

UNIVERSITY TRANSPORTATION CENTER

STRATEGIC PLAN

Submitted by

O T R E C **OREGON TRANSPORTATION RESEARCH** **AND EDUCATION CONSORTIUM**

A National University Transportation Center
Portland State University in partnership with the University of Oregon,
Oregon State University and the Oregon Institute of Technology

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Submitted to
U.S. Department of Transportation
Research and Innovative Technology Administration

Approved: December 1, 2006

STRATEGIC PLAN TABLE OF CONTENTS

I.	Program Overview	2
	A. Glossary	3
	B. Center Theme	3
	C. Center Director’s Summary	5
II.	Program Activities	11
	A. Research Selection	11
	B. Research Performance	16
	C. Education	18
	D. Human Resources	22
	E. Diversity	25
	F. Technology Transfer	26
III.	Management Approach	30
	A. Institutional Resources	30
	B. Center Director	32
	C. Center Faculty and Staff	33
	D. Multiparty Arrangements	35
	E. Matching Funds	36
IV.	Budget Details	38
	A. Format	38
	B. Grant Year	38
	C. Salaries	38
	D. Scholarships	39
	E. Equipment	39
	F. Foreign Travel	39
	G. Other Direct Costs	40
	H. Facilities and Administrative (Indirect) Costs	40
Appendix A		
	Baseline Measures for Oregon Transportation Research and Education Consortium	43
Appendix B		
	ODOT Research Selection Process	45

SECTION I. PROGRAM OVERVIEW

This section provides a contextual basis for understanding the objectives and activities described in Section II. Program Activities.

I.A. GLOSSARY

Below is a list of acronyms used in this Strategic Plan:

AASHTO	American Association of State Highway and Transportation Officials
BOA	Board of Advisors
CCEE	Civil, Construction, and Environmental Engineering (OSU)
CE	Department of Civil Engineering (OIT)
CEE	Department of Civil and Environmental Engineering (PSU)
CPW	Community Planning Workshop (UO)
CSC	Community Service Center (UO)
CTS	Center for Transportation Studies (PSU)
CUPA	College of Urban and Public Affairs (PSU)
CUTC	Council of University Transportation Centers
EC	Executive Committee
F&A	Facilities and Administrative Costs (formerly indirect)
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FTE	Full time equivalent
GIS	Geographic Information System
GPS	Global Positioning System
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
LCOG	Lane Council of Governments
LTAP	Local Technical Assistance Program
LTD	Lane Transit District
MARAD	Maritime Administration
MCECS	Maseeh College of Engineering and Computer Science (PSU)
MESA	Mathematics Engineering Science Achievement (PSU)
Metro	Portland Area Metropolitan Service District
NCHRP	National Cooperative Highway Research Program
NSF	National Science Foundation
NTIS	National Technical Information Service
NUTRC	Northwest Universities Transportation Research Consortium (Region 10)
ODOT	Oregon Department of Transportation
OHSU	Oregon Health & Science University
OIT	Oregon Institute of Technology
OMB	Office of Management and Budget

OMSC	Oregon Model Steering Committee
ONHW	Oregon Natural Hazards Workgroup (UO)
OSU	Oregon State University
OTREC	Oregon Transportation Research and Education Consortium
OUS	Oregon University System
OYSP	Oregon Young Scholars Program (UO)
PDOT	Portland Office of Transportation
PI	Principal Investigator
Port	Port of Portland
PORTAL	Portland Oregon Regional Transportation Archive Listing (PSU)
PPPM	Department of Planning, Public Policy and Management (UO)
PSU	Portland State University
RFP	Request for Proposals
RITA	Research and Innovative Technology Administration
SPR	State Planning and Research
SUSP	School of Urban Studies and Planning (PSU)
TCRP	Transit Cooperative Research Program
TransNow	Transportation Northwest at the University of Washington
TRB	Transportation Research Board
TRC	Transportation Research Center (OIT)
TriMet	Tri-County Metropolitan Transportation District of Oregon
TRIS	Transportation Research Information Services
TFHRC	Turner-Fairbank Highway Research Center
UO	University of Oregon
URL	Uniform Resource Locator
USDOT	United States Department of Transportation
UTC	University Transportation Center
WTS	Women's Transportation Seminar

I.B. CENTER THEME

The theme of this Center is Advanced Technology, Integration of Land Use and Transportation, and Healthy Communities.

I.B.1. STATEMENT OF SCOPE

The Oregon Transportation Research and Education Consortium (OTREC) is a partnership among Portland State University, the University of Oregon, Oregon State University and the Oregon Institute of Technology. The OTREC theme has been selected based on input from the partner universities and external stakeholders to reflect the expertise of the partner universities, address key transportation research and educational needs of Oregon, the region, and the nation, and avoid overlap with other UTCs. The theme and OTREC activities are applicable to

multi- and inter-modal transportation, are relevant to urban and rural transportation issues, address transportation challenges facing communities of all sizes, and relate to the diverse geography in Oregon, from the coastline to the mountains to the high desert.

The OTREC theme and university partners recognize that solving complex transportation problems requires an integrated approach that can leverage the expertise across disciplines such as engineering, planning, construction, public policy, economics, design, geography, public administration, public health, and other fields, and that there are substantive benefits to this integration. The combined expertise of the partner universities provides unique breadth and depth to address modern transportation challenges. Moreover, the partner universities recognize the importance of integrating research, education and technology transfer to serve local and state communities as well as national priorities.

The OTREC theme is focused on contributing to the USDOT strategic objectives in research, development and technology transfer, including:

- **Safety:** enhance public health and safety by working toward the reduction of transportation-related fatalities and injuries.
- **Mobility:** advance accessible, efficient, intermodal transportation for the movement of people and goods.
- **Global Connectivity:** facilitate a more efficient domestic and global transportation system that enables economic growth and development.
- **Environmental Stewardship:** promote transportation solutions that enhance communities and the natural and built environment.
- **Security:** Balance homeland and national security transportation requirements with the mobility needs of the nation for personal travel and commerce.
- **Congestion:** identify and/or ameliorate the factors that contribute to congestion of freight and/or passenger traffic in urban areas.

A framework for how OTREC will address these components of the national strategy for surface transportation research includes the following points:

- OTREC will continue to build on Oregon's **history of innovation**, including the unique aspects of Oregon's land use and transportation systems; integration of transportation and land use decision making to support livable communities; innovative transportation finance, design and delivery programs; notable advances in urban and rural public transportation, and transit ITS technologies; and, data sharing and coordination among transportation agencies at the local, regional, state and federal levels.
- OTREC intends to serve as forum for important **transportation issues** facing local, regional, state, and national audiences, including: development of healthy communities; environmental stewardship; integrated land use and transportation planning; freight mobility and congestion; economic competitiveness; sustainable management of

transportation infrastructure; safety and security; finance and pricing; and the impact of transportation systems on livability and sustainability.

- To address these issues under the OTREC theme, OTREC and its multidisciplinary faculty intend to **develop new knowledge and expertise** including: understanding the links between land use and transportation through integrated analysis techniques; understanding traveler behavior; improving non-motorized transportation modes; enhancing marine transportation at the interface with surface transportation, enhancing traffic and transit operations and intelligent transportation systems to reduce congestion and externalities; improving highway safety; understanding goods movement patterns; enhancing transportation infrastructure performance using advanced technologies and innovative design solutions; and developing innovative finance, pricing, project delivery, and policy decisions.
- OTREC will provide mechanisms for **technology transfer** to promote the use of research results in practice. Some will be traditional such as through faculty and student presentations at local, national, and international conferences and symposia; publication of reports and peer-reviewed journal papers; the OTREC newsletter, website and other publications; and through interactions with practitioners through a broad and committed Board of Advisors (BOA). OTREC will work closely with state, local and regional partners to develop a research agenda to meet the needs of the transportation community. Proposal review criteria will require that most projects have realistic and practical mechanisms for technology transfer.
- OTREC will provide **leadership** to the transportation community in Oregon, the Northwest and the nation. A key aspect of this leadership is the development of leaders with a diverse range of capabilities that will be required to address future issues in surface transportation and marine transportation at the interface with surface transportation.
- OTREC will provide educational and research opportunities for traditional and non-traditional **students** in a variety of formats at a variety of levels, including: undergraduate, graduate and professional degrees and certificates; curriculum-based learning projects; and enhanced transportation curriculum development. As part of this effort, surface transportation educational modules may be developed for use across the partner universities (and beyond). Educational programs will also include outreach at the K-12 and professional levels to attract and recruit students to transportation. Also envisioned are continuing education professional courses that uniquely match Oregon transportation initiatives.
- Given the global economy and the importance of fostering mutual understanding among nations, OTREC will also strive to address transportation research and education initiatives of **international** importance by cooperating with international transportation agencies and universities, including international topics in courses and symposia, and encouraging students and faculty to participate in international conferences.

I.C. CENTER DIRECTOR'S SUMMARY

The Oregon Transportation Research and Education Consortium (OTREC) is committed to providing relevant and high-quality research to assist local, state, and regional agencies in their work; expanding the pool of highly trained graduates who choose to work in transportation-

related fields; and building upon our collective efforts and expertise to make Oregon a place where innovation, creativity, and multi-disciplinary collaboration on surface transportation research, education and technology transfer lead to more sustainable communities. OTREC is committed to this effort by supporting research, training, and outreach in a wide variety of transportation-related disciplines.

OTREC intends to be partnership-driven, including faculty, students, stakeholders, multimodal transportation agencies and organizations, delivering multidisciplinary transportation solutions for real world problems. We will develop and expand research, education and technology transfer activities, focus on excellent internal and external communications, and attract and develop new leaders in the transportation field as our graduates enter positions of responsibility. We will focus on measurable outcomes and rigorous peer-review criteria. To enhance our stature as a logical partner for transportation agencies, we plan an “expertise mapping” effort with our Northwest Consortium (Region 10) partners so that faculty experts can be matched with transportation problems and research ideas. We will regularly report success stories that result from our programs.

OTREC benefits from the fact that PSU and OSU have been part of TransNow (the Region 10 UTC) for nearly 20 years, and as a consortium have developed research and education initiatives across four states. This consortium now includes four UTCs, four DOTs and eight universities. This track record guides our vision and motivates multi-center activities. We also benefit from the traditions of the Council of University Transportation Centers (CUTC), and an emerging consortium of the ten National UTCs. By coordinating our activities with other centers, we will benefit from best practices and support the overall UTC program within the USDOT. OTREC also benefits from strong ties to key transportation agencies (including ODOT, City of Portland, City of Eugene, TriMet, Lane Transit District, the Port of Portland, Metro, and other cities and counties), the transportation industry, and transportation industry groups.

