



U.S. Department of Transportation
Office of the Secretary of Transportation

GRANT DELIVERABLES AND REPORTING REQUIREMENTS FOR 2016 and 2018 UNIVERSITY TRANSPORTATION CENTERS

**For Grant Numbers: 69A3551747104 – 69A3551747135
and 69A3551847101 – 69A3551847103**

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Document Status

ITEM	Description
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Document Revision History

Version	Date	Description
1.1	11/30/2016	1. Minor editorial changes
1.2	4/7/2017	1. Revises Exhibit D – Schedule of Grant Deliverables and Reporting Requirements - changed due dates for SF-425s (p. 26)
1.3	9/30/2017	1. Revises Exhibit D – Schedule of Grant Deliverables and Reporting Requirements - changed due dates for performance indicators, recipient share report and Program Progress Performance Report (p. 26)
1.4	6/6/2018	<ol style="list-style-type: none"> 1. Identified location of where to place ORCID and funding agreement numbers if using the Technical Report Documentation Page (p. 8) 2. Changes name of PPPR to UTC-Semi-Annual Progress Report and updates information about modified report (p. 9) 3. Adds mandatory Technology Transfer Plan and performance measure requirement (p. 10) 4. Modifies PPPR template for Centers to report on research outputs, outcomes, and impacts and other technology transfer activity in Appendix B 5. Adds second Grant Deliverables and Reporting Requirements for Regions 1, 2, and 3 (Exhibit D, p. 27) 6. Moves content from Exhibit D Schedule of Grant Deliverables and Reporting Requirements to Exhibit E and updates new report name to UTC Semi-Annual Progress Report 7. Moves content from Exhibit E Reporting Inventions and Patents Using iEdison to Exhibit F 8. Moves content from Exhibit F UTC Project Information to Exhibit G 9. Moves content from Exhibit G List of Acronyms to Exhibit H



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NOTICE

Grant deliverables and reporting requirements are mandatory under the University Transportation Centers (UTCs) Program. Failure to comply with timely submission of these deliverables and requirements may delay reimbursement of invoices and/or funding for modifications of multiple-year grants. In extreme cases of non-compliance, a recipient may be found to be in material failure to comply with the award terms and conditions. Such a determination may result in termination of the grant for failure to comply and a determination that the recipient is not qualified to receive and manage Federal grants. Section 200.339 “Termination” of the *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* requires Federal agencies to report to the Federal Awardee Performance and Integrity Information System (FAPIIS) when it terminates an award prior to the end of the period of performance due to a recipient’s material failure to comply with Federal award terms and conditions. The Department of Transportation (DOT) agency will report to FAPIIS after the recipient has exhausted its appeal rights.



1. Data Management Plan

The Grantee must create a supplementary document labeled “Data Management Plan” (DMP) that describes its strategy for processing and archiving Digital Data Sets resulting from DOT-funded scientific research in a repository that enables and allows for public access and sharing. The DMP must be submitted to the Office of the Assistant Secretary for Research and Technology (OST-R) Grant Manager for review and approval. DMPs that do not meet the minimum requirements, provided below, will be rejected.

- A high-level description of the types of data that the Center anticipates gathering in the course of conducting research activities, including whether the data should be preserved for long-term access;
- A proposed outline of the standards and machine-readable formats that will be used for the entire scope of research activities;
- A description of any data access policies that govern (and prevent) the disclosure of identities, confidential business information, national security information, etc., and whether public use files may be generated from the data;
- A general discussion of policies for re-use and re-distribution of research data; and
- A high-level description of how, when, and where the Center plans to archive, preserve, and deposit the research data.

Immediately notify your Grant Manager if changes are made to the DMP after it is approved. For more information about creating data management plans, click-on

<http://www.ntl.bts.gov/publicaccess/creatingaDMP.html>.

2. Website

The Grantee must establish and maintain an up-to-date, informational website containing at least items 3, 6, 7, and 8 noted below plus any other information the Grantee wishes to include in order to make interested stakeholders aware of its work under the UTC grant. At least a basic framework for this website must be available for public viewing by the due date identified in the Schedule of Grant Deliverables and Reporting Requirements for 2018 Grants (see Exhibits D and E). The grantee must provide the OST-R Grant Manager the link to the UTC’s website which will be included in the UTC program’s website at utc.dot.gov.

3. Directory of Key Center Personnel

The Grantee must prepare a “Directory of Key Center Personnel” that includes the names, phone/fax numbers, mailing addresses, and e-mail addresses of key Center personnel, including the Director’s primary administrative staff person and at least one contact person at each university in a consortium, if any. This information must be placed on the Center’s website by the due date identified in the Schedule of Grant Deliverables and Reporting Requirements for 2018 Grants (see Exhibits D and E) and the Center Director must ensure that the information remains posted and is current throughout the life of the grant.

4. Financial and Annual Recipient Share Reports

a. Federal Financial Report

The Center Director or designated university official must prepare and submit to the OST-R Grant Manager the Federal Financial Report, or Standard Form (SF) 425, on a quarterly basis. Submission via e-mail is preferred. The SF 425 does not need to be posted on the UTC’s website. SF 425s must cover three-month reporting periods ending on March 31, June 30, September 30, and December 31, and the reports are due 30 days after each of these reporting-period end dates. A final SF 425 is due 90 days after the grant’s termination date (see Exhibits D and E).



b. Annual Recipient Share Report

The Center Director or designated university official must submit to the OST-R Grant Manager a report on the required recipient share of the grant indicating the percentage of non-Federal share (match) by source categories – state department of transportation, Local/Tribal Technical Assistance Program, university, local government, public transportation agencies, non-governmental organizations, private, other. The report must be submitted via e-mail within 30 days at the end of each grant year throughout the life of the grant.

