

NOTE: This document is provided for informational purposes to give applicants an idea of the likely deliverables and requirements applicable to the grant. RITA reserves the right to revise these deliverables and requirements prior to award.

**GRANT DELIVERABLES AND REQUIREMENTS
FOR
UNIVERSITY TRANSPORTATION CENTERS (UTCs)**

**U.S. DEPARTMENT OF TRANSPORTATION
RESEARCH AND INNOVATIVE TECHNOLOGY ADMINISTRATION**

JANUARY 2012

[DRAFT 10/06/2011]

1. **Website:** The Grantee shall establish and maintain an up-to-date, informational website containing at least items 2, 4 and 5 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 no later than three months after DOT awards the Grant. The grantee shall provide the RITA Grant Administrator the link to the UTC's website which will be included in the UTC program's website at utc.dot.gov.
2. **Directory of Key Center Personnel:** The Grantee shall 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 no later than three months after DOT awards the Grant, and the Center Director shall ensure that the information remains posted and is continually updated as necessary through the life of the grant.
3. **Federal Financial Report:** The Center Director or designated university official shall submit to the RITA Grant Administrator a copy of the standard Federal financial report form SF425 on a quarterly basis. Submission via e-mail is recommended. The SF425 does not need to be posted on the UTC's website. SF425s shall 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 SF425 is due 90 days after the Grant's termination date.
4. **Research Project Descriptions:** Within one month after project selection, the Center Director shall do the following:
 - Submit to the Transportation Research Board's Research in Progress (RiP) database a project description for each project. The project information can be entered into the RiP database directly or the information can be submitted by e-mail to TRIS-TRB@nas.edu; Grantees are required to provide completion submissions to RiP including in particular the fields stating start and completion dates and current and total planned costs for each project. For help with submissions, please contact Lisa Loyo, TRB's Manager of Information Services, lloyo@nas.edu. The Center Director is responsible for updating and maintaining project information in RiP.
 - Post on the Center's website information similar to that in RiP for each new research project selected. This information must remain on the Center's website at least until the project's Final Research Report has been posted there.
5. **Final Research Reports:** The Center Director shall submit a final report for each research project conducted with Center funding. Final research reports shall give a complete description of the problem, approach, methodology, findings, conclusions, recommendations, etc., developed in the project and shall completely document all

data gathered, analyses performed, and results achieved. The inside of the front cover shall 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 under the sponsorship of the Department of Transportation's University Transportation Centers Program, in the interest of information exchange. 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 shall:

- A. Publish on the Center's website the full text of each report.
- B. Notify the Transportation Research Board (TRB) of the URL of the full text report so that the report may be indexed and abstracted in TRB's Transportation Research Information Database (TRID). Notification should be made by e-mail to TRIS-TRB@nas.edu. For help with TRID, contact Lisa Loyo, TRB's Manager of Information Services, lloyo@nas.edu.
- C. Transmit each report electronically to the National Transportation Library at NTLDigitalSubmissions@dot.gov. E-mails to this address may include URLs or attached PDF documents.
 - A. Also distribute each report in the format noted to the following addresses.
 - a. Transportation Library
Northwestern University
1970 Campus Drive
Evanston, IL 60208-2300
(Submit on CD)
 - b. phernand@library.berkeley.edu
Paul Hernandez
Institute of Transportation Studies Library
University of California, Berkeley
(Send URL via e-mail)
 - c. Susan.Dresley@dot.gov
Volpe National Transportation Systems Center
U.S. Department of Transportation
(Send URL via e-mail)

- d. FHWALibrary@dot.gov
FHWA Research Library
Turner-Fairbank Highway Research Center
(Send URL)
 - e. input@ntis.gov
U.S. Department of Commerce
National Technical Information Service
(Send URL or PDF via e-mail)
6. **Program Progress Performance Report:** The Center Director shall prepare a Program Progress Performance Report (PPPR) using the outline and instructions in Exhibit A at the end of this document, submit it to the RITA Grant Administrator, and post it on the Center's website. The PPPR follows the new, uniform format developed by the National Science Foundation for use in progress reporting on Federal research grants; Exhibit A is RITA's customized version for UTC Program grants showing which elements must be reported (please note that RITA will use the SF425 for reporting financial information). The PPPR shall be submitted electronically to the designated Grant Administrator.
 7. **Annual Performance Indicators Report:** On an annual basis report program performance indicators using the format specified in Exhibit B. The Annual Performance Indicators Report shall be submitted electronically to the designated Grant Administrator.
 8. **UTC Grantees' Meetings:** RITA 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. RITA expects the Center Director to attend both of these meetings.
 9. **UTC Program Outstanding Students of the Year:** To recognize and honor the students supported by the UTC Program, RITA sponsors an annual awards banquet in collaboration with the Council of University Transportation Centers in January in Washington, DC. Each Center shall choose or decline to choose one outstanding student of the year by the deadline established by the UTC Program Office. The Center shall provide the student's information and headshot photo for inclusion in the Student of the Year Awards Program. Each participating Center shall 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 SOY eligibility see *General Provisions of Grants for University Transportation Centers*, section III.5.