We take OTREC’s role as a National UTC very seriously, and know that we are responsible for delivering significant results that serve the transportation community in Oregon and in our nation. By selecting a theme that resonates in Oregon but also nationally, and by pooling the resources of four universities and our collective faculty expertise across many disciplines, OTREC intends to fulfill the important mission that designation as a National UTC requires. The significant funding available at the National UTC level also allows OTREC to make strategic investments in larger projects and programs that have the potential to deliver high returns.

Our nation faces many transportation challenges, including the need to improve efficiency, enhance intermodal connections, meet the needs of changing demographics, leverage new technology, assess the many social, environmental and economic impacts of transportation investments and decisions, enhance equity and sustainability through integrating transportation and land use, decision making, deployment and transportation finance. Through our efforts we intend to make an impact on many of these issues.

I.C.1. ORGANIZATIONAL STRUCTURE

There are three primary components of OTREC's organizational structure in addition to the OTREC Director: 1) Executive Committee; 2) University Vice President level oversight; and 3) an external Board of Advisors.

I.C.2. EXECUTIVE COMMITTEE

A faculty representative to the Executive Committee is appointed by each of the partner universities. These Executive Committee members are responsible for 1) serving as a conduit for communication and organization between OTREC and faculty on each campus; 2) developing documentation and protocols that guide OTREC's functioning and reporting efforts; 3) communicating with their campus administrations, including relevant department chairs, deans, vice presidents for research, government relations, marketing and extended education; and 4) encouraging faculty and student participation in OTREC programs and events.

The Executive Committee will be responsible for developing each year's requests for proposals (RFP) with input and guidance from the Board of Advisors. The Executive Committee will facilitate and oversee the peer-review process for proposals and products, and help identify matching fund opportunities. Finally, the Executive Committee will establish protocols for coordinating communications, public relations, outreach, and branding among the campuses and affiliated groups.

The Executive Committee also includes representatives from the Oregon Department of Transportation and the U.S. Department of Transportation. The specific responsibilities of these agency representatives are similar in spirit to those of the faculty members, and include: 1) serving as the official conduit between all divisions and employees within their agency and OTREC; 2) coordinating and communicating with other modal administrations and other federal agencies; and 3) coordinating and communicating with other local, regional, state, and federal agencies across all modes as appropriate.

The current Executive Committee membership and structure includes:

- Dr. Robert Bertini, OTREC Director and Associate Professor, Portland State University
- Dr. Marc Schlossberg, Assistant Professor, University of Oregon
- Dr. Chris Higgins, Associate Professor and Kiewit Center Director, Oregon State University
- Dr. Roger Lindgren, Associate Professor, Oregon Institute of Technology
- Dr. Barnie Jones, Research Manager, Oregon Department of Transportation. ODOT develops programs related to Oregon's system of highways, roads, and bridges; railways; public transportation services; transportation safety programs; driver and vehicle licensing; and motor carrier regulation. As such, Dr. Jones will provide the link between OTREC and all ODOT programs including highway and transit.

- Mr. Satvinder Sandhu, Community Planner, Oregon Division, Federal Highway Administration. Mr. Sandhu is located in Salem, Oregon and will be able to participate regularly in meetings and discussions; he will also assist in soliciting input from across all of USDOT's administrations.

I.C.3. UNIVERSITY VICE PRESIDENT LEVEL OVERSIGHT

The Vice Presidents for Research (or equivalent position) at each university will also provide oversight for OTREC. The function of the University Vice President level oversight will be: 1) to encourage substantive collaboration; 2) to coordinate institution level arrangements such as cost-sharing and administrative support; 3) to connect OTREC's activities to other inter-campus and statewide initiatives that may relate to OTREC's collective activities; and 4) to share information about these inter-agency agreements with their campus faculty representative on the Executive Committee. The Vice President level oversight may also include other key stakeholders such as a member of the Oregon Transportation Commission, administrators from private Oregon universities, state legislators, and appointed or elected members of other governing boards such as the TriMet Board of Directors, the Port of Portland, the Metro Council, etc.

I.C.4. BOARD OF ADVISORS

OTREC's structure includes an external Board of Advisors (BOA) consisting of representatives from transportation-related organizations, primarily in Oregon. The role of the BOA is to help develop OTREC's foundation and provide guidance on OTREC's overall mission. These members will be our advocates and champions, regionally, statewide, and nationally. The role of the BOA includes:

- Long-range planning and direction
- Identify priority research topics
- Review annual report and plan for the future
- Serve as a connection to key agency partners at state and federal levels and with industry
- Provide OTREC with statewide, multimodal, public/private perspectives on research, education and outreach

The following criteria have been used for selection of BOA membership:

- Members should be at the upper administration level of their organization.
- Elected members should strive to be inclusive and representative and have the ability to represent transportation interests beyond their own organization.
- Members should have a broad perspective of transportation needs.

The PSU Center for Transportation Studies (CTS) has had experience with an external advisory board that reflects strong support from the state and Portland region. In this tradition, but broadening to encompass the entire state, a 15-member board is proposed with the following structure:

PUBLIC AGENCIES (8 members)	
USDOT (required, 1 member): e.g., FHWA division administrator, FTA regional administrator ¹	Mike Flanigon , Director, Office of Technology, Federal Transit Administration Phillip Ditzler , Administrator, Oregon Division, Federal Highway Administration
State: DOT or Department of Human Services.	Doug Tindall , Deputy Director, Highway Division, Oregon Department of Transportation
Regional (2 members): MPO, county, or city.	Andy Cotugno , Director of Planning, Metro Lavinia Gordon , Director, City of Portland Office of Transportation, Bureau of Transportation System Management Rob Innerfeld , Transportation Planning Manager, City of Eugene
Transit District (1 member): TriMet, Lane Transit District or other transit agency.	Neil McFarlane , Executive Director of Capital Projects, TriMet Tom Schwetz , Director of Development Services, Lane Transit District
Ports (1 member): Port of Portland or other port.	Susie Lahsene , Corporate Planning Manager, Port of Portland
Higher Education (1 member): other Region 10 UTC Director.	Dr. Nancy Nihan , Director, Transportation Northwest (TransNow)
Elected Official (1 member): federal, state or regional.	Hon. Lynn Peterson , Clackamas County Commissioner
PRIVATE INDUSTRY (4 members)	
Engineering/Planning/Other Consulting (2 members)	Jay Lyman , Project Manager, Columbia River Crossing Project, David Evans & Associates Randy McCourt , Principal, DKS Associates
Related Industry (2 members)	Tomas Endicott , Founder, Policy and Business Development, SeSequential Biofuels John Isbell , Director of Corporate Delivery Logistics, Nike, Inc.
TRANSPORTATION-RELATED INTEREST GROUPS (3 members)	
	Bill Upton , Oregon Modeling Steering Committee, Scott Bricker , Interim Executive Director, Bicycle Transportation Alliance Ruth Harshfield , Executive Director, Oregon Alliance for Community Traffic Safety

¹ The OTREC director has spoken with Ron Hynes at FTA about the best way to include FTA in OTREC's activities. OTREC has also been in touch with Lisa Colbert, and one of our faculty members attended an FTA roundtable at an APTA meeting in San Diego. Since there is no FTA office in Oregon, it was suggested that OTREC work through the local regions (offices located in Seattle, Washington and San Francisco, California) and the OTREC director has spoken with Region 10 Administrator Rick Krochalis and invited him to a Northwest Consortium meeting in June 2006. OTREC will continue to work with FTA to engage them in OTREC's processes, projects and programs. NOTE: BOA roster updated September 12, 2007.

I.C.5. ANTICIPATED ACCOMPLISHMENTS

OTREC is community service centered, meaning that we strive to educate students and conduct research that serves the community, whether directly through applied projects, or indirectly through published and presented research findings, and graduate placement into the transportation workforce. We expect to attract, retain, and train top students in our graduate programs. OTREC is also faculty driven—as educators and principal investigators, the faculty will be empowered to develop their ideas and pursue their passions toward improving our transportation system by making it more efficient, effective, equitable, and sustainable. We expect to make a positive impact on the transportation profession and on our state’s economy. OTREC will develop a structure and mechanisms to ensure that its overall accomplishments are more than a sum of its individual projects. OTREC will strive to coordinate projects and programs and develop sustained, ongoing efforts to coordinate research, education, and outreach consistent with its theme.

OTREC, with faculty and students on all four campuses, aims to develop sustained, improved, expanded transportation research and education initiatives that are cross-disciplinary and cross-institution, and that address the important transportation issues that affect our state and beyond. We anticipate a significant increase in transportation research activity and measurable growth in our transportation graduate programs. OTREC is collaborative, statewide, multimodal, and inclusive. We have already identified over 100 faculty members on the four campuses in 27 different disciplines who are interested in transportation. To ensure that the best ideas are developed, we expect substantive collaborations across campuses and across disciplines. We also anticipate contributing to the development of a nationally recognized model for collaboration with state DOTs and the USDOT through our Northwest Consortium.

OTREC will also address transportation workforce development from augmenting an existing collection of post-professional training to reaching high school students to help them think about a future in a transportation field; we recognize the need to transfer knowledge to working professionals at all levels.

I.C.6. SUSTAINABLE COMPONENTS

The funding provided for OTREC to develop its program activities will be critical seed funding for specialized initiatives that can evolve to become self-sustaining beyond the life of this UTC funding. This National UTC designation has already resulted in the hiring of new faculty and the conversion of one faculty member to the tenure track at PSU and in a legislative request for additional permanent funding for transportation initiatives. The research results and students who graduate from OTREC-supported programs will live on past the life of this UTC funding. It is also expected that new collaborations among the four university partners will live on in the form of new intellectual connections across campus and disciplinary boundaries. Faculty who are empowered to develop new transportation expertise will also be sustainable in the form of new course and program offerings, abilities to work with transportation agencies to solve transportation problems beyond the life of this grant, and to attract new students to their program areas. Bringing new ideas and perspectives to the solution of transportation problems

will also have lasting effects. It is also expected that connections between the universities and transportation agencies and organizations will become sustaining as will a further strengthened relationship between the universities and ODOT. Activities surrounding the Northwest Consortium will also result in lasting projects and programs. It is anticipated that faculty will become empowered to develop initiatives that may function as future sub-centers or institutes, and OTREC will be a catalyst for this. Bringing a higher profile to Oregon in the transportation field will be a benefit that will continue to grow and evolve.

SECTION II. PROGRAM ACTIVITIES

This section describes OTREC's specific program goals, the activities planned to accomplish these goals and the performance measures that will be used to measure and report our progress to RITA.