5. Federal Financial Accountability and Transparency Act Reporting Requirement

As required by the Federal Funding Accountability and Transparency Act of 2006 (FFATA), recipients of Federal awards, i.e., grants, cooperative agreements, and other forms of Federal financial assistance, must report information on sub-awards they make and executives' total compensation. This guidance applies to all entities that apply for or receive Federal grant awards, or receive subawards under those awards, with certain exemptions and exceptions. Please refer to Exhibit A.

6. Research Project Requirements

Before the start of a research project, each Center Director must ensure that each partially or fully funded research project managed by researchers at the lead institution and sub-awardees is in compliance with the DOT Public Access Plan and the data management practices detailed in each Center's DMP.

Within one month after project selection, the Center Director must do the following:

- a. Submit to the Transportation Research Board's (TRB) Research in Progress (RiP) database a project description for each project. The project information must be entered into the RiP database at <https://rip.trb.org>. The Grantee must provide full submissions to RiP including project title, brief abstract, project start and completion dates, project status, and funding amount. The submission also requires details of all the sponsoring organizations and research programs contributing to the project, including the Federal sponsor (OST-R) and all non-Federal sponsors. The Center Director is responsible for updating and maintaining project information in RiP.
- b. Post on the Center's website information similar to that in RiP for each new research project selected using the UTC Project Information form shown in Exhibit G. Each research project funded by the Center must have its own form. After the initial information fields are completed these forms are to be updated every six months; this update may coincide with the Center's semi-annual reports. These forms must be updated not only through the completion of the research project, with a research report URL included in the form, but through implementation and must include a summary of the benefits of that implementation. If the research is not implemented the reasons for not implementing the research must be listed. These forms must be maintained on the Center's website during the life of the grant, with updates as necessary.
- c. Require all researchers to obtain his/her unique ORCID (Open Researcher and Contributor ID) identification. ORCID.org provides a registry of persistent unique identifiers for researchers and scholars and automating linkages to research objects such as publications, grants and patents. Registration is free and takes about 5 minutes. If other researchers are added to the project after its initiation they should also be required to obtain an ORCID.

7. Submission of Final Research Reports

The Center Director must submit a final report for each research project conducted with UTC Program funding including matching funds. Final research reports must give a complete description of the problem,



approach, methodology, findings, conclusions, and recommendations developed as a result of the project and must completely document all data gathered, analyses performed, and results achieved. The inside of the front cover must show a disclaimer including the following:

DISCLAIMER

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated in the interest of information exchange. The report is funded, partially or entirely, by a grant from the U.S. Department of Transportation's University Transportation Centers Program. However, the U.S. Government assumes no liability for the contents or use thereof.

Within two months after the completion of each project, the Center Director must:

- a. Publish on the Center's website the full text of each report.
- b. Change the status of the project in RiP from "Active" to "Completed" and retrieve the Research Hub Display Identification (RH Display ID) number for the project (this number will be displayed within each project record).
- c. Package and archive data as outlined in your DMP.
- d. The ORCID and funding agreement numbers must be included in any peer-reviewed publication submissions. If using the Technical Report Documentation Page (Form DOT F 1700.7) include ORCID identifier, as an URL, without punctuation after the author's name in box 7 (e.g., Jane Doe <https://orcid.org/0000-0002-2345-6789>) and the funding agreement number in box 11.
- e. Ensure that all rights under copyright are non-exclusively retained by DOT and that the terms and conditions of publication to peer-reviewed journals and other outlets do not impair the obligation of the authors to comply with the plan.
- f. Send one email that includes the following information to research.hub@dot.gov, NTLDDigitalSubmissions@dot.gov, and TRIS-TRB@nas.edu:
 1. Final Report URL(s) or PDFs for any resulting publications;
 2. URL(s) to, and associated descriptive metadata for, any final datasets from the research project;
 3. The funding agreement number of the project;
 4. The RH Display ID for the project;
 5. ORCIDs (unique researcher IDs) for all project investigators, contributors, and publication author(s); and
 6. Any documented project outputs or outcomes resulting from the research project (see Exhibit B for more information).
- g. Distribute each final report to the following addresses listed below:



1. *Transportation Library*
Northwestern University
1970 Campus Drive
Evanston, IL 60208-2300
(Send URL via email to r-sarmiento@northwestern.edu or submit on a properly labeled CD)
2. *Volpe National Transportation Systems Center*
U.S. Department of Transportation
(Send URL via e-mail to Susan.Dresley@dot.gov)
3. *Federal Highway Administration Research Library*
Turner-Fairbank Highway Research Center
(Send URL to FHWALibrary@dot.gov)
4. *National Technical Information Service*
U.S. Department of Commerce
(Send URL or PDF via e-mail to input@ntis.gov)

8. UTC Semi-Annual Progress Report (formerly Program Progress Performance Report)

The Center Director must prepare and submit to the OST-R Grant Manager the UTC Semi-Annual Progress Report that combines the former Program Progress Performance Report (PPPR) and serves as the foundation for the T2 Report using the outline and instructions in Exhibit B. The UTC Semi-Annual Progress Report follows a modified format that is based, to a limited extent, on the format developed by the National Science Foundation for use in progress reporting on Federal research grants. The UTC Semi-Annual Progress Report (formerly PPPR) is due semi-annually with this first report due April 30, 2019 covering period October 1, 2018 to March 31, 2019 for all grantees (excluding Regions 1, 2, and 3). The first UTC Semi-Annual Progress Report for Regions 1, 2, and 3 must cover June 5, 2018 to March 31, 2019 and is due on the same date. Please refer to Exhibits D and E, the Schedule of Grant Deliverables and Reporting Requirements for Grants, for further information on period covered and due dates. The UTC Semi-Annual Progress Report must be posted on the Center's website and submitted electronically to the designated Grant Manager. Please note that OST-R will continue using the SF 425 for reporting financial information.