EXHIBIT A
U.S. DEPARTMENT OF TRANSPORTATION
RESEARCH AND INNOVATIVE TECHNOLOGY ADMINISTRATION
UNIVERSITY TRANSPORTATION CENTERS
PROGRAM PROGRESS PERFORMANCE REPORT

Standard Cover Page Data Elements and Reporting Categories

The standard cover page data elements shown below, as well as mandatory and optional components comprise the complete Program Progress Performance Report (PPPR) format.

Each category in the PPPR is a separate reporting component. Each UTC is required to report on "Accomplishments". If a recipient has nothing significant to report during the reporting period on a question or item, they will be asked to state "Nothing to 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
- Program Director (PD) 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 PD
- 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 shall be submitted in accordance with agency-specific instructions)

REPORT LENGTH: The PPPR should not exceed 20 pages in length including cover page. Shorter lengths encouraged as long as content reported is commensurate with level of effort and expenditures.

SUBMITTAL PROCESS: By email to the designated Grant Administrator as a Word document or PDF.

FREQUENCY OF REPORTING: The first report shall cover the first six months of activities and shall be submitted no later than 15 days after the end of the first six months. Subsequent reports shall cover activities of each quarter and shall be submitted no later than 15 days after the end of the quarter until all grant funds have been fully expended.

PPPR #	Submission due	Covers
1	15 calendar days after completion of first 6 months of award	Months 1-6
2	15 calendar days after the end of quarter	Months 7-9
3	15 calendar days after the end of quarter	Months 10-12
4	15 calendar days after the end of quarter	Months 13-15
5	15 calendar days after the end of quarter	Months 16-18
6	15 calendar days after the end of quarter	Months 19-21
7	15 calendar days after the end of quarter	Months 22-24

REPORTING CATEGORIES**1. ACCOMPLISHMENTS: What was done? What was learned?**

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

INSTRUCTIONS - Accomplishments

The Program Director is reminded that the grantee is required to obtain prior written approval from the RITA grants official whenever there are significant changes in the project 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 RITA. 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 RITA 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 RITA 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.

2. PRODUCTS: What has the program produced?

Publications are the characteristic product of research projects funded by the UTC Program. RITA may evaluate what the publications demonstrate about the excellence and significance of the research and the efficacy with which the results are being communicated to colleagues, potential users, and the public, not the number of publications. Many research projects (though not all) develop significant products other than publications. RITA may assess and report both publications and other products to Congress, communities of interest, and the public.

INSTRUCTIONS - Products

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

- Publications, conference papers, and presentations;
- Website(s) or other Internet site(s);
- Technologies or techniques;
- Inventions, patent applications, and/or licenses; and
- Other products, such as data or databases, physical collections, audio or video products, software or NetWare, models, educational aids or curricula, instruments, or equipment

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, RITA 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); acknowledgement 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); acknowledgement 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, 14.

Other products

Identify any other significant products that were developed under this program. Describe the product and how it is being shared. Examples of other products are:

- Databases;
- Physical collections;
- Audio or video products;
- Software or NetWare;
- Models Educational aids or curricula;

- Instruments or equipment;
- Data & Research Material; and
- Other

3. <u>PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS: Who has been involved?</u>
RITA needs to know who has worked on the project to gauge and report performance in promoting partnerships and collaborations.

INSTRUCTIONS - Participants & Other Collaborating Organizations

Provide the following information on participants:

- What individuals have worked on the program?
- What other organizations have been involved as partners?
- Have other collaborators or contacts been involved?

What individuals have worked on the program?

Provide the following information for: (1) program director and principal investigators (PD/PIs); and (2) each person who has worked in a research capacity at least 8 hours per month in the program during the reporting period, regardless of the source of compensation.

Provide the name and identify the role the person played in the project. Indicate the nearest whole person month (Calendar, Academic, summer) that the individual worked on the project. Show the most senior role in which the person has worked on the project for any significant length of time. For example, if an undergraduate student graduates, enters graduate school, and continues to work on the project, show that person as a graduate student, preferably explaining the change in involvement.

Describe how this person contributed to the project and with what funding support. If information is unchanged from a previous submission, provide the name only and indicate “no change”.

Identify whether this person is collaborating internationally. Specifically is the person collaborating with an individual located in a foreign country and whether the person had traveled to the foreign country as part of that collaboration and length of stay during the reporting period. The foreign country(ies) should be identified.

Example:

Individuals Who Have Worked on the Program

Name	Mary Smith
Program/Project Role	Graduate Student
Number of hours worked during the reporting period	60
Contribution to Program/Project	Ms. Smith has performed work in the area of combined error-control and constrained coding.
Funding Support	The Ford Foundation <i>(Complete only if the funding support is provided from other than this award.)</i>
Collaborated with individual in foreign country	Yes
Country(ies) of foreign collaborator	China
Travelled to foreign country	Yes
If traveled to foreign country(ies), duration of stay	2 weeks

What other 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); and
- Personnel exchanges (e.g., project staff and/or partner’s staff use each other’s facilities, work at each other’s site).

More detail on partner and contribution (foreign or domestic).