To measure performance we will rely on individual PI, department and campus data as well as data gathered specifically by OTREC staff members. We are designing a web-based RFP and reporting system to make it easy to collect these data. Student, faculty, alumni, partner, stakeholder and participant surveys and other forms of input will also be solicited as needed.

II.A. RESEARCH SELECTION

Research Selection Goal: an objective process for selecting and reviewing research that balances multiple objectives of the program.

II.A.1. BASELINE MEASURES

The information called for as Baselines 1, 1a and 2 is provided in Appendix A.

II.A.2. RESEARCH SELECTION PROGRAM OUTCOME

As described in this section, OTREC has designed and will implement a rigorous, peer-reviewed research selection process, guided by a diverse external BOA and the EC. PSU and OSU have been a part of TransNow for over 18 years. With this experience on two of our campuses, we envision a process that successfully balances selection of worthy projects which address RITA's mission to perform advanced research as well as more applied projects with linkages to articulated USDOT and other transportation agency and community priorities. The evaluation process for project selection and product review will be clear and transparent. Faculty at partner university campuses will be thoroughly informed about and understand the process. The process will be viewed both internally and externally as fostering innovation and meaningful collaboration, efficient, fair and objective, with balance among campuses, disciplines, modes and with statewide appeal and relevance. The process will encourage significant research that contributes to solving transportation problems and leverages financial resources. A linkage with the ODOT research process is already in place and will evolve as OTREC progresses.

II.A.3. PLANNED ACTIVITIES.

This section describes the major activities that OTREC will undertake to bring about the described Program Outcome.

II.A.3.a. REQUIRED ACTIVITIES.

OTREC will support the national strategy for surface transportation research and research that focuses on the interface of marine with surface transportation as outlined by USDOT in

the following documents:

- National Highway Research and Technology Partnership's *Highway Research and Technology: The Need for Greater Investment*
- Federal Transit Administration's *National Research and Technology Program*
- U.S. Department of Transportation's *Strategic Plan*
- U.S. Department of Transportation's *Research, Development, and Technology Strategic Plan*, including its 2006 update
- Maritime Administration's *Maritime Research, Technology, Demonstration, and Deployment (RTDD) Program* (<http://www.marad.dot.gov/R&D/index.html>)

In addition, OTREC will stay abreast of the national cooperative research programs including the National Cooperative Highway Research Program (NCHRP), the Transit Cooperative Research Program (TCRP), and problem statements that are identified for funding (<http://www4.trb.org/trb/crp.nsf>). As these and other new cooperative programs develop, we will also examine problem statements submitted but not selected for funding to determine whether national research priorities can be addressed through our research activities. In order to make prospective faculty PIs aware of these opportunities, we will include Internet links to problem statements in our annual RFP and will attempt to match particular faculty expertise with those research needs. Similar efforts will also occur as part of the Northwest Consortium.

OTREC faculty partners will stay current on the research needs of the USDOT and its operating administrations through regular contact at professional meetings and by continuous dialog with RITA staff.

II.A.3.a.1. Research Project Solicitation

The basic research project solicitation process will consist of the following steps:

1. The Executive Committee will develop an RFP for research projects (new, continuing and faculty development), as well as for education and technology transfer projects (including student fellowships). PIs must choose one (research, education or technology transfer) that best describes their primary proposed efforts.
2. The RFP will be distributed to faculty partners, department chairs, existing center directors, deans, the BOA and a larger stakeholder email list.
3. A list of potential proposal peer-reviewers will be compiled based on specific expertise in the fields related to our theme
4. Project proposals will be submitted to the OTREC Director and sent to 3-4 peer-reviewers for confidential review. This will include at least one USDOT reviewer. The USDOT representative will be selected based on the particular research topic submitted, and can include staff from all administrations across the USDOT. If authorized by PIs, proposal abstracts can be posted on the OTREC website and made available to agency partners to determine whether matching opportunities may exist.

5. We will follow National Science Foundation procedures for conflict of interest (reviewers will have no affiliations with applicant institution, no relationship with an investigator: <http://www.nsf.gov/pubs/2002/form1230p/form1230p.pdf>)
6. Peer-reviewers will review proposals on the basis of intellectual merit, broader impacts, relevance to OTREC's theme and the national transportation research agenda. Scoring of the proposals will consist of:
 - Excellent: outstanding proposal in all respects; deserves highest priority for support.
 - Very Good: high quality proposal in nearly all respects; should be supported if at all possible.
 - Good: a quality proposal worthy of support.
 - Fair: proposal lacking in one or more critical aspects; key issues need to be addressed.
 - Poor: proposal has serious deficiencies.
7. Reviewed proposals will be ranked and distributed to Executive Committee members.
8. In addition to project merit (via peer-reviewers), the Executive Committee will evaluate the acceptable proposals based on OTREC priorities, equity across partner campuses, collaboration across disciplines or campuses, support of junior faculty, match sources and commitment, and student involvement. Projects will then be ranked for consideration by the Executive Committee to address campus balance, basic vs. applied research and other factors considered appropriate.

II.A.3.a.2. Standards for Proposal Solicitation and Evaluation

The Executive Committee will review the proposal review process annually and recommend changes to achieve the goal of making the process transparent, fair, and straightforward, yet rigorous. The process will strive to be synchronized with the ODOT research solicitation cycle (see Appendix B) as well as the academic calendar to provide timely selection of projects that enables recruitment of graduate students. Emergent time-sensitive projects that may develop out-of-phase with the selection process will be evaluated as needed by the Executive Committee.

II.A.3.a.3. Process for Reflection on Research Priorities and the RFP Process

In the spirit of continuous improvement, the Executive Committee members will participate in DOT workshops, national conferences, symposia and other venues to remain abreast of emerging national transportation research and education priorities. The Board of Advisors will provide input on priorities through annual meetings and reports. There will be periodic opportunities for OTREC faculty to meet with potential agency partners, possibly in a retreat format. In addition, in the spirit of regional cooperation, Executive Committee members or other OTREC representatives will participate regularly in Region 10 workshops to identify regional priorities. Also, the OTREC Director and Executive Committee members will participate in coordinated efforts with the other nine National UTCs. In order to continually improve our research selection process and activities, the Executive Committee members will also review and monitor proposal selection processes at other UTCs.

II.A.3.a.4. Research Selection Criteria

Each proposal will be reviewed by 3-4 peer-reviewers, and the first three criteria described below must be satisfied. The remaining criteria (4 through 10) will be assessed by the Executive Committee and OTREC staff. A project that is not satisfactory under criteria 1 through 3 will not be funded. Anonymous review comments will be provided to PIs and they will be encouraged to improve their proposals for submittal in future years or elsewhere.

Peer-Review Criteria

1. What is the intellectual merit of the proposed activity? (*source: NSF*)
 - a. How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?
 - b. How well qualified is the proposer (individual or team) to conduct the project?
 - c. To what extent does the proposed activity suggest and explore creative and original concepts?
 - d. How well conceived and organized is the proposed activity?
 - e. Is there sufficient access to resources?
2. What are the broader impacts of the proposed activity? (*source: NSF*)
 - a. How well does the activity advance discovery and understanding while promoting teaching, training, and learning?
 - b. How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, modal, urban/rural etc.)?
 - c. To what extent will it enhance the infrastructure for research, education and technology transfer, such as partnerships or activities beyond the funded project that will live on past the life of the specific project and further OTREC's objectives?
 - d. Will the results be disseminated broadly to enhance scientific and technological understanding?
 - e. What may be the benefits of the proposed activity to the national surface transportation research agenda?
3. To what extent is this project consistent with the OTREC theme? The campus Associate Directors (Executive Committee members) will ensure that each proposal is consistent with the OTREC theme before peer-review begins.

Executive Committee Review Criteria

4. Supports and involves students in the form of research that fulfills degree requirements (publication/presentation/conference/journal).
5. Matching funds are provided. Priority may be given to external cash match.
6. Supports untenured tenure track (junior) faculty.
7. To what extent does this project support substantive collaboration?
 - a. More than one discipline.
 - b. Two/three/four campuses.
 - c. External agency, nonprofit, industry, private, other state/country.

- d. Northwest Consortium (Region 10).
8. Satisfies USDOT multimodal research priorities as defined in SAFETEA-LU. Each principal investigator (PI) must identify one or more specific citation from these resources:
 - a. National Highway Research and Technology Partnership's *Highway Research and Technology: The Need for Greater Investment*
 - b. Federal Transit Administration's *National Research and Technology Program*
 - c. U.S. Department of Transportation's *Strategic Plan*
 - d. U.S. Department of Transportation's *Research, Development, and Technology Strategic Plan*, including its 2006 update.
 - e. Maritime Administration's *Maritime Research, Technology, Demonstration, and Deployment (RTDD) Program* (<http://www.marad.dot.gov/R&D/index.html>)
 - f. Advanced Research
 - g. Congestion Chokepoints
9. Past performance on OTREC or other UTC projects (on time, reporting, etc.), likelihood of successful completion, potential for technology transfer.
10. Plan for research implementation.

II.A.3.a.5. Types of Research Projects

We envision accepting proposals for regular research projects, which may run for one year or two. Proposals for continuing research projects will be accepted starting in the second year. We also anticipate accepting proposals for "Small Starts" faculty development research projects, which are entrepreneurial and have a student focus. The "Small Starts" projects will be limited to one year, and will typically provide support for one student for one academic year, so that a faculty principal investigator can produce sufficient research to demonstrate a proof of concept aimed at additional research, culminating in a journal article and/or TRB presentation. Research projects are expected to be collaborative, multi-disciplinary and multi-campus. OTREC will authorize added travel funds to facilitate coordination between campuses. OTREC may also develop an annual award to recognize collaboration between faculty and students at the four campuses. The Executive Committee will retain the right to allocate a small "opportunity fund" for "rapid response" type research or for projects identified through the Northwest Consortium.

II.A.3.a.6. First Year Issues

In the first year, several projects that were approved by peer-review through TransNow (the Region 10 UTC in which PSU and OSU participated) will be processed through OTREC's peer-review process for funding. If approved through the peer-reviewed competitive process, these delayed TransNow projects will proceed starting in the fall of 2006.

II.A.3.b. RECOMMENDED ACTIVITIES

OTREC will strive to support national transportation needs by addressing high-priority areas identified by the USDOT and its Operating Administrations. Our potential efforts to support two such DOT-wide priority areas are described below.

II.A.3.b.1. Advanced Research

As part of the research solicitation and selection process, advanced research will be encouraged. Faculty at the four universities comprising OTREC are involved in advanced research, so we expect that some proportion of proposals received will address fundamental, broad issues. The Executive Committee will remain abreast of USDOT research priorities and will strive to link advanced research needs with faculty capabilities within our state and region. Faculty from our partner institutions have already participated in a TFHRC workshop on Advanced Research, the workshop on Urban/Suburban Mobility and Congestion Mitigation Research, and plan to participate in the FHWA Safety Workshop.