9. Annual Performance Indicators Reports

On an annual basis, the Center Director must report program performance indicators using the format specified in Exhibit C. The Annual Performance Indicators Report must be submitted electronically to the designated Grant Manager.

10. UTC Grantees' Meetings

OST-R will convene two meetings per year of all UTC Grantees for the purposes of information exchange, identification of best practices in UTC Grant management, and administrative streamlining. Meetings are typically held in January in Washington, DC (in conjunction with the Transportation Research Board Annual Meeting) and in approximately June or July at a university that volunteers to host the event. OST-R expects the Center Director to attend both these meetings. In the event, the Center Director has a scheduling conflict or an unforeseen circumstance prohibiting the Center Director from attending please send an alternate to the meeting.



11. Outstanding Students of the Year

To recognize and honor the students supported by the UTC Program, OST-R sponsors an annual awards banquet in collaboration with the Council of University Transportation Centers in January in Washington, DC. Each Center must choose or decline to choose one outstanding student of the year by the deadline established by the UTC Program Office. The Center must provide the student's information and headshot photo for inclusion in the Student of the Year Awards Program. Each participating Center must award its Student of the Year \$1,000 and the costs for the student to attend the award ceremony and the TRB Annual Meeting in Washington, DC. For restrictions pertaining to student of the year eligibility see *General Provisions of Grants for University Transportation Centers*, Section III.4, Citizenship of Students.

12. Reporting Inventions and Patents Using iEdison

iEdison (which stands for Interagency Edison) is a database that helps government grantees and contractors comply with a Federal law, the Bayh-Dole Act. This act requires that government funded inventions be reported electronically through a single user interface. Please refer to Exhibit F for further information on reporting inventions and patents developed with UTC program funds.

13. Technology Transfer (or T2) Reporting Requirements

The Grantee must develop a Technology Transfer (T2) Plan to guide the development and potential adoption of project outputs. The T2 Plan must outline the people and organizations involved in the T2 process, their roles, their activities undertaken, and desired outcomes. A T2 Plan shall contain, but is not limited to, the following elements:

1. Identifying and describing the involvement of stakeholders (including funding partners) in the development of research outputs
2. Assisting stakeholders in implementing and deploying research outputs
3. Use of technology transfer mechanisms, such as licensing, patents, commercialization, cooperative research and/or user agreements, or the creation of new business entities
4. Facilitating the utilization of research outputs by various levels of government
5. The commercialization process of research outputs
6. The use of licensing revenues to provide further support for research and technology transfer
7. The dissemination of non-commercialized research outputs
8. Information exchanges, including new or social media campaigns and activities
9. Academic and continuing education programs targeted towards transportation professionals, such as statewide or region-wide continuing education courses and/or distance learning, seminars, webinars, and workshops related to transportation
10. How research outputs, outcomes and impacts will be tracked and reported
11. How corporate research support will be increased, and
12. Technology transfer goals and performance measures

Each T2 Plan must contain a discussion on the Center's commitment to technology transfer in the form of administrative and university support. Each plan must contain objective technology transfer measures, as defined by each Center, so that the progress of each Center may be tracked. Please note that research outputs, outcomes, and impacts, as defined in the [U.S. DOT Research, Development and Technology Strategic Plan, FY2017-2021](#) (page 8), must include performance measures (at a minimum two) that must be measurable and include targets (goals) for each measure. UTCs are encouraged to consider identifying program results by linking outputs, outcomes or impacts to National goals expressed in the [Secretary's Strategic Goals](#). Each grantee (except Regions 1, 2 and 3) must submit to their designated UTC grant manager their T2 Plan no later



than July 31, 2018. Regions 1, 2, and 3 grantees must submit their T2 Plan to their UTC grant manager no later than October 30, 2018. Submissions via email of the T2 Plan are preferred.

Contact TechTransfer@dot.gov for more information on how to develop a T2 Plan.



EXHIBIT A

Federal Financial Accountability and Transparency Act Reporting Requirement

Effective October 1, 2010, all lead grantees awarded through the UTC Program must report subaward activity and executive compensation at www.fsrs.gov if the initial award is equal to or over \$25,000. Subgrantees have an obligation to provide the lead grantee all information required for such reporting.

1. Reporting First-Tier Subawards

- a. The lead grantee must report each action that obligates \$25,000 or more in Federal funds for a subaward. This does not include Recovery funds.
- b. The lead grantee must report each obligating action. For subaward information, report no later than the end of the month following the month in which the obligation was made.

2. Reporting Total Compensation of Lead Grantee Executives

- a. The lead grantee must report total compensation for each five most highly compensated executives for the preceding completed fiscal year.
- b. The lead grantee must report executive total compensation by the end of the month following the month in which this award is made, and annually thereafter.

