 20% | |

**50% Local Match to OST-R**

| Funding Source | SPRII Match | OST-R Match |
|---|---|---|
| OST-R | | 66.67% |
| University | | 16.67% |
| MDOT Fed SPRII | 80% | 16.67% |
| University | 20% | |

Although funding comes from multiple sources, MDOT funding support is contingent upon MDOT having input in both UTC research priority setting and UTC project selection. Some UTCs are governed by a Board of Directors who provide overall strategic direction for the UTC. An MDOT representative may be asked to provide direction to the board for MDOT needs to be sufficiently accounted for in the UTC activity prioritization process.

Successful UTC proposers, with MDOT support, must be aware of timelines necessary to receive an MDOT contract authorization to begin work. Each UTC will be funded with a single MDOT contract authorization.

UTC contract authorizations may fund multiple research projects. Pursuant to federal regulations require a summary of proposed project costs broken down by work activity, along with a breakdown of contribution amounts by each supporting agency (OST-R, MDOT, and university). This is necessary to confirm funding match requirements. The project development and contract process can be time-consuming and should begin as soon as OST-R notifies the university that their UTC proposal has been selected.

UTC projects are funded through a split in cost share, with MDOT funding no more than 80 percent of the total identified project cost with SPR II funds from FHWA and university funding with non-federal matching funds.

Project invoices should be submitted on a routine basis (i.e., monthly or quarterly), as noted in the approved project workplan.

UTCs requesting reimbursement of costs incurred or credit for cost share incurred for a project, must submit the UTC Request for Reimbursement Form (see Appendix B). This form is a required as part of the invoice submittal process to ensure consistent project accounting and acknowledgement that the UTC match portion cannot be funded with federal dollars. MDOT cannot process reimbursement of a submitted invoice without the UTC Request for Reimbursement Form.

UTCs requesting reimbursement of costs incurred or credit for cost share incurred for a project, must submit supporting cost detail of no less than 100 percent of project costs incurred. As supporting cost detail, the UTC shall include a detailed breakout of all costs incurred, including direct labor, indirect costs, other direct costs, and travel. FHWA guidance for UTCs includes the requirement that 100% of costs for a period are to be reported even though only a percentage will be paid.

MDOT reimbursement shall be paid out in the agreed upon percentage or split in cost share on every invoice submitted. MDOT must administer the UTC program to document the split in cost share throughout the project. Documenting the split and tracking the percentage of costs for SPR II funding ensures accurate reporting and federal compliance for SPR II funds throughout the project.

UTCs are expected to show reasonable progress toward meeting the match requirement. If there is lack of evidence toward reasonable progress like not showing the match regularly, FHWA may require additional demonstration of ability to match funds already awarded before further payment of invoices. MDOT ensures reporting regular progress by documenting and reporting the split with each invoice throughout, leaving zero concerns for funding.

# 8. MDOT Contract Development Overview

Specific project concepts should be submitted to MDOT immediately after OST-R selection of the UTC proposal. **Delaying the submittal of project concepts to MDOT until after UTC award can significantly delay the initiation of research projects.**

## 8.1 Concept Submittal

At least 5 possible projects concepts should be submitted that address MDOT's research priorities found under the "Program Development Documents" heading at the following website: https://www.michigan.gov/mdot/programs/research/participating-in-research.

Project concepts shall include the following sections:

1. **Problem to address**: Describe the problem and why it is an issue for MDOT in 200 words or less.
2. **Research objectives**: Each objective should be 10 words or less.
3. **Research tasks**: List the major tasks necessary to accomplish research objectives.
4. **Deliverables**: List the deliverables MDOT would receive at the end of the project in 50 words or less. Deliverables may include things like design method, training, manual of practice, procedure, specification, software and/or equipment.
5. **Research needs**: List the data or facilities that MDOT would need to provide access to for a successful project in 50 words or less.

A project concept meeting will be held to provide feedback on concepts submitted. These meetings will include the MDOT FAM, university UTC representative, MDOT UTC Coordinator and other staff as needed.

The FAM will submit selected project concept(s) to the appropriate RAC chair for review and approval. After approval, the FAM will assign a Project Manager (PM) for each project. Each PM will make a recommendation for FAM consideration on whether a Research Advisory Panel (RAP) will be necessary for the project.

If the UTC project concept is approved by the RAC chair, the PM will then develop a problem statement based on the approved project concept and submit it to the RAC for review and approval.

Once the project is RAC chair it will be added to the RAd program through FHWA approval, and the UTC coordinator will request a workplan proposal from the UTC. Guidance on developing the workplan is in the attached Appendix.