II.A.3.b.2. Congestion Chokepoints

In response to the Secretary of Transportation's congestion mitigation strategy, OTREC will support project proposals that address congestion chokepoints and demonstrate the potential for deployable results within one year. OTREC's RFP will contain a specific request for projects addressing these critical issues. Faculty at the four partner universities are already deeply engaged in research addressing recurrent and non-recurrent congestion of both passenger and freight traffic, in partnership with ODOT, the City of Portland, and the Port of Portland. It is expected that these PIs will be able to meet this important challenge. The issue of congestion chokepoints is explicitly woven through OTREC's theme—to the extent that advanced technology can be a potential solution to congestion problems in the near term. In the longer term, the integration of land use and transportation can provide a longer term congestion management approach. Finally, the concept of healthy communities includes the necessary solution of congestion problems for both passenger and freight traffic.

II.A.4. PERFORMANCE INDICATORS

OTREC staff will collect and report the information necessary to track performance measures 1, 1a and 2 as shown in Appendix A by collecting data directly from the project PIs. The proposal form will ask each PI to categorize a research project as basic, advanced, or applied, determine if the project addresses congestion chokepoints. Peer-reviewers will be asked to confirm the categorization based on their reviews.

II.B. RESEARCH PERFORMANCE

Research Performance Goal: An ongoing program of basic and applied research, the products of which are judged by peers or other experts in the field to advance the body of knowledge in transportation.

II.B.1. BASELINE MEASURES

The information called for as Baselines 3 and 4 is provided in Appendix A.

II.B.2. RESEARCH PERFORMANCE PROGRAM OUTCOME

Over the next five years OTREC's research will contribute to a higher level of scholarly activities and to the body of knowledge in transportation, as judged by peers and experts in the field. OTREC will develop a national reputation around our theme of advanced technologies for multimodal surface transportation systems, integration of transportation and land use, and healthy communities, and will provide valuable research and education around this theme. This will be accomplished via our rigorous process for review of all research products and through a strong ethic of collaboration among researchers, students, agency, and industry partners, and the broader array of stakeholders.

At the end of five years we envision a large increase in the number and diversity of projects, papers, presentations, and faculty and student participation in transportation research. We also envision OTREC catalyzing new research and education initiatives that will continue beyond the life of this UTC funding.

II.B.3. PLANNED ACTIVITIES

The major activities that OTREC will undertake to bring about the described Program Outcome are described below.

II.B.3.a. INTEGRITY OF ACTIVITIES

As described above, the integrity of OTREC's activities will be maintained through the oversight of an external Board of Advisors, through a peer-review proposal process, and through a peer-review final report process, which is described below. Individual PIs will be responsible for submitting periodic progress reports for their projects, identifying tasks completed and tasks in progress, and noting any unexpected delays or opportunities that have occurred that impacts the timely completion of the project within budget. These submittals will feed into OTREC's overall Annual Reports, which are due seven months after the start of each grant year, and two months after the end of the grant year. PI and partner campus submittals will be timed to allow enough time to meet these deadlines. Through a continuous improvement philosophy, the Director and Executive Committee will periodically assess the research performance and peer-review process and make adjustments as necessary.

II.B.3.b. PROJECT OVERSIGHT

Where appropriate and for most projects (for example when a project is matched by ODOT or another agency) a project technical advisory committee (TAC) will be formed to monitor the project and provide feedback. OTREC will help facilitate the establishment of the TAC with at least one appropriate USDOT representative. In the case of ODOT research projects that are also approved through the OTREC selection process, there will be one joint OTREC/ODOT TAC. The TAC will be able to assist with final report peer-review. A TAC is good project management practice and projects benefit from TAC input at project startup, at key project milestones, at project conclusion and a TAC can aid with technology transfer.

II.B.3.c. FINAL REPORTS

Each funded project's description will be posted on the OTREC website and submitted to TRB's RiP database within one month of project selection. In addition, OTREC will provide style guidelines to ensure consistency of all OTREC products.

Each PI will produce a draft final report for peer-review during a two-month review process. OTREC will send the draft final report to up to three peer-reviewers, including one USDOT reviewer. As applicable, at least one representative of the matching/partner entity will be asked to provide a peer-review. PIs are responsible for incorporating peer-review comments into the final report. OTREC will develop a procedure for no-cost extensions, and each PI's performance on schedule and budget will be considered for future funding decisions.

Final reports will be reviewed by an editor to ensure standard formatting requirements are met. When a report is produced as part of a joint effort, OTREC will work with the matching/sponsoring entity to ensure that one report will meet the requirements of all partners. All final reports will be produced as part of a numbered OTREC report series, and will include the RITA disclaimer and OTREC/UTC funding attribution. All final reports will be posted on the OTREC website, and the URL of the full version of the reports will be provided to TRIS and transmitted to the NTL. Five printed copies will be sent to Northwestern, Volpe, Berkeley, TRB and NTIS within two months of report production. OTREC will also produce printed copies for each university's library and the OTREC library.

II.B.3.d. FURTHER PEER-REVIEW OPPORTUNITIES

PIs and students who are funded by OTREC will be expected to prepare articles based on research findings for publication in refereed journals and make presentations at national conferences. Through these venues, researchers and students will receive additional peer-review feedback on their work and will incorporate this into their projects. These publications and presentations will include OTREC/UTC funding attribution.

II.B.4. Performance Indicators.

OTREC staff will collect and report the information necessary to track performance measures 3 and 4 as shown in Appendix A by collecting data directly from the project PIs.

II.C. EDUCATION

Education Goal: a multidisciplinary program of course work and experiential learning that reinforces the transportation theme of the Center.

II.C.1. BASELINE MEASURES

The information called for as Baselines 5 and 6 is provided in Appendix A.

II.C.2. EDUCATION PROGRAM OUTCOME

We envision a vibrant multidisciplinary transportation education program with expanded and strengthened coursework and degree options for traditional undergraduate and graduate students, as well as for working professionals seeking degree credit or lifelong learning. We will strive to attract more students to transportation as a profession through an education program that encourages coordination of curricula, sharing of courses in person and via distance learning, exchanges among students and faculty at our Oregon campuses, within the Northwest Consortium and with other national and international universities.

One of the most prominent graduate programs within the consortium is the Master of Urban and Regional Planning (MURP) program at PSU, where students can choose a formal specialization in transportation. PSU's MURP program is highly competitive with other top programs. A Master of Urban Studies and a Ph.D. in Urban Studies are also available with transportation specializations. There are currently strong graduate programs (master's and Ph.D.) in transportation engineering at OSU and PSU. There is a graduate certificate in transportation and a dual transportation master's degree (MURP/MSCE) at PSU. Students at the University of Oregon can choose to focus on transportation within the Master of Community and Regional Planning program. We envision that these programs will be even stronger at the end of the grant with notable increases in the number of master's and doctoral degrees. The Oregon Institute of Technology's Department of Civil Engineering is planning to establish a master's program with a strong curriculum focus on transportation. The expected start-date for this program is the 2007-08 academic year. OTREC will enable this new graduate program to succeed through a sharing of curricula among the member universities and through graduate student research opportunities.

In addition to formal degree programs, there is a great opportunity in Oregon to formalize a series of short, lifelong learning courses around transportation planning and engineering. As an example, bicycle/pedestrian courses are already offered at various campuses. Via OTREC, these experiential learning opportunities will be better integrated into holistic education opportunities for interested parties throughout the state and nation. These short courses may also be connected to existing more formal academic courses at different campuses around similar topics and embedded into larger degrees in planning, urban studies, and engineering. It is currently possible for students to take courses at other institutions for credit at host institutions, but we envision the process of course coordination across campuses to be strengthened in certain key areas so that students can take full advantage of the strengths at all campuses if desired.

II.C.3. PLANNED ACTIVITIES

There is currently a workforce crisis in the transportation field, and graduates of OTREC's transportation engineering and planning programs will fill important gaps in transportation agencies, local (and rural) planning departments, and the private sector.

Although OTREC does not offer courses, admit students, hire faculty or award degrees (this is performed by the member university's departments and academic units with OTREC support), OTREC will enable the member universities to expand their capacity to produce graduates of formal transportation degree programs and short course offerings. There are currently eleven formal transportation degree programs or concentrations and one graduate certificate now offered at the four member universities.

OTREC will encourage and fund educational initiatives to include course modules, new course development, course materials, student groups, and encourage course development in a way that can be shared nationally and internationally.

II.C.3.a. UNDERGRADUATE EDUCATION ACTIVITIES

The undergraduate civil engineering programs at three of the OTREC universities contain some form of senior electives, senior capstone courses, or honors theses. OTREC faculty partners will ensure that these senior undergraduate courses have strong transportation components compatible with OTREC's goals. It is envisioned that exposure to transportation issues will cause some well-qualified undergraduate students to enroll in graduate programs directly related to transportation. The development of new undergraduate transportation courses is also envisioned, such as a new undergraduate transportation planning course offered by PSU and UO. The four universities will endeavor to offer a shared transportation curriculum supported by OTREC educational projects.

To further encourage undergraduate transportation studies, OTREC will offer summer internships for research at the undergraduate level and conduct summer workshops on topical areas such as signal controllers, traffic simulation, and applied GIS.

II.C.3.b. GRADUATE EDUCATION ACTIVITIES

Cooperation among OTREC faculty partners will enable coordinated transportation graduate course offerings across individual OTREC campuses. It is envisioned that OTREC's increased transportation research will result in an increase in the number of students in existing transportation graduate degree programs. Further, OTREC's activities will aid in the creation of new graduate programs such as the proposed MSCE program at OIT. Growth in these programs will be accomplished by student recruiting coordinated by OTREC faculty.

OTREC transportation degree programs will offer fellowships to aid in recruiting and retaining domestic students and permanent residents. One goal of these fellowships will be to cover university fees not covered by tuition remission. OTREC will strive to support students interested in transportation research. To be eligible, students must be pursuing a graduate degree with a focus on transportation (preferably a formal transportation specialization) and be completing a transportation-related dissertation, thesis, client project, field area paper, or comprehensive project under the supervision of a faculty member.

OTREC faculty will work with graduate students to coordinate student-led conferences in cooperation with the Northwest Consortium. OTREC will encourage transportation student organizations such as the student chapters of the Institute of Transportation Engineers. OTREC will actively recruit corporations and industry groups to offer transportation scholarships. Such scholarships are currently offered to Oregon students by groups such as: Coral Sales, ASCE, ITS Oregon, Oregon ITE, Women's Transportation Seminar, Asphalt Pavement Association of Oregon, Oregon Concrete and Aggregate Producers Association, APWA-Oregon, and David Evans & Associates.