3. Reporting of Total Compensation of Subgrantee Executives

- a. The lead grantee must report the names and total compensation of each subgrantee's five most highly compensated executives for the subgrantee's preceding completed fiscal year.
- b. The lead grantee must report subgrantee executive total compensation by the end of the month following the month during which the lead grantee makes the subaward. The lead grantee must report subgrantee executive compensation information.

4. Exemption. If, in the previous tax year, your institution had gross income from all sources under \$300,000 the lead grantee is exempt from the requirements to report subawards, and the total compensation of the five most highly compensated executives of any subgrantee. OST-R reserves the right to request authoritative documentation that would support a request to exercise this exemption.
5. Exception: 2 CFR 170.110 provides an exception from the executive compensation reporting requirements by a lead grantee, or a subgrantee's organization (in case of reporting executive compensation for subgrantee executives).
6. All lead grantees awarded through the UTC Program who do not have an exemption under 2 CFR 170.110 are required to have the necessary processes and systems in place to comply with FFATA reporting requirements. OST-R encourages you to visit www.fsrs.gov, which is the reporting portal for subrecipient and executive compensation information. In addition, USASpending at www.usaspending.gov has many resources available on the subrecipient and executive compensation reporting requirements.



Exhibit B

Semi-Annual Progress Report for University Transportation Centers (formerly Program Progress Performance Report)

COVER PAGE DATA ELEMENTS

- Federal Agency and Organization Element to Which Report is Submitted
- Federal Grant or Other Identifying Number Assigned by Agency
- Project Title
- Center Director Name, Title and Contact Information (e-mail address and phone number)
- Name of Submitting Official, Title, and Contact Information (e-mail address and phone number), if other than Center Director
- Submission Date
- DUNS and EIN Numbers
- Recipient Organization (Name and Address)
- Recipient Identifying Number or Account Number, if any
- Project/Grant Period (Start Date, End Date)
- Reporting Period End Date
- Report Term or Frequency (annual, semi-annual, quarterly, other)
- Signature of Submitting Official (signature must be submitted in accordance with agency- specific instructions)

REPORT LENGTH: The UTC Semi-Annual Progress Report must not exceed 20 pages in length including cover page. Shorter lengths are encouraged as long as the content reported is commensurate with the level of effort and expenditures.

SUBMITTAL AND WEBPOSTING: The UTC Semi-Annual Progress Report must be submitted by email to the designated Grant Manager as a Word document or PDF, and must be posted on the Center's website.

FREQUENCY OF REPORTING: The first report must cover the first six months of activities and must be submitted no later than 30 days after the end of the first six months (excluding Regions 1, 2, and 3). The first report for Regions 1, 2, and 3 must cover 10 months (6/5/2018 to 3/31/2019). Subsequent reports for all grantees must cover activities for periods ending March 31 and September 30 of each year and must be submitted no later than 30 days after the end of the reporting period until all grant funds have been fully expended. (See Exhibits D and E)



REPORTING CATEGORIES

1. ACCOMPLISHMENTS: What was done? What was learned?

The information provided in this section allows the OST-R grants official to assess whether satisfactory progress has been made during the reporting period.

INSTRUCTIONS - Accomplishments

The Center Director must obtain prior written approval from the OST-R Grant Manager whenever there are significant changes in the program or its direction.

- What are the major goals and objectives of the program?
- What was accomplished under these goals?
- What opportunities for training and professional development has the program provided?
- How have the results been disseminated? If so, in what way/s?
- What do you plan to do during the next reporting period to accomplish the goals and objectives?

What are the major goals of the program?

List the major goals of the program as stated in the approved application or as approved by OST-R. If the application lists milestones/target dates for important activities or phases of the program, identify these dates and show actual completion dates or the percentage of completion.

Generally, the goals will not change from one reporting period to the next. However, if OST-R approved changes to the goals during the reporting period, list the revised goals and objectives. Also explain any significant changes in approach or methods from the OST-R approved application or plan.

What was accomplished under these goals?

For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results, including major findings, developments, or conclusions (both positive and negative); and 4) key outcomes or other achievements. Include a discussion of stated goals not met. As the program progresses, the emphasis in reporting in this section should shift from reporting activities to reporting accomplishments.

Generally, the activities and expected outputs, outcomes and impacts should not change from one reporting period to the next. However, if there are changes, please list the revisions and explain the reason(s) for the changes.

How have the results been disseminated?

If there is nothing significant to report during this reporting period, state “Nothing to Report.” Describe how the results have been disseminated. Include any outreach activities that have been undertaken to reach members of communities who are not usually aware of these program activities, for the purpose of enhancing public understanding and increasing interest in learning and transportation careers.

What do you plan to do during the next reporting period to accomplish the goals?



If there are no changes to the agency-approved application or plan for this effort, state “No Change.”

Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.

<p>2. PARTICIPANTS & COLLABORATING ORGANIZATIONS: Who has been involved?</p>
<p>OST-R needs to know who has worked on the project to gauge and report performance in promoting partnerships and collaborations.</p>

INSTRUCTIONS - Participants & Collaborating Organizations

Provide the following information on participants:

- What organizations have been involved as partners?
- Have other collaborators or contacts been involved?

What organizations have been involved as partners?

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Describe partner organizations – academic institutions, other nonprofits, industrial or commercial firms, state or local governments, schools or school systems, or other organizations (foreign or domestic) – that have been involved with the program. Partner organizations may provide financial or in-kind support, supply facilities or equipment, collaborate in the research, exchange personnel, or otherwise contribute.