Selection, negotiations, and contract award will follow MDOT RAd procedures as outlined in the RIM and Contract Services Division (CSD) requirements.

# 9. Roles & Responsibilities

MDOT staff play a key role in project selection, project management and project implementation. RAd encourages the formation of an MDOT Research Advisory Panel (RAP) to oversee the project. The FAM decides if a RAP is needed or if the assigned PM will handle project oversight individually.

## 9.1 Project Manager

The PM assignment is made by the appropriate FAM. In cases where several UTC projects may be authorized together, a single PM will be named by the FAM to manage all projects funded under one contract authorization. Typically, the PM is the subject area expert for the research topic and takes a leadership role, overseeing all aspects of the project and managing the project as follows:

- Reviews the UTC Project Concept and makes recommendations to the FAM and RAC chair regarding research topic value and quality.
- Drafts problem statements for UTC projects accepted by MDOT.
- Recommends the RAP, if needed, including completing the RAP Advisory Panel Nomination Form (5314) located in Appendix 2.8 of the RIM. RAP members are selected as outlined in Chapter 3 of the RIM.
- Initiates the contract (authorization) and subsequent modifications.
- Schedules RAP meetings (project kickoff and regular progress meetings) in coordination with the UTC Coordinator.
- Manages project costs, schedule, and scope.
- Reviews and coordinates the review and acceptance of project deliverables.
- Accepts and/or rejects invoices.
- Submits required annual report.
- Completes a performance evaluation of the university and PI.
- Recommends implementation measures as defined in Chapter 4 of the RIM.

## 9.2 UTC Coordinator

The UTC Coordinator is the identified staff member in RAd responsible for coordinating all MDOT activities with UTCs. The UTC Coordinator provides administrative assistance for program development and project management in the following ways:

- Requests letters of interest from Universities when the OST-R issues a NOFO.
- Coordinates MDOT Research Committee review of UTC letters of interest.
- Prepares letters of support for the MDOT Director to sign for approved UTCs.
- Requests UTC project concepts from approved UTC Directors.
- Assists the PM and/or FAM with UTC Project Concept review and problem statement development.
- Requests formal UTC proposals and facilitates their review and approval.
- Works with the PM to ensure essential documents are compiled for contract or authorization initiation and tracks progress.
- Acts as RAd's liaison to project participants when process questions arise.

- Coordinates meeting responsibilities with the PM to ensure completion of the tasks.
- Ensures all meeting discussions are documented (meeting minutes) by the PM or UTC Coordinator.
- Verifies reports and deliverables are received.
- Reviews invoices.
- Works with RAd staff to make sure evaluations are complete.

## 9.3 Focus Area Manager

The FAM is the MDOT manager designated to coordinate research projects within a focus area as shown in Appendix 1.2 of the RIM. The FAM may also assume the PM role on UTC projects and provides direction in the following ways:

- Coordinates with RAC chair to identify UTC proposals for consideration of MDOT support.
- Meets with UTC representatives to identify project concepts.
- Recommends projects for RAC and REC approval.
- Recommends a PM to the RAC chair for each project.
- Approves RAP members.
- Attends research meetings.
- Reports project status to the RAC chair.
- Reviews and comments on draft deliverables.
- Provides guidance on implementation of research results.

## 9.4 Principal Investigator

The PI is the lead researcher from the UTC and may assign Co-PIs to manage or conduct specific research projects as indicated in an authorized work plan. The PI participates in project development tasks and conducts and manages day-to-day research tasks as defined in the work plan or assigns those tasks to a Co-PI. The PI and university team:

- Submit project concepts and modify to meet MDOT needs.
- Respond to request for proposal with a work plan and update and/or modify as needed to meet negotiated requirements. See the attached Appendix A for work plan specifics related to UTCs.
- Provide regular progress reports.
- Manage project(s) budget, scope, and schedule. Inform the PM immediately of any trends in project progress that suggest a future need for changes to cost, scope or schedule.
- Maintain regular contact with the PM and other RAP members through meetings and other informal means (email, phone).
- Submit project deliverables, respond to PM/RAP review comments, and make changes as directed.
- Ensure invoices and project deliverables are supplied on a timely basis. See Chapter 7 for summary of invoice requirements and Appendix B for the UTC Request for Reimbursement Form.
- Lead the research team and provide other project researchers with clear direction. Maintain team focus on project tasks, objectives, and deliverables.
- Provide timely submittals and track contract and authorization approval progress with OST-R, UTC partnering universities, and MDOT.