OTREC PIs will strive to involve students in transportation research projects (undergraduate and graduate). The inclusion of student research assistants will be a criterion for research project selection. Student contributions to research will be acknowledged in publications via acknowledgement, footnote or co-authorship. Where appropriate to help them achieve personal goals, graduate students will be encouraged to engage in teaching assistantships.

OTREC will also offer substantial master's and doctoral fellowships to students pursuing transportation on relevant surface transportation topics. These will include fellowships to facilitate Ph.D. dissertation completion, master's thesis or project or field area paper completion, with product submitted to OTREC in electronic format for reprint. Students receiving these fellowships must be pursuing an established degree, concentration or specialization in transportation with formal approved requirements, and must complete a transportation-related dissertation, thesis, client project, or comprehensive project.

II.C.3.c. CONTINUING EDUCATION

Educational programs for professionals are a key component of our planned activities. Specific discussion of planned continuing education activities are described in section II.F. Technology Transfer.

II.C.3.d. REQUIRED ACTIVITIES

Required activities are described below.

II.C.3.d.1. Multidisciplinary Course Work and Student Participation in Research

OTREC will support the multidisciplinary coursework offered within existing degree programs and will encourage student participation in research under faculty supervision through the research selection process. Recruiting fellowships and the Student of the Year program will also encourage student excellence.

II.C.3.d.2. National Strategy for Surface Transportation Research

OTREC will support the national strategy for surface transportation research as outlined by USDOT in the following documents:

- National Highway Research and Technology Partnership's *Highway Research and Technology: The Need for Greater Investment*

- Federal Transit Administration's *National Research and Technology Program*
- U.S. Department of Transportation's *Strategic Plan*
- U.S. Department of Transportation's *Research, Development, and Technology Plan*, including its 2006 update.
- Maritime Administration's *Maritime Research, Technology, Demonstration, and Deployment (RTDD) Program* (<http://www.marad.dot.gov/R&D/index.html>)

OTREC faculty partners will stay current on the research needs of the USDOT and its operating administrations through regular contact at professional meetings and by continuous dialog with RITA staff.

II.C.3.d.3. Outstanding Student of the Year

OTREC will recognize outstanding transportation student achievement by selecting four "Student of the Year" finalists – one from each OTREC campus. Each finalist will be awarded a cash fellowship/prize. OTREC will then choose one of these finalists as OTREC's "Student of the Year." The winner will receive a cash prize and travel funds to attend the Annual Meeting of the Transportation Research Board. Other student awards may also be developed.

II.C.4. PERFORMANCE INDICATORS

The OTREC staff will collect and report the information necessary to track performance measures 5 and 6 as shown in Appendix A by collecting data directly from the partner universities. For measure 5 OTREC will maintain a list of courses on the OTREC website with relevant links and explanations of degree programs. Each year, OTREC staff will coordinate with PSU, UO, OSU and OIT staff to add new transportation courses to the OTREC website. The information for measure 6 will be collected from the individual PIs and the EC members at each campus.

II.D. HUMAN RESOURCES

Human Resources Goal: an increased number of students, faculty, and staff who are attracted to and substantively involved in the undergraduate, graduate, and professional programs of the Center.

II.D.1. BASELINE MEASURES

The information called for as Baselines 7, 8 and 9 is provided in Appendix A.

II.D.2. HUMAN RESOURCES PROGRAM OUTCOME

At the end of this five year grant our vision is to celebrate increased numbers of students, graduates, and professionals engaged in transportation research, education and technology transfer in Oregon, and to expand the number of fields where transportation issues are studied (i.e. architecture, economics, business logistics, public policy, geography). Further, we envision a vibrant statewide transportation community with more faculty conducting

transportation research, higher course enrollments, more degrees awarded, and more professionals in both the public and private sectors of the transportation field.

II.D.3. PLANNED ACTIVITIES

Major activities that OTREC will undertake to bring about the described Program Outcome are described below.

II.D.3.a. K-12

We recognize the lack of science and engineering students in U.S. universities. In response to this concern, OTREC will reach out to Oregon's schools, including building from the activities supported by the Oregon section of the American Society of Civil Engineers (ASCE) Young Member Forum (YMF), Zoom into Engineering, Oregon MESA, and the Saturday Academy. Goals include high school class visits to transportation laboratories and programs like one at the University of Oregon that brings disadvantaged middle and high school students to campus for an exploration of higher education, including engaging in applied transportation-related investigations. We will also attempt to build on similar programs implemented by other UTCs, and utilize materials developed by the USDOT's Garrett A. Morgan Technology and Transportation Futures program. This is a good program, hopefully it still functions.

OTREC faculty partners will work with existing pre-college programs at the member universities to incorporate exciting applications of transportation technology. For example, it is envisioned that UO's OYSP summer program will have a transportation track for high school students and OIT's "I'm Going to College" program will include hands-on transportation activities for middle school students. At PSU, faculty will be encouraged to include funds for high school students in the summer Apprenticeships in Science and Engineering (ASE) Program.

OTREC will specifically invite funding proposals from faculty interested in creating effective outreach and community based transportation education programs.

II.D.3.b. UNDERGRADUATE

The four universities participating in OTREC have close to 50,000 undergraduate students. OTREC faculty partners will actively promote transportation education and research to this large group. While undergraduates in civil engineering and planning programs are the students most closely linked to transportation, faculty will seek opportunities to include undergraduate students from diverse fields of study in their transportation research. We believe that there are potential transportation professionals enrolled in all programs on our campuses.

Special provisions will be made to include undergraduate students in OTREC-sponsored research and for students from a variety of backgrounds and campuses to meet and work together. Transportation-related internships for both undergraduate and graduate students will

be cultivated with agency and industry partners. Our universities have had many successful participants in the FHWA's STIPDG internship program and we will continue to facilitate these opportunities.

II.D.3.c. GRADUATE

Graduate students will have a variety of opportunities to engage with OTREC. There will be opportunities for direct student support through thesis/dissertation fellowships, research opportunities on faculty-led projects, and special travel funds for presenting research at regional or national conferences. Potential graduate students will be recruited in four main ways: 1) proactive solicitations of finishing undergraduate students across the campuses in related fields (e.g. civil engineering, geography, computer science, and economics); 2) information will be disseminated to community colleges across the state alerting students to the opportunity to focus on transportation as an undergraduate major; 3) a website will be maintained that includes information on potential resources available to students, a list of current research activities across the campuses, and faculty or practitioner research ideas that would be appropriate for students research; and 4) information about OTREC, its priorities and the range of faculty and on-going projects will be distributed to appropriate national email lists.

II.D.3.d. FACULTY

OTREC's programs, priority areas, and opportunities for research and educational support will be advertised and promoted on each campus via the campus liaison on the Executive Committee. This campus contact will be the point person for information dissemination, clarification on OTREC priorities and application processes, and for providing broader campus oversight of interests that can be brought back to the Executive Committee as a whole. In addition, periodic faculty retreats including faculty from each campus will be conducted to gather research interests and to seek collaborative opportunities between campus, disciplines and agency/industry partners. The OTREC website will maintain information about the research priorities and the variety of ways that faculty and students can access OTREC funding to support their work.

II.D.3.e. PROFESSIONALS

OTREC will reach professionals in a variety of ways. OTREC will help advertise professional courses that already exist as well as being the catalyst for developing additional course offerings. Advertising for these offerings are already well established via the professional associations that key faculty are already engaged in throughout Oregon. Certain courses that may have a broader regional or national appeal, and ones that may not be offered in other locations, will be advertised via email lists and newsletters of appropriate professional associations.

Professionals will also be engaged in transportation related training and information sharing through an on-going speaker series that is webcast and archived for future viewing and reference. Such presentations are already part of an on-going seminar series at Portland State

University, and the campuses have already begun to coordinate out-of-state speakers to speak at the different campuses so that faculty, students, and professionals can easily engage with the speaker. Finally, professionals with research ideas based on their professional experience will be encouraged to find a faculty partner and to submit research project ideas through the normal RFP process. Occasional outreach events throughout the state will provide a forum for professionals and researchers to get together and share ideas and find opportunities for collaboration.

II.D.4. PERFORMANCE INDICATORS

OTREC staff will collect and report the information necessary to track performance measures 7, 8 and 9 as shown in Appendix A by collecting data directly from the partner universities. For measure 7 OTREC will maintain a list of degree programs on the OTREC website with relevant links and explanations of degree programs. Each year, OTREC staff will coordinate with PSU, UO, OSU and OIT staff to add changes to transportation-related degree programs (the addition of specializations, for example) to the OTREC website. OTREC will maintain a voluntary web-based directory of transportation students in order to encourage communication and collaboration. As students enter and graduate from the degree programs, the information for measures 8 and 9 will be collected from the EC members and administrative units at each campus, and the website will also be updated.

II.E. DIVERSITY

Diversity Goal: students, faculty, and staff who reflect the growing diversity of the U.S. workforce and are substantively involved in the undergraduate, graduate, and professional programs of the Center.

II.E.1. BASELINE MEASURES

RITA no longer requires the collection of performance measurements regarding diversity.

II.E.2. DIVERSITY PROGRAM OUTCOME

We envision a more diverse array of faculty, students and staff who are engaged in transportation-related research, education and technology transfer activities through OTREC. We anticipate that community and industry outreach will increase enrollment in transportation courses and the transportation graduate programs, will subsequently increase the diversity and quality of the transportation students and attract more Oregon residents to the programs.

By 2020, one in three Americans will come from a minority background, and universities must prepare students to live and work in a multi-cultural global society. Between 1990 and 2000, Oregon's population increased by 19%, of which 28% was in the Hispanic community. The Hispanic community doubled its share of the state's population, from 4% to 8%. Oregon has a substantial number of Native Americans and the Native community is keenly interested in methods to manage growth and development on their lands. Our universities and the transportation programs need to increase the proportions of women and minorities in both

undergraduate and graduate programs.

II.E.3. PLANNED ACTIVITIES

Each of the member campuses are engaged in diversity initiatives and, in keeping with statewide objectives, OTREC will encourage women and minority members of Oregon university faculty to submit proposals for funding. Each of the member campuses have existing diversity centers, and campus liaisons will work with these centers to inform the campus community of the OTREC opportunities.

Ethnic and gender diversity will be a consideration when inviting members to join the BOA and the involvement and encouragement of diverse students is a key criterion in the evaluation of project proposals.