Provide the following information for each partnership:

- Organization Name
- Location of Organization: (if foreign location list country)
- Partner’s contribution to the project (identify one or more):
 - Financial support
 - In-kind support (e.g., partner makes software, computers, equipment, etc., available to project staff)
 - Facilities (e.g., project staff use the partner’s facilities for project activities)
 - Collaborative research (e.g., partner’s staff work with project staff on the project)
 - Personnel exchanges (e.g., project staff and/or partner’s staff use each other’s facilities, work at each other’s site).

Have other collaborators or contacts been involved?

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Some significant collaborators or contacts within the lead or partner universities may not be covered by “What people have worked on the project?” Likewise, some significant collaborators or contacts outside the UTC



may not be covered under “What other organizations have been involved as partners?” For example, describe any significant:

- Collaborations with others within the lead or partner universities; especially interdepartmental or interdisciplinary collaborations.
- Collaborations or contact with others outside the UTC.
- Collaborations or contacts with others outside the United States or with an international organization.
 - Country(ies) of collaborations or contacts.

3. OUTPUTS: What new research, technology or process has the program produced?

Research outputs are any new or improved process, practice, technology, software, training aid, or other tangible product resulting from research and development activities. They are used to improve the efficiency, effectiveness and safety of transportation systems.
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Many Centers develop significant outputs other than publications. OST-R assesses and reports both publications and other products to Congress, communities of interest, and the public.

INSTRUCTIONS - Outputs

List any outputs resulting from the program during the reporting period. Examples of outputs include:

- Publications, conference papers, and presentations
- Policy Papers
- Website(s) or other Internet site(s)
- New methodologies, technologies or techniques
- Inventions, patents, and/or licenses
- Other products, such as data or databases, physical collections, audio or video products, application software or NetWare, analytical models, educational aids, courses or curricula, instruments, equipment, or research material

Discuss the performance measures (a minimum of two) for research output your Center identified in your Technology Transfer Plan Report and the targets (goals) for each measure.

If there is nothing to report under a particular item, state “Nothing to Report.”

Publications, conference papers, and presentations

Report only the major publication(s) resulting from the work under this award. There is no restriction on the number. However, OST-R is interested in only those publications that most reflect the work under this award in the following categories:

Journal publications: List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Include any peer-reviewed publication in the periodically published proceedings of a scientific society, a conference, or the like. A publication in the proceedings of a one-time conference, not part of a series, should be reported under “Books or other non-periodical, one-time publications.”



Identify for each publication: Author(s); title; journal; volume: year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgment of Federal support (yes/no).

Books or other non-periodical, one-time publications: Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like.

Identify for each one-time publication: Author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (book, thesis or dissertation, other); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgment of Federal support (yes/no).

Other publications, conference papers and presentations: Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above.

NOTE: Please do not send or attach any publications, papers or presentations.

Website(s) or other Internet site(s)

List the URL for any Internet site(s) that disseminates the results of the research and/or program activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.

Technologies or techniques

Identify technologies or techniques that have resulted from the research activities. Describe the technologies or techniques and how they are being shared.

Inventions, patent applications, and/or licenses

Identify inventions, patent applications with date, and/or licenses that have resulted from the research. Submission of this information as part of an interim research performance progress report is not a substitute for any other invention reporting required under the terms and conditions of an award. For additional requirements pertaining to Patents and Copyrights, refer to *General Provisions of Grants for University Transportation Centers*, Section III, 16.

NOTE: Any significant outputs (other than publications, conference papers, and presentations) should also be reported to research.hub@dot.gov. Please enter "Project Outputs" in the email header along with the RH Display ID of the project, and then enter a short text description of the research product. Research outputs, outcomes, and impacts are defined in the [U.S. DOT Research, Development and Technology Strategic Plan FY 2017-2021](#) (page 8).

<p>4. OUTCOMES: What outcomes has the program produced? How are the research outputs described in section (3) above being used to create outcomes?</p>



Outcomes are the application of outputs; any changes made to the transportation system, or its regulatory, legislative, or policy framework, resulting from research and development outputs.

INSTRUCTIONS - Outcomes

This component should describe ways in which the application of outputs has produced outcomes during the reporting period. Describe how research outputs are being used to create expected or actual outcomes with the understanding that outcomes can sometimes take a significant amount of time to realize.

List any outcomes resulting from the program during the reporting period. Examples of outcomes include:

- Increased understanding and awareness of transportation issues
- Passage of new policies, regulation, rulemaking, or legislation
- Increases in the body of knowledge
- Improved processes, technologies, techniques and skills in addressing transportation issues
- Enlargement of the pool of trained transportation professionals
- Adoption of new technologies, techniques or practices

Discuss the performance measures (a minimum of two) for research outcome your Center identified in your Technology Transfer Plan Report and the targets (goals) for each measure.

5. IMPACTS: What is the impact of the program? How has it contributed to improve the transportation system: safety, reliability, durability, etc.; transportation education; and the workforce?

Impacts are the effects of outcome on the transportation system, or society in general, such as reduced fatalities, decreased capital or operating costs, community impacts, or environmental benefits. The taxpaying public and its representatives deserve a periodic assessment to show them how the investments they make benefit the nation. Through this reporting format, and especially this section, UTCs provide that assessment and make the case for Federal funding of research and education by demonstrating the impacts that UTC funding has had on technology and education.