## APPENDIX A

Research Center Work Plan
Submission Guidelines

# Research Center Work Plan Submission Guidelines

A center's work plan should be a well-organized document which addresses the need for the center's activities. The work plan should provide a detailed description of the work required to achieve its objectives and itemize all costs.

Work plans are limited to twenty (20) pages in length, excluding the cover page, title page, table of contents, and appendices. All required forms are to be submitted as appendices. Text should be no less than 10-point font size with 1.5 line spacing and 1-inch margins on all sides. All pages, including appendices, must be consecutively numbered. All work plans must contain the following sections:

- **Cover Page** - First sheet of the work plan includes the following:
  a. The center's title
  b. RAd reference number (OR#)
  c. Name of center's agency
  d. Name of principal investigator(s) PI(s)
  e. Printed name and signature of person(s) with contracting authority

(NOTE: The center's activities are under the technical direction of the principal investigator (PI) identified in the work plan. If multiple investigators are participating in a center the principal investigator shall be listed first on the work plan and on all reports. Because the PI is expected to have the primary responsibility for the work, the PI is also expected to be available and actively involved in the center's activities for the full contract period.)

- **Title Sheet** - Second page of the work plan lists the following information:
  a. Title for the center
  b. Name and business address of the center's agency
  c. Name, title, address, phone number, and email address of the PI(s) or co-PI(s)
  d. Name, title, address, phone number, and fax number of the person(s) who are authorized to bind the agency contractually
  e. Date submitted
  f. A new title sheet shall be furnished with each revision to the work plan and shall include the date of the revision, the original submission date, and the dates of all previous revisions.

- **Forms 5100D and 5100J** - Consultant Data and Pre-signature Sheet (5100J) is required for the signatory on this work plan. These Forms are available at MDOT's Vendor Consultant Services Website https://www.michigan.gov/mdot/Business/Vendor-and-Consultant-Services.

- **Table of Contents** - should include a list of figures, tables, and appendices.

- **Background** - Clear and concise description of the problems to be solved. This section should explain the need for the center's activities and demonstrate the PI's knowledge of the topic. Document center's focus and sight literature noting the current state of the science for this topic. This discussion should indicate how the center's activities findings are expected to save money, improve quality, efficiency, or safety, and advance the state of technology. The submissions should include a discussion on the urgency of the proposed center's activities in relation to highway transportation needs in general and the potential for payoff (in terms of benefits/cost, if possible) from achievement of the center's activities objectives.

- **Objectives** - The technical objectives upon which the center's activities team is expected to focus. The goals of the center's activities should be clearly identified. The submissions should define the objectives in terms of the final expected products.

- **Activity Summary** - The work plan shall completely detail the progression of the center's activities including the submission of quarterly reports, a draft final report, and an acceptable final report. It should describe how the study will be structured to meet each objective. To the extent possible, it should identify major operational phases, relate the phases to manpower requirements, time schedules, and cost estimates, and describe how the activities will be carried out. Center's activities shall be described in sufficient detail to permit evaluation of the probability of success in achieving the objectives.

  A schedule of research activities must be attached to the narrative to note the necessary tasks as shown in Appendix 3.5 of the RIM. If assistance from the department is necessary in accomplishing specific tasks (e.g.: traffic control, data collection, use of equipment/vehicles, etc.), the work plan must include a section that details such events.

  The submission must clearly describe the role of the partnering agency in the work plan. All tasks to be completed by the partnering agency will be detailed in the work plan. Partnership agreements are to be established before the work plan is submitted. Signed documents that acknowledge the role(s) of the partner(s) and financial contributions (either cash or in-kind) shall accompany the work plan in an appendix. The activity summary shall include the following:

  a. Quality Assurance and Quality Control (QAQC) - A summary of the QAQC processes is required. This discussion should include the roles and responsibilities of staff involved as well as the timing of these processes. Include how you will ensure the objectivity of the staff involved and describe the QAQC process deliverables will go through prior to submittal to MDOT. Participation in center kick-off meeting. To ensure everyone involved in a center is informed of the contractual obligations, scope of work, deliverables, milestones, timetable, and appropriate office policies and procedures, a start-up meeting will be scheduled before the start of the center's activities. This meeting will also provide an opportunity to clarify technical issues or concerns with the center. Invitees to this meeting include the PI(s), technical liaisons, Project Manager and Research Administration staff. The meeting should last for approximately one hour and is scheduled by the Project Manager before the start of center activities.
  b. Participation in center review session - Center reviews are a mechanism for updating sponsors and other interested parties on the status of a center's activities and are conducted by the Project Manager. Principal Investigators will provide a presentation on the center's progress. A PowerPoint file should be provided to
  c. MDOT at least one week prior to the scheduled review session. Technical issues or problems may be resolved at this time, or subsequent meetings may be scheduled for that purpose. Research Administration will work with the Project Manager (PM) to coordinate the scheduling of review sessions. Principal Investigators can expect to participate in at least one formal review session for every 12-month period.
  d. Participation in center wrap-up meeting - Center wrap-up meetings are a platform for providing a final presentation on a center's activities. An overview of the center's activities will be provided with detailed discussions on the findings and recommendations. These presentations will possess strong technical components and in-depth discussions that focus primarily on the center's activities and implementation. The PI will provide a PowerPoint presentation in advance of the wrap-up meeting.