OTREC staff will work to distribute the OTREC annual report, newsletters and other materials to organizations such as Historically Black Colleges and Universities and other appropriate organizations. Furthermore, OTREC will work with organizations to include the Women's Transportation Seminar Portland chapter, the Society for Women Engineers, Hispanic, and Black Engineers organizations to coordinate outreach and educational activities. Efforts will be made to communicate OTREC outreach in other languages than English, if appropriate (e.g. a bilingual exhibit at OMSI). OTREC will collaborate with staff from USDOT administrations who are interested in this activity.

II.E.4. PERFORMANCE INDICATORS

No diversity performance indicators will be reported to RITA

II.F. TECHNOLOGY TRANSFER

Technology Transfer Goal: availability of research results to potential users in a form that can be directly implemented, utilized, or otherwise applied.

II.F.1. BASELINE MEASURES

The information called for as Baselines 10 and 11 is provided in Appendix A.

II.F.2. TECHNOLOGY TRANSFER PROGRAM OUTCOME

We envision an expanded and coordinated statewide program of transportation outreach involving accessible communication of research results, continuing education and training courses for transportation professionals at all levels and at all stages of their careers, in a variety of formats. These programs will be developed in coordination with a statewide needs assessment, transportation agency, industry, and community needs, and may also appeal to a larger national and international audience. In addition, a portion of the applied research and service-learning based projects will have an explicit component of transferring ideas, skills, and results with local communities as part of the research and teaching process. Finally, OTREC will work with the campus commercialization officers to efficiently move intellectual property into the marketplace as relevant.

II.F.3. PLANNED ACTIVITIES

There is a need to improve our transportation systems to make them more sustainable through advanced and applied research. There is also a workforce crisis in the transportation sector in that half of our nation's transportation system employees will be eligible for retirement in the next ten years. Many rural city managers and transportation planning staff are expected to retire within the next decade, yet many rural towns in Oregon are experiencing either rapid growth or decline where transportation issues become central issues. OTREC will support efforts to link student service learning projects with improving rural community planning, and will bring this approach to developing transportation training modules for new city managers, planners, planning commissioners, and legislators throughout rural Oregon. One example of this type of program is the Community Planning Workshop (CPW) program at the University of Oregon.

OTREC will encourage and fund PI-based technology transfer initiatives and encourage development of ways to share knowledge nationally and internationally. An example of such an initiative is the free web-based Friday seminar program already underway at PSU.

Each research/education project proposal will require a technology transfer plan. OTREC will encourage dissemination of research results via journal publications and presentations at recognized conferences.

There will be a comprehensive OTREC website with links to all reports and publications. Project descriptions will be posted on the OTREC website and submitted to TRB's RiP database one month after project selection. The OTREC newsletter will be a key communication tool, and will be published at least twice a year (during first nine months of grant year) and posted on the OTREC website. The exact character of the newsletter will be carefully developed during the early months of OTREC operations. Examples of other UTC publications (e.g., the UCTC magazine *Access*) have been collected for guidance. We also envision using electronic communication by email as a key outreach tool for faculty, students, professionals and stakeholders. We have already established an email list for prospective faculty PIs, and PSU's CTS has a broad email list that currently includes 488 members. These lists will be expanded as needed to reach the intended audiences. Newsletters and Annual Reports will be sent to other UTC directors, state DOT executives and research groups, and key USDOT modal administrations in regional and headquarters locations. We will strive to determine peoples' preferences for electronic or paper copy versions of our key publications.

OTREC will provide the Uniform Resource Locator (URL) of all full text reports to TRIS, transmit to NTL and send five printed copies to the Northwestern University Transportation Library, Volpe National Transportation Systems Center the Institute of Transportation Studies Library at the University of California at Berkeley, the TRB Library and NTIS within two months of project completion.

In addition to national conferences, it is anticipated that OTREC faculty and students will actively participate and present at local conferences including:

- Annual Region 10 UTC (TransNow) student conference
- Oregon Planning Institute (OPI) Conference
- Northwest Transportation Conference currently sponsored by ODOT in even-numbered years
- Oregon Transportation Safety Conference
- Institute of Transportation Engineers District 6 Annual Meeting (13 Western states)

Consideration will be given to development of a statewide/regional research oriented conference with peer-reviewed published proceedings similar to the University of Minnesota's recent Access to Destinations conference. OTREC will support "quick turnaround" research projects, e.g., literature reviews and white papers, state-of-the-art and state-of-the-practice. Research PIs will be encouraged to produce posters and "project capsules," one page summaries of project results with graphics. These can be posted to the website but also used in hardcopy to provide a convenient format to distribute to transportation professionals. The OTREC newsletter will also feature abstracts from recently published results.

A series of seminars/lectures/symposia/panels will be continued and/or expanded at all campuses.

OTREC will support and expand existing short courses and training programs (e.g. Kiewit Center Safety Courses, PSU's Urban Rail series, NCAT training, etc.). Cooperatively with existing international outreach programs at member campuses (e.g. PSU's China Land Use Program, PSU's Hatfield School Vietnam programs, etc.) OTREC will develop programs for the Pacific Rim (e.g. China and Vietnam). In addition, we will work with other organizations to be a clearinghouse for a broad array of training programs (ODOT's Road Scholars, the University of Washington's Transpeed programs, WTS leadership programs, OSU's Kiewit Center courses, FHWA sponsored courses through NHI, ITS Oregon sponsored courses, NTI, etc.)

II.F.3.a. REQUIRED ACTIVITIES

This section described required activities for technology transfer.

II.F.3.a.1. Internet Home Page

OTREC will design, launch, and maintain an up-to-date Internet home page to be located at <http://www.otrec.us> (the domain has already been reserved), which will contain all information required by the UTC reporting requirements. We will consult other UTC websites for best practices, so that the website is easy to navigate and useful for both internal and external constituencies. The website will be designed with input from RITA to be sure that needed information is easily and quickly accessible.

II.F.3.a.2. Meetings and Expert Advice

OTREC will participate actively in CUTC, USDOT, RITA and other UTC related meetings as needed. In addition, we will participate in meetings with DOT experts on high-priority topics, and when requested will provide expert advice to USDOT on technical or education topics.

II.F.4. PERFORMANCE INDICATORS

The OTREC staff will collect and report the information necessary to track performance measures 10 and 11 as shown in Appendix A by collecting data directly from the partner universities. Each event will include a sign-in sheet in order to keep track of participating individuals. Summaries of each technology transfer event will be archived on the OTREC website and will include the number of participants.

SECTION III. MANAGEMENT APPROACH

The overall organization structure, including the Executive Committee, the University Vice President level oversight, and the external Board of Advisors, is discussed in Section I.C. Based on reviewing other successful research center and UTC organizations, we expect this structure to be sound.

III.A. INSTITUTIONAL RESOURCES

The four universities are providing extensive resources in support of OTREC. The staff and administration will be located in offices within in the Northwest Center for Engineering, Science and Technology (NWCEST), a new building complex that is part of the Maseeh College of Engineering and Computer Science (MCECS) at Portland State University. NWCEST provides approximately 12,000 square feet of space devoted to transportation related activities. Each university is providing salaries, other payroll expenses (OPE, also known as fringe benefits) and infrastructure for faculty and students.

Each university's Vice President for Research (or equivalent) and their staff are devoting time and energy to the administration and oversight of OTREC. University deans, department chairs, marketing and communications departments, and government relations offices are providing indirect support of OTREC's activities. In order to encourage research partnerships with ODOT, each university also provides a reduced F&A charge (26% of total direct costs) on ODOT funds.

Each university library also supports the transportation research enterprise with subscriptions to transportation journals and acquisition of transportation related publications. A feature of our university libraries is the Summit catalog as part of Orbis Cascade Alliance which includes the four universities in our consortium plus the UW, WSU and others and the ILLiad system for interlibrary loan. The ODOT library is another resource available in support of OTREC.

At each campus existing faculty, classrooms (including distance learning), laboratories, video conferencing facilities, computer labs, existing university proposal development, contracting and post-award accounting support will all contribute to OTREC's success.

Further, the information technology (IT) support at each campus includes Internet2 connectivity that provides high speed linkages between the four campuses. Not only does this provide a solid technical platform for research and education, but it provides excellent opportunities for researcher collaboration and data sharing, we well as for video conferencing and distance learning. The PSU IT infrastructure will also support the backend for the website, proposal submittal and review management system and various databases that will be used to support OTREC. PSU also has a suite of collaboration software that will be useful for various projects, and a web-based content management system that will support the OTREC website with easy development of news, events, project and people profile pages under the OTREC website.

At PSU, a new structure has been put in place to support five campuswide centers, most of which also involve collaboration with other OUS sister campuses. To support OTREC and the other centers, PSU has created and filled a new position called the Assistant Vice Provost for Research Services. This individual will be a campuswide leader overseeing the financial and business services of these centers. PSU has also created and filled two new tenure track transportation faculty positions; one in Urban Studies and Planning with a focus on transport and land use modeling begins in the Fall of 2006 and one in Civil and Environmental Engineering with a focus on freight and logistics is anticipated to begin in Winter 2007. PSU has also converted an existing transportation research faculty position (non tenure track) to tenure track in CEE. This will result in three new tenure track positions at PSU. OSU has also recently hired a new tenure track assistant professor in CCEE. In addition, to support potential commercialization opportunities the four campuses each have offices that coordinate commercialization related technology transfer.

There are several existing centers that address transportation related subjects. At PSU, the Center for Transportation Studies (CTS) has existed since 1966 (originally known as the Transportation Studies Center in what was then the School of Business), and is now a research unit in the School of Urban Studies and Planning within the College of Urban and Public Affairs. CTS has been invigorated in recent years, with TransNow UTC support, offers a weekly transportation seminar series, offers several short courses, and has led the development of a new graduate certificate in transportation. New transportation laboratory facilities at PSU as part of the NWCEST opened in early 2006. The Center for Urban Studies (CUS) at PSU is another research center in the School of Urban Studies and Planning within the College of Urban and Public Affairs. Under the leadership of Professor James Strathman, CUS has housed the TransNow UTC activities at PSU since 1987. Professor Strathman and others have worked in partnership with TriMet for many years in the development of their advanced public transportation systems. This strong partnership with TriMet and other public transportation providers in Oregon is expected to continue. CUS provides office and library space, supports a director and administrative staff, and supports master's degree and doctoral students, many of whom work on transportation related topics. A new travel demand modeling lab is expected to be established in the fall of 2006. Faculty and students included under the CTS and CUS umbrellas will participate in OTREC and will work synergistically. The PSU Center for Lakes and Reservoirs under the direction of Professor Mark Sytsma is another major center on the PSU campus, which performs important work for the U.S. Maritime Administration, the U.S. Coast Guard and other agencies.