DOT uses this information to assess how the research and education programs:

- Improves the operation and safety of the transportation system
- Increases the body of knowledge and technologies;
- Enlarges the pool of people trained to develop knowledge and utilize new technologies and put them to use; and
- Improves the physical, institutional, and information resources that enable people to have access to training and new technologies.

INSTRUCTIONS - Impacts

This component should describe ways in which the work, findings, and specific outputs/outcomes of the program have had an impact during this reporting period. Describe distinctive contributions, major



accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the program relative to:

- The effectiveness of the transportation system
- Technology transfer (include transfer results to entities in government or industry, adoption of new practices, or instances where research outcomes have led to the initiation of a start-up company)
- The increase in the body of scientific knowledge

Discuss the performance measures (a minimum of two) for impact your Center identified in your Technology Transfer Plan Report and the targets (goals) for each measure.

If there is nothing to report under a particular item, state “Nothing to Report.”

What is the impact on the effectiveness of the transportation system?

Describe how the outcomes of research have been implemented and impacted (either positively or negatively) the operations and effectiveness of the transportation system. These impacts should be based on data collected in the assessment of the implemented outcome.

What is the impact on the adoption of new practices, or instances where research outcomes have led to the initiation of a start-up company?

Describe ways in which research outcomes made an impact, or are likely to make an impact, on commercial technology or public use, including:

- Transfer of results to entities in government or industry;
- Instances where the research has led to commercialization of a technology or process; or adoption of new practices.

What is the impact on the body of scientific knowledge?

Describe how findings, results, techniques that were developed or extended or other products from the program made an impact or are likely to make an impact of the base of knowledge, theory, and research and/or pedagogical methods in the principal disciplinary field(s) of the program. Summarize using language that an intelligent lay audience can understand.

How the field or discipline is defined is not as important as covering the impact the work has had on knowledge and technique. Make the best distinction possible, for example, by using a “field” or “discipline”, if appropriate, that corresponds with a single academic department (i.e., physics rather than nuclear physics).

What is the impact on transportation workforce development?

Describe how the program made an impact or is likely to make an impact on transportation workforce development. For example, how has the program:

- Provided opportunities for research and teaching in transportation and related disciplines;
- Improved the performance, skills, or aptitudes of members of underrepresented groups that will improve their access to or retention in transportation research, teaching, or other related professions;



- or
- Developed and disseminated new educational materials or provided scholarships; or provided exposure to transportation, science and technology for practitioners, teachers, young people, or other members of the public?

NOTE: Any significant outcomes/impacts should also be reported to research.hub@dot.gov. Please enter “Project Outcomes” in the email header along with the RH Display ID of the project, and then enter a short text description of the research product and its impact.

6. CHANGES/PROBLEMS

The grantee is required to obtain prior written approval from the OST-R grants official whenever there are significant changes in the project or its direction. See agency specific instructions for submission of these requests. If not previously reported in writing, provide the following additional information, if applicable:

- Changes in approach and reasons for change.
- Actual or anticipated problems or delays and actions or plans to resolve them.
- Changes that have a significant impact on expenditures.
- Significant changes in use or care of animals, human subjects, and/or biohazards.

INSTRUCTIONS - Changes/Problems

If not previously reported in writing to OST-R through other mechanisms, provide the following additional information or state, “Nothing to Report, if applicable:

Changes in approach and reasons for change

Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the OST-R Grant Manager.

Actual or anticipated problems or delays and actions or plans to resolve them

Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

Changes that have a significant impact on expenditures

Describe changes during the reporting period that may have a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.

Significant changes in use or care of human subjects, vertebrate animals, and/or biohazards

Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, and/or biohazards during the reporting period. If required, were these changes approved by the applicable institution committee and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates.



Change of primary performance site location from that originally proposed

Identify any change to the primary performance site location identified in the proposal, as originally submitted.

7. SPECIAL REPORTING REQUIREMENTS

Respond to any special reporting requirements specified in the award terms and conditions, as well as any award specific reporting requirements.



Exhibit C

Part I – Program-Wide Performance Indicators

Each Grantee must report program-wide indicator metrics for the completed grant year and include the metrics for each consortium member using the Excel spreadsheet format on the next page. The Excel spreadsheet template, available on <https://www.transportation.gov/utc/tools-grantees>, is mandatory for reporting UTC performance indicators.

Instructions:

Report the program-wide indicator metrics for the completed grant year. Include the metrics for each consortium member. Add as many columns as necessary to include all consortium members. In the event that a consortium member participates in more than one UTC, include only the metrics corresponding with your grant and reporting period. Email the completed program-wide indicator report as a spreadsheet along with the UTC-specific indicator report to your Grant Manager within 30 days of the end of the grant year. Please do not send a PDF, add a cover page, or attach to another report.