  **Results & Deliverables** – Describe all expected products, devices, procedures, and other items that will be provided to the department during and at the conclusion of the center's activities. A summary of deliverables must be attached as shown in Appendix 3.6 of the RIM. In addition to special reports and deliverables, it is expected that the following reports will be provided at a minimum.

  a. Quarterly Reports - The principal investigator must submit quarterly progress reports. Electronic submission of the quarterly reports must be included in the work plan, depicted on the work time cost schedule form, and acknowledged in the deliverables section.
  b. Annual Interim Report for two-year authorizations – due on October 30.
  c. Final Reports and Executive Summary

Formats and submission schedules for these documents are available in the Research & Implementation Manual and on the Research Administration web site at https://www.michigan.gov/mdot/programs/research/participating-in-research

**Itemized Budget** - Costs must be justified by including copies of information used to prepare the budget (i.e., release time contracts, price quotes for all equipment, catalog sheets, etc.). For activities that will be performed in distinct phases, a budget for each phase is required. Educational institutions follow the guidelines in the Research Administration Research and Implementation Manual and use the budget form as shown in Appendix 3.8 of the RIM

For the development of travel costs, refer to the State of Michigan travel policy found at: https://www.michigan.gov/dtmb/services/travel.

In addition, all work plans must include provisions for a center start-up meeting and annual visits by the PI(s) for consultation with MDOT. The budget and schedule shall reflect this requirement. Check this policy for each submission, as changes may occur in the allowable costs.

**Work plan Submission** – Email the work plan, in draft form, to the UTC Coordinator and Project Manager (PM). They will review the work plan and send an e-mail to the submitting agency outlining required modifications. E-mail the final work plan to the UTC Coordinator and PM and mail a copy to the Engineer of Research at the following address.

Engineer of Research
Research Administration
8885 Ricks Road
P.O. Box 30049
Lansing, Michigan
48909

NOTE: The appendices are available in the RIM and at the Research Administration web site at https://www.michigan.gov/mdot/programs/research/participating-in-research

## APPENDIX B
### University Transportation Center
### Request for Reimbursement Form

## Michigan Department Of Transportation
### Research Administration

# UNIVERSITY TRANSPORTATION CENTER REQUEST FOR REIMBURSEMENT

*This information is required by MDOT Research Administration in order for you to obtain reimbursement for expenses.*

| INVOICE DATE | INVOICE NO. | BILLING PERIOD |
|---|---|---|
| | | |
| MDOT CONTRACT NO. | | TOTAL PROJECT COSTS TO DATE (Previous) |
| | | |
| AGENCY NAME | | PROJECT COSTS (This Request) |
| | | |
| BILLING ADDRESS | | REMAINING PROJECT BALANCE |
| | | |

## INVOICE AND FUNDING MATCH SUMMARY

**TOTAL INVOICE AMOUNT**    $    100.00

| FUNDING SOURCE | PERCENTAGE | AMOUNT |
|---|---|---|
| UNIVERSITY TRANSPORTATION CENTER (UTC) MATCH FUNDS | 20% | $ 20.00 |
| MDOT FEDERAL STATE PLANNING AND RESEARCH (SPR) PROGRAM FUNDS | 80% | $ 80.00 |

**AMOUNT TO BE REIMBURSED**    $    80.00

## CERTIFICATION

By signing this report, I agree to the MDOT and UTC match percentage arrangement and that MDOT will only reimburse for the SPR funds for this request. I acknowledge that non-Federal sources have been obtained for the UTC match requirement. I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and objectives set forth in the terms and conditions of the Federal award. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Section 1001 and Title 31, Sections 3729-3730 and 3801-3812).

| AGENCY REPRESENTATIVE (Signature) | TITLE | DATE |
|---|---|---|
| | | |

| FOR RESEARCH ADMINISTRATION USE ONLY | | |
|---|---|---|
| MDOT CONCUR FOR FUNDING (Signature) | TITLE | DATE |
| | | |