At OSU, the Kiewit Center provides a focal point for transportation and infrastructure research, education and technology transfer. With a director, space, and an assistant, the Kiewit Center sponsors many traffic safety workshops, the Northwest Transportation Conference, and many Kiewit faculty and students have participated in TransNow research and education activities. OSU also has several major labs, including those devoted to structural engineering, pavements, and accessible transportation. The Kiewit Center staff have been providing support compiling the OSU baseline measures. The National Center for Accessible Transportation at OSU is also a major research and education center devoted to transportation accessibility for all.

There are also several centers at the University of Oregon, including the Infographics Lab, the Museum of Anthropology, the Oregon Natural Hazards Workgroup, the Community Service Center (CSC), the Institute for Policy Research and Innovation (IPRI), and the Institute for a Sustainable Environment (ISE). The UO has assigned the Assistant Vice President for Research to be the main administrative point person for compiling performance measures and supporting faculty involvement in OTREC. Finally, the Oregon Renewable Energy Center is located at the Oregon Institute of Technology.

III.B. CENTER DIRECTOR

Dr. Robert L. Bertini, Associate Professor of Civil and Environmental Engineering and Urban Studies and Planning at Portland State University is the OTREC Director. He has a track record of collaboration within Oregon and beyond—including work with the National Science Foundation, ODOT, FHWA, FTA, TriMet, City of Portland, Metro, BMW, TransNow, NCHRP and others. The director will provide the sustained energy and continual communication necessary to make OTREC successful. The OTREC Director reports to the PSU Vice Provost for Research in the Office of Research and Sponsored Projects. By communicating regularly with the Vice Provost on the PSU campus, the appropriate deans and administrators will be strongly connected to OTREC. Executive Committee members will communicate with appropriate administrators on their campuses, and the Vice Presidents/Provosts for research will also meet and communicate regularly.

With support from the Executive Committee, the external Board of Advisors, faculty, and OTREC staff, the Director will strive to inspire collaborative research proposals and projects that engage transportation agency and organization matching partners to address national transportation research needs.

The Director will represent OTREC at USDOT, CUTC and Northwest Consortium meetings, and will lead regular Executive Committee and Board of Advisors meetings. The Director is ultimately responsible for overseeing OTREC activities, and for preparing and implementing the OTREC Strategic Plan, in coordination with the many stakeholders. Currently it is anticipated that the Director will spend about 50% of his time overseeing OTREC's activities. The Annual Report and newsletters (required by RITA), as well as the website and other publications, will serve as important communication tools and will reflect the OTREC theme and performance objectives both internally and externally.

It will be critical to hire and develop highly competent staff, particularly in the fiscal, operations, and communications areas. In developing position descriptions, other UTC directors and staff have generously provided advice. The Director will strive to be sure that all OTREC staff, faculty, and students understand the mission of OTREC, clearly understand their role, and recognize that they are valued team members with potential for professional and personal growth. Too often in academic (and other) environments, a job well done is not recognized or

rewarded. The Director will work hard to make sure that all staff and stakeholders know that they are valued.

The Director takes his role as an educator seriously and strongly believes that the UTC program's focus on developing the next generation of leaders is extremely important. A key outcome of OTREC activities will be the enhanced ability to attract and recruit graduate (master's and Ph.D.) students with project oriented research assistantships and dissertation/thesis fellowships. The Director also believes that OTREC is partnership driven—if a transportation agency or organization can partner with a faculty PI and develop an excellent research proposal, this can result in an exciting synergy among students, faculty and external stakeholders.

The collaborative spirit is woven through everything the Director does, recognizing that OTREC is multimodal, statewide, and that our work will cross campus, institution, and disciplinary boundaries. Our agency/industry partners are our links to “real” transportation problems. With their help, and with our peer-reviewed selection and reporting procedures we will have a positive influence on the transportation profession and the community. Within our collaboration we intend to have a highly positive attitude, recognize one another's accomplishments, value a strong customer service approach, and actively exhibit a “can do” attitude in all we do and in all of our communications.

III.C. CENTER FACULTY AND STAFF

In addition to the university institutional level support and the OTREC director, the intent is for a team of staff to be dedicated to OTREC and its daytoday operations and overall success. It is currently envisioned that the OTREC staff will include an assistant director, an education and technology transfer coordinator and an operations and fiscal coordinator, plus editorial and web support staff. We envision that these staff members will be funded at levels between 0.5-1.0 FTE so that OTREC activities will be their primary focus:

- **Assistant Director** (1.0 FTE): reports to the Director and is responsible for day to day administrative and financial operations of OTREC including adhering to the OTREC budget, managing contracts; developing policies and procedures manual; tracking matching funds; overseeing administrative aspects of RFP cycle; representing OTREC programs with faculty, researchers, students, and administrators; overseeing annual report; helping assure continued growth and development of OTREC.
- **Education and Technology Transfer Coordinator** (0.5-1.0 FTE): reports to Assistant Director and develops communication, publications, and outreach materials to current and potential students, faculty, researchers, agencies, partners and press including research report series, quarterly newsletters, annual reports, and other creative outreach tools; coordinates seminars, meetings, events, workshops and conferences; organizes project data for easy reporting and dissemination. Coordinates with university commercialization officer.
- **Operations and Fiscal Coordinator** (0.5-1.0 FTE): reports to the Assistant Director, maintains financial records for all OTREC grant, university, and operating budgets; develops

fiscal portions for semi-annual and annual reporting; tracks budgeting, actual spending, encumbrances, and projections for education, administration, research, and technology transfer budgets; tracks match funds and budget aspects of RFPs; coordinates with departmental payroll staff, Human Resources; processes all financial aspects of OTREC operations. Coordinates with Assistant Vice Provost for Research Services.

- **Editor** (0.5 FTE): responsible for editorial support for peer-reviewed research report series and other publications. Reports to Education and Technology Transfer Coordinator.
- **Website Support** (0.5 FTE): responsible for design, development, and maintenance of OTREC website. Coordinates with PSU central web communications team and partner university web developers. Reports to Education and Technology Transfer Coordinator.

The OTREC staff will be co-located and will work closely with the Director in regular consultation so that OTREC's objectives are clearly communicated. Faculty at partner universities will be awarded funds through subcontracted task orders, and PSU faculty will be awarded funds via an internal index number. Each faculty PI will be provided with a Faculty Memorandum of Understanding that clearly describes the responsibilities associated with OTREC funding relating to matching funds, reporting requirements, peer-review, etc. We anticipate launching an electronic, web-based reporting system that will minimize the administrative and reporting burden for faculty PIs.

Partner campus Executive Committee representatives will be designated as Associate Directors and a portion of their 9-month academic year salary will be devoted to OTREC activities (currently anticipated to be 0.1-0.15 FTE) with specific responsibilities spelled out in a task order under the master subcontracts. Each Associate Director will be responsible for making sure that their colleagues fulfill the responsibilities that come with OTREC funding.

A Directory of Key OTREC Personnel (including the director and all program staff) will be established on the OTREC website one month after approval of this strategic plan and will be kept up to date through the life of this grant. In addition, thus far we have identified more than 100 faculty from 27 disciplines as Faculty Partners, in the following fields:

- Anthropology
- Business Administration
- Chemical Engineering
- Chemistry
- Civil and Environmental Engineering
- Community Health
- Computer Science
- Construction Engineering
- Economics
- Education
- Electrical Engineering
- Forest Engineering

- Geographic Information Systems
- Geography
- Geomatics
- History
- Industrial and Manufacturing Engineering
- Information Systems
- Landscape Architecture
- Law
- Mathematics
- Mechanical and Materials Engineering
- Planning, Public Policy and Management
- Political Science
- Science Education
- Sociology
- Statistics
- Urban Studies and Planning

Participating faculty will also be listed on the OTREC website, and we plan extensive outreach on all four campuses, including partners, to encourage faculty PIs to participate in our RFP cycle.

III.D. MULTIPARTY ARRANGEMENTS

OTREC is a partnership, whereby the SAFETEA-LU language names “Portland State University in partnership with the University of Oregon, Oregon State University and the Oregon Institute of Technology.” To solidify the partnership, we have formed the Oregon Transportation Research and Education Consortium (OTREC) and envision executing an intercampus Memorandum of Understanding that documents our desire to operate as partners. Such a strong multiparty arrangement will help ensure the success of the partnership.

As noted in section III.C, each campus in this consortium has appointed an Associate Director who is a faculty member in transportation and who will play a leadership role. The Director and Executive Committee will function as a team to develop OTREC’s programs, will actively encourage faculty participation, and will set an example through strong communications. PSU will also execute master subcontracts with UO, OSU and OIT, so that each specific funded project at the partner campuses will be handled through individual task orders with specific scopes or work, schedules and budgets. This will aid in the tracking process. Collaborative projects across multiple campuses will send funding directly to each participating PI as separate task orders for streamlining purposes (reporting details will be aggregated by OTREC staff). In the spirit of collaboration, PSU is committing to treat each master subcontract as one “project,” and will charge F&A on only the first \$25,000 of each five-year master agreement. Task orders will also be executed under the master agreements for education and technology transfer projects and student fellowships. Funding opportunities are available to all institutions and collaboration and participation are encouraged via the RFP and project selection processes.

OTREC will also continue its participation in the Northwest Consortium—four UTCs (eight universities) and four DOTs—and will coordinate with west coast centers (Washington, Oregon, and California through the California Council of UTCs). Finally, three of the individual partner campuses are members of CUTC (OSU, PSU and OIT). We also expect to participate in a coordination effort among the ten National UTCs given our significant funding and role in advancing national priorities.

III.D.1. RESOURCE CONCENTRATION AT THE GRANTEE UNIVERSITY

Given that this is a multiparty arrangement, we anticipate adhering to the resource concentration requirement with a minimum of one-half of the total budget concentrated at PSU. The distribution of funding to UO, OSU and OIT will be handled through the peer-reviewed project selection process and will be managed by the Executive Committee and the Director. We anticipate monitoring the budget concentration issue throughout the life of the grant and will work in close coordination with RITA should any issues arise.

III.E. MATCHING FUNDS

OTREC is committed to the required 100% non-Federal match, and is actively seeking to exceed the match requirements. Match will be documented according to university, RITA and federal guidelines. Through our experience as part of TransNow since 1987, we have formed strong ties with local, regional, state transportation organizations. We view the match requirement as an opportunity to strengthen these relationships. Each PI-based project proposal will contain a commitment for providing match. As projects are selected and proceed, and each institution's fiscal officers will be responsible for providing suitable documentation of the match for UTC reporting. OTREC staff will aggregate these reports and manage the reporting to RITA. Our experience has been that having external match helps ensure the success of a project and increases the probability that there will be an external champion who will help with the implementation and dissemination of research results.