Part I – Program-Wide Performance Indicator Form

University Transportation Centers Program Performance Indicators							
UTC Name: _____							
University: _____							
Grant #: _____							
Reporting Period: _____							
Performance Indicators	Consortium	Consortium Member 1	Consortium Member 2	Consortium Member 3	Consortium Member 4	Consortium Member 5	Consortium Member 6
	Total	Acronym	Acronym	Acronym	Acronym	Acronym	Acronym
1. Number of transportation-related courses offered during the reporting period that were taught by faculty and/or teaching assistants who are associated with the UTC							
Undergraduate courses	0	0	0	0	0	0	0
Graduate courses	0	0	0	0	0	0	0
2. Number of students participating in transportation research projects during the reporting period funded by this grant							
Undergraduate students in research	0	0	0	0	0	0	0
Graduate students in research	0	0	0	0	0	0	0
3. Number of transportation-related advanced degree programs that utilize grant funds during the reporting period to support graduate students							
Masters level programs	0	0	0	0	0	0	0
Doctoral level programs	0	0	0	0	0	0	0
4. Number of students supported by this grant during the reporting period							
Undergraduate students	0	0	0	0	0	0	0
Masters students	0	0	0	0	0	0	0
Doctoral students	0	0	0	0	0	0	0
5. Number of students supported by this grant who received degrees during the reporting period							
Undergraduate degrees	0	0	0	0	0	0	0
Masters degrees	0	0	0	0	0	0	0
Doctoral degrees	0	0	0	0	0	0	0
6. Number and total dollar value of research projects selected for funding during the reporting period using UTC grant funds (Federal and/or Recipient Share) that you consider to be applied research and advanced research							
Number of applied research projects	0	0	0	0	0	0	0
Dollar value of applied research projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Number of advanced research projects	0	0	0	0	0	0	0
Dollar value of advanced research projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



Part I – Program-Wide Performance Indicator Definitions

Performance Indicator	Definition
Indicator #1 Number of transportation-related courses offered during the reporting period that were taught by faculty and/or teaching assistants who were associated with the UTC <ul style="list-style-type: none"> • Undergraduate courses • Graduate courses 	Report the number of undergraduate and graduate transportation-related courses. “Associated” means a faculty member or teaching assistant who receives Federal and/or matching funds through the Center to conduct research; and/or a faculty member or teaching assistant who participates actively in education and outreach activities funded by the UTC grant.
Indicator #2 Number of students participating in transportation research projects during the reporting period funded by this grant <ul style="list-style-type: none"> • Undergraduate students in research • Graduate students in research 	Report the number of undergraduate and graduate students involved in research projects funded by the grant, whether the student receives compensation or not. <i>One example of non-compensated involvement: As part of a course requirement, the student collects or analyzes data for a transportation research project, but is not compensated.</i>
Indicator #3 Number of transportation-related advanced degree programs that utilize grant funds during the reporting period to support graduate students <ul style="list-style-type: none"> • Masters level programs • Doctoral level programs 	Report the number of all advanced degree (masters and doctoral) programs that involved students supported through UTC Federal funds and/or match.
Indicator #4 Number of students supported by this grant during the reporting period <ul style="list-style-type: none"> • Undergraduate students • Masters level students • Doctoral level students 	Report the number of undergraduate, masters and doctoral students who received financial support from the UTC Federal funds and/or match in the form of tuition relief, wages or stipend.
Indicator #5 Number of students supported by this grant who received degrees during the reporting period <ul style="list-style-type: none"> • Undergraduate degrees • Masters' level degrees • Doctoral level degrees 	Report the number of undergraduate, masters and doctoral students who received financial support from the UTC Federal funds and/or match during all or any part of their studies AND received their degrees during the reporting period.



Performance Indicator	Definition
<p>Indicator #6 Number and total dollar value of research projects selected for funding during the reporting period using UTC grant funds (Federal and/or recipient) that you consider to be applied research and advanced research</p> <ul style="list-style-type: none"> • Number of applied research projects • Dollar value of applied research projects • Number of advanced research projects • Dollar value of advanced research projects 	<p>Report the number of applied and advanced research projects selected during the reporting period and their estimated budget (Federal and match funds). If an on-going project was selected to receive additional funding, it should be counted as a phase 2, a continuation or a modification.</p> <p>Definitions of applied and advanced research:</p> <p><u>Applied Research</u> - the systematic study to gain knowledge or understanding necessary for determining the means by which a recognized and specific need may be met. (OMB Circular A-11)</p> <p><u>Advanced Research</u> - An intermediate research effort between basic research (study to understand fundamental aspects of phenomena without specific applications in mind) and applied research. Study that bridges basic research and applied research, and includes transformational change rather than incremental advances. The investigation into the use of basic research results to an area of application without a specific problem to resolve.</p>



Part II – UTC-Specific Indicators

Each grantee must report UTC-specific performance metrics identified in your grant application annually for each category below. Include the description of the indicator(s) and report the corresponding metrics for the grant year. In the event a sub-grantee university participates in more than one UTC, include only the metrics corresponding with your grant. If that is not possible, add a footnote to the metric(s) reported through another consortium. Email the completed UTC-specific performance metric report along with your program-wide indicator metrics within 30 days of the end of the grant year. Again, please do not send a PDF, add a cover page, or attach to another report except the UTC program-wide indicator metrics.

Part II – UTC-Specific Performance Indicators		
UTC Name		
University		
Grant #		
Reporting Period		
Category	Description of indicator	Metric
1. Research Capability		
2. Leadership		
3. Education and Workforce Development		
4. Technology Transfer		
5. Collaboration		



Exhibit D**Schedule of Grant Deliverables and Reporting Requirements for 2018 Grant Numbers
69A3551847101 – 69A3551847103 (Region 1-3 UTCs)**