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

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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; and
- collaborations or contacts with others outside the United States or with an international organization.
 - country(ies) of collaborations or contacts.

It is likely that many UTCs will have no other collaborators or contacts to report.

4. IMPACT: What is the impact of the program? How has it contributed to transportation education, research and technology transfer?

Over the years, this base of knowledge, techniques, people, and infrastructure is drawn upon again and again for application to commercial technology and the economy, to health and safety, to cost-efficient environmental protection, to the solution of social problems, to numerous other aspects of the public welfare, and to other fields of endeavor.

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.

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

- increase the body of knowledge and techniques;
- enlarge the pool of people trained to develop that knowledge and techniques or put it to use; and,
- improve the physical, institutional, and information resources that enable those people to get their training and perform their functions.

INSTRUCTIONS - Impact

This component should describe ways in which the work, findings, and specific products 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 development of the principal discipline(s) of the project;
- other disciplines;
- the development of human resources;
- physical, institutional, and information resources at the university and/or other partner institution;
- technology transfer (include transfer of results to entities in government or industry, adoption of new practices, or instances where research has led to the initiation of a start-up company); or
- society beyond science and technology.

What is the impact on the development of the principal discipline(s) of the program?

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

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 on 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 (*Scientific American* style).

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 other disciplines?

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

Describe how the findings, results, or techniques developed or improved, or other products from the program made an impact or are likely to make an impact on other disciplines.

What is the impact on the development of transportation workforce development?

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

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 attitudes of members of underrepresented groups that will improve their access to or retention in transportation research, teaching, or other related professions;
- 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?

What is the impact on physical, institutional, and information resources at the university or other partner institutions?

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

Describe ways, if any, in which the program made an impact, or is likely to make an impact, on physical, institutional, and information resources that form infrastructure, including:

- physical resources such as facilities, laboratories, or instruments;
- institutional resources (such as establishment or sustenance of societies or organizations); or
- information resources, electronic means for accessing such resources or for scientific communication, or the like.

What is the impact on technology transfer?

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

Describe ways in which the program made an impact, or is 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 the initiation of a start-up company; or
- adoption of new practices.

What is the impact on society beyond science and technology?

If there is nothing significant to report during this reporting period, state “Nothing to Report.” Describe how results from the program made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world on areas such as:

- improving public knowledge, attitudes, skills, and abilities;
- changing behavior, practices, decision making, policies (including regulatory policies), or social actions; or
- improving social, economic, civic, or environmental conditions.

5. CHANGES/PROBLEMS

The grantee is required to obtain prior written approval from the RITA 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 RITA 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 RITA grant administrator.

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.

6. SPECIAL REPORTING REQUIREMENTS

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

UTC Program special reporting requirement – Annual Performance Indicators see Appendix B. Submit annually either as part of this report or separately.

Additional information regarding Products and Impacts

UTCs are encouraged to consider identifying program results by outputs, outcomes or impacts as suggested by the examples below.

Outputs are the direct, tangible products of your research, education/workforce development, and technology transfer activities, such as:

- research projects awarded;
- publications, conference papers, and presentations;
- websites;
- technologies or technology assessments; databases, software or models;
- outreach activities;
- courses and workshops; patents filed and/or issued, licenses.

Outcomes are broader changes that are expected to result from the products, such as:

- increased understanding and awareness of transportation issues;
- improved body of knowledge;
- improved processes, techniques and skills in addressing transportation issues;
- enlarged pool of trained transportation professionals;
- greater adoption of new technology.

Impacts are the longer-term, fundamental changes intended as a result of your activities, such as:

- safer driver behavior;
- increased travel time reliability;
- increased intermodal transportation operations.

Impacts should be related to the Secretary's Strategic Goals.

Exhibit B
PERFORMANCE INDICATORS FOR UNIVERSITY TRANSPORTATION CENTERS (UTCs)

Part I

Report the program-wide indicator metrics for the completed grant year and for the institution(s) comprising your UTC, unless the indicators are included in Part II below.

In the event that a sub-grantee university participates in more than one UTC, include only the metrics corresponding with your grant.

Program-wide Indicators	Metric
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. <ul style="list-style-type: none"> • Undergraduate courses _____ • Graduate courses _____ 	
2. Number of students participating in transportation research projects funded by this grant <ul style="list-style-type: none"> • Undergraduate students _____ • Graduate students _____ 	
3. Number of transportation-related advanced degree programs that utilize grant funds to support graduate students. <ul style="list-style-type: none"> • Master's Level _____ • Doctoral Level _____ 	
4. Number of graduate students supported by this grant <ul style="list-style-type: none"> • Master's Level _____ • Doctoral Level _____ 	
5. Number of students supported by this grant who received degrees <ul style="list-style-type: none"> • Master's Level _____ • Doctoral Level _____ 	

Part II

Report here the annual performance metrics that you identified in your application for each category below, include the description of the indicator and the corresponding metric.

In the event that a sub-grantee university participates in more than one UTC, include only the metrics corresponding with your grant.

Category	Description of indicator	Metric
1. Research Capability		
2. Leadership		
3. Education and Workforce Development		
4. Technology Transfer		
5. Collaboration		