Matching sources will include universities (cash and in-kind), ODOT, transportation agencies, private industry, regional and national nonprofit organizations, philanthropic foundations, and local municipalities. Some match will come from ODOT SPR projects that are approved through both processes. There may be a partnership created with the state LTAP program that would involve match and expansion of distance learning and training programs. There are other examples of matching opportunities on the individual campuses. For example, the PSU administration has funded new faculty positions and has committed ten graduate student tuition remissions per year as match (approximate value \$75,000), and we expect similar examples to develop as OTREC unfolds. In addition, the State Board of Higher Education has approved a request to the Oregon Legislature for \$2 million in total funding for the 2007-09 biennium to be used as local match for OTREC.

In order to streamline the matching fund relationship with transportation agencies, both PSU and

OSU already have master intergovernmental agreements (IGAs) with ODOT, and PSU has a similar IGA with the City of Portland. The IGA process facilitates a streamlined task order process for engaging in research and other activities. We anticipate that OTREC fiscal staff will maintain an overall match inventory as the program progresses. Organizations such as CUTC and AASHTO are facilitating an ongoing discussion of potential matching sources and opportunities to leverage funds while satisfying national research priorities.

III.E.1. ELIGIBILITY AS MATCHING FUNDS

OTREC follows the rules set forth in OMB Circular A-110 for the use of in-kind and cash contributions as matching funds.

III.E.2. SPECIAL RULE FOR UTC PROGRAM

Funds provided to a recipient under section 503, 504(b) or 505 of title 23, United States Code will be considered non-Federal match.

SECTION IV. BUDGET DETAILS

Exhibit III contains a budget plan for the first year of OTREC's operation reflecting \$1.56 million in Federal funds and \$1.74 million in non-Federal matching funds, for a total of \$3.30 million. Since this is a multiparty arrangement, budget plans for each member institution will be provided subsequent to the first year's project selection process. Details of budget plans through subcontracts will be broken out into their appropriate categories (e.g. salaries, etc.), and not listed under other direct costs.

IV.A. FORMAT

The OTREC Budget Plan will present line items following the cost categories shown in Exhibit III. The actual OTREC Budget Plan developed subsequent to the first year's project selection process will include detailed calculations as an attachment showing how each line item is derived. These costs have been estimated until specific projects are selected through the peer-review process.

IV.B. GRANT YEAR

Our proposed OTREC Grant Year 1 is **October 1, 2006** through **September 30, 2007**, matching the federal fiscal year. The statewide academic calendar at the four universities (fall, winter and spring quarters) run from September 16 through June 15, with the summer period running from June 16 through September 15. Therefore, in normal years we will hope to have project selection completed by approximately April, with projects starting at the beginning of fall term. ODOT's SPR projects usually begin on July 1, so in cases where OTREC projects are matched by ODOT, early project work can begin during the summer, with the full combined project beginning when students return in the fall. This fiscal year selection makes reporting easily performed for fall term through the following summer. Upon approval of this Strategic Plan, we intend to begin our first RFP process, with projects beginning as soon as possible. The second RFP cycle will begin in early 2007. Finally, the first year's budget will include some pre-incurred costs and matching funds for Strategic Plan development back to August 10, 2005.

IV.C. SALARIES

All salaries discussed in this section do not include benefits and overhead. Fringe benefits are described below as are the Facilities and Administrative (F&A, formerly known as indirect) rates.

OTREC Director and Associate Directors: The OTREC Director will be budgeted at a 0.50 FTE effort for the entire 12 months of the year (9 month academic year and 3 month summer). The Director's remaining salary will be used as match (including fringe benefits). Each campus Associate Director will be budgeted at approximately 0.10-0.15 FTE for up to 12 months of the

year. Remaining salary may be used as match for OTREC administration and/or for individual projects.

Faculty Salaries: The amount indicated is an approximation of OTREC PI salary that will requested a part of the peer-reviewed RFP and project selection process. Faculty salaries will vary from individual to individual, depending on rank, years of service and discipline, among other factors. It is anticipated that most faculty will propose partial summer salary support in their proposals but in some cases a portion of academic year salary FTE could be proposed.

Administrative Staff Salaries: The salaries for OTREC administrative staff described above in section III.C are estimated in the proposed budget. This will be updated and refined after actual staff is in place.

Student Salaries: Undergraduate and graduate students will serve as research assistants to support OTREC operations (in some cases) but primarily on specific selected projects led by faculty PIs. The amount indicated is an approximation, representing our best estimate for proposals that we expect to receive. Typically, undergraduate students working as research assistants are paid hourly wages (no tuition remission), and graduate students working as research assistants are paid a stipend plus tuition remission. Student salaries vary somewhat between campuses, and depend on years of experience.

IV.D. SCHOLARSHIPS

Fellowships and scholarships are included according to education and research programs developed under this Strategic Plan for both undergraduate and graduate students. Scholarship funding is subject to the limitations set forth in section III.5 of the “General Provisions of Grant Agreements for UTCs.”

IV.E. EQUIPMENT

OTREC does not anticipate acquiring any permanent equipment (value >\$5,000) and it is hoped that any equipment acquisition would come in the form of match. However, equipment may be requested by PIs on occasion as part of the proposal selection process. These requests will be considered on a case-by-case basis and written permission will be requested from RITA prior to any acquisition.

IV.F. FOREIGN TRAVEL

OTREC does not anticipate foreign travel. However, international travel may be needed on rare occasions, in which case written permission will be requested from RITA prior to the initiation of such travel.

Any PI anticipating foreign travel and desiring to request funding as part of an OTREC project must indicate plans for international travel in the project proposal and submit written request for international travel to the OTREC Director at least 60 days prior to travel so that RITA approval can be obtained.

IV.G. OTHER DIRECT COSTS

Only a small number of expenses are anticipated in the other direct costs category, in accordance with RITA guidelines. All subcontracted costs will be reported in the appropriate category (e.g., salaries, benefits, supplies, travel, etc.) and will not be placed in this other direct cost category. For this budget an assumed value of 4% for other direct costs is assumed as a placeholder.

IV.H. FACILITIES & ADMINISTRATIVE (INDIRECT) COSTS

The current audited Facilities and Administrative (F&A) Rates for the four partner universities are:

- Portland State University: 42%
- University of Oregon: 48%
- Oregon State University: 41.5%
- Oregon Institute of Technology: 52%

Usually F&A are charged on the first \$25,000 of each subcontract. As noted, in the spirit of inter-institutional collaboration, PSU has agreed to only charge F&A on the first \$25,000 of each master subcontract. For federal funding, the modified total direct cost (MTDC) upon which F&A are calculated excludes equipment, tuition, scholarships, and fellowships. In the final budget, the actual F&A rates for each campus will be applied as appropriate.

EXHIBIT III**University Transportation Center (UTC) Budget Plan**

Grantee: Portland State University in partnership with the University of Oregon, Oregon State University and the Oregon Institute of Technology Grant Year: 10/1/06 – 9/30/07
(Date) (Date)

CATEGORIES	Budgeted Amount	Explanatory Notes
Center Director and Associate Directors' Salaries	\$168,000	Includes Associate Directors, see Section IV.C
Faculty Salaries	\$700,000	See Section IV.C
Administrative Staff Salaries	\$170,000	See Section IV.C
Other Staff Salaries	\$0	None at this time.
Student Salaries	\$310,000	See 1. below
Staff Benefits	\$490,000	See 2. below
Total Salaries and Benefits	\$1,838,000	
Scholarships/Tuition	\$400,000	See 3. below
Permanent Equipment	\$0	None at this time.
Expendable Property, Supplies, and Services	\$55,000	See 4. below
Domestic Travel	\$87,000	See 5. below
Foreign Travel	\$0	None at this time.
Other Direct Costs (Specify)	\$60,000	See Section IV.G
Total Direct Costs	\$2,440,000	
F&A (Indirect) Costs	\$860,000	See Section IV.H
TOTAL COSTS*	\$3,300,000	
Federal Share	\$1,560,000	
Matching Share	\$1,740,000	

*Includes Federal and Matching Shares

1. Student Salaries

Graduate students are typically paid approximately \$12/hour working between 0.15-0.49 FTE during the academic year and at 1.0 FTE during the summer. Undergraduate are typically paid at about \$10/hour working no more than 20 hours per week during the academic year. Student salaries will be contained in individual project proposals so they are estimated here.

2. Staff Benefits

Fringe benefits for fulltime faculty and staff are based on two components, a set percentage (currently approximately 30% for PSU faculty and staff, similar at UO, OSU, and OIT) for such items as FICA, retirement contributions and unemployment compensation, and a fixed dollar figure for medical and dental benefits. This fixed dollar figure calculated as a percentage of someone's salary will therefore vary. For this estimate it is assumed that fringe benefit rates at PSU, UO, OSU, and OIT are similar since all four campuses are part of the same university system. The final budget will contain actual fringe benefit rates calculated from actual faculty and staff salaries. For this estimate, the dedicated OTREC administrative staff salaries and fringe benefits are assumed. Subsequent to hiring of staff and completion of the peer-review selection process, actual salary and fringe benefit values will be inserted. Students (undergraduate and graduate) have a 5% other payroll expense (OPE) for health benefits added as a multiplier.

3. Scholarships/Tuition

An estimate has been made for scholarships (including the Student of the Year) and tuition remission that would be used as match and/or paid by the grant. For this estimate, a value of \$2,800 quarterly tuition has been used (at PSU graduate resident tuition is currently \$2,772 per quarter for students enrolled in 12 or more credits, and the rate is \$3,186 at UO, \$2,952 at OSU and \$2,832 at OIT). In the final budget actual tuition remission for students from each institution will be used in the calculation for the federal and match shares.

4. Expendable Property and Supplies

This category includes miscellaneous office supplies for OTREC administration and PI-based research projects, graphic design and reproduction of brochures for OTREC as a whole, reproduction costs for reports and office equipment. The final budget will include a refined amount from actual project proposals.

5. Domestic Travel

Domestic travel includes travel related to administration of the grant and travel related to completion of projects. Travel by the OTREC Director and Associate Directors will be necessary to fulfill grant requirements. This includes local travel around Oregon, around the Northwest region, and travel to Washington, D.C. and other locations around the country for RITA, USDOT, Northwest Consortium, and CUTC meetings and conferences. PI related travel to conduct research projects, accomplish collaboration and present research results at conferences will be encouraged and proposed and budgeted in each peer-reviewed proposal. An estimate is provided here that will be updated when the first year's projects are selected.

APPENDIX A

BASELINE MEASURES FOR UNIVERSITY TRANSPORTATION CENTERS (UTCs)

Report for the most recently completed academic year and for the institution(s) comprising your UTC.

Research Selection

1. Number of