Deliverable/Requirement	Due Date	Period Covered
Website	9/30/18	update as needed
Directory of Key Personnel	9/30/18	update as needed
Technology Transfer (or T2) Plan (<i>new requirement</i>)	10/30/18	update as needed
Data Management Plan	10/30/18	update as needed
Research Project Descriptions	one month after project selection, descriptions are posted on website and submitted to RiP	as needed
SF425	10/30/18	7/1/18-9/30/18
SF425	1/30/19	10/1/18-12/31/18
SF425	4/30/19	1/1/19-3/31/19
Semi-Annual Progress Report #1	4/30/19	6/5/18-3/31/19
SF425	7/30/19	4/1/19-6/30/19
Performance Indicators	10/30/19	6/5/18-9/30/19
Recipient Share Report	10/30/19	6/5/18-9/30/19
Semi-Annual Progress Report #2	10/30/19	4/1/19-9/30/19
SF425	10/30/19	7/1/19-9/30/19
SF 425 continuing	1/30/20 <i>From this point, SF 425s must be submitted quarterly as long as the grant is open. A final SF 425 is due 90 days after the termination of the grant.</i>	10/1/19-12/31/19
Semi-Annual Progress Report #3 and beyond	4/30/20 <i>After this point, the Semi-Annual Progress Reports must be submitted twice a year by October 30 and April 30 as long as the grant is open.</i>	10/1/19-3/31/20
Recipient Share Report and beyond	10/30/20 <i>After this point, Recipient Share Report must be submitted annually by October 30 so long as the grant is open.</i>	10/1/19-9/30/20
Performance Indicators and beyond	10/30/20 <i>After this point, Performance Indicators must be submitted annually by October 30 so long as the grant is open.</i>	10/1/19-9/30/20



Exhibit E**Schedule of Grant Deliverables and Reporting Requirements for Grant Numbers 69A3551747104 – 69A3551747135 (all National UTCs, Region 4-10 UTCs, and all Tier 1 UTCs)**

Deliverable/Requirement	Due Date	Period Covered
SF425	1/30/17	11/30/16-12/31/16
Website	2/1/17	update as needed
Directory of Key Personnel	2/1/17	update as needed
Data Management Plan	3/1/17	update as needed
Research Project Descriptions	one month after project selection, descriptions are posted on website and submitted to RiP	as needed
SF425	4/30/17	1/1/17-3/31/17
PPPR #1	6/30/17	11/30/16-5/31/17
SF425	7/30/17	4/1/17-6/30/17
SF425	10/30/17	7/1/17-9/30/17
Performance Indicators	10/30/17	11/30/16-9/30/17
Recipient Share Report	10/30/17	11/30/16-9/30/17
Final Research Reports	two months after project completion, reports are posted on website and distributed to TRID and other designated repositories	as needed
SF425	1/30/18	10/1/17-12/31/17
SF425	4/30/18	1/1/18-3/31/18
PPPR #2	4/30/18	6/1/17-3/31/18
SF425	7/30/18	4/1/18-6/30/18
Technology Transfer (or T2) Plan (<i>new requirement</i>)	7/31/18	update as needed
SF425	10/30/18	7/1/18-9/30/18
PPPR #3	10/30/18	4/1/18-9/30/18
Performance Indicators and beyond	10/30/18 <i>After this point, Performance Indicators must be submitted annually by October 30 so long as the grant is open.</i>	10/1/17-9/30/18
Recipient Share Report and beyond	10/30/18 <i>After this point, Recipient Share Report must be submitted annually by October 30 so long as the grant is open.</i>	10/1/17-9/30/18
SF 425 continuing	1/30/19 <i>From this point, SF 425s must be submitted quarterly as long as the grant is open. A final SF 425 is due 90 days after the termination of the grant.</i>	10/1/18-12/31/18



Semi-Annual Progress Report #4 and beyond (revised report to include technology transfer activity)	4/30/19 <i>After this point, Semi-Annual Progress Reports must be submitted twice a year by October 30 and April 30 as long as the grant is open.</i>	10/1/18-3/31/19
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Exhibit F

Reporting Inventions and Patents Using iEdison

To comply with the Bayh-Dole Act of 1980, all UTC grantees must report inventions and patents developed with UTC funding (in whole or in part) to USDOT through the web-based Interagency Edison (iEdison) electronic system. Most universities are already registered with iEdison through their office of technology transfer or office of technology licensing.

For the purposes of reporting UTC-related intellectual property in iEdison on a timely basis, you must first verify that your institution is registered.

- If your institution is NOT registered, click on the link below to request registration:

<https://public.era.nih.gov/iedison/public/institution/registration/RegistrationRequestForm.jsp>

- If your institution IS registered, no further action is needed at this time.

iEdison reporting compliance responsibilities may be accessed through <https://s-edison.info.nih.gov/iEdison/> (click-on “Invention Reporting Tips”). The Code of Federal Regulations governing iEdison may be found at: <https://public.era.nih.gov/iedison/public/37CFR401.jsp>



Exhibit G

UTC Project Information	
Project Title	
University	
Principal Investigator	
PI Contact Information	
Funding Source(s) and Amounts Provided (by each agency or organization)	
Total Project Cost	
Agency ID or Contract Number	
Start and End Dates	
Brief Description of Research Project	
Describe Implementation of Research Outcomes (or why not implemented)	
Place Any Photos Here	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links <ul style="list-style-type: none"> • Reports • Project website 	



Exhibit H

List of Acronyms

DMP	Data Management Plan
DOT	U.S. Department of Transportation
FFATA	Federal Financial Accountability and Transparency Act of 2006
ORCID	Open Researcher and Contributor ID
OST-R	Office of the Assistant Secretary for Research and Technology
RH Display ID	Research Hub Display Identification
RiP	Research in Progress
SF	Standard Form
T2	Technology Transfer
TRB	Transportation Research Board
TRID	Transportation Research International Documentation Database
UTC	University Transportation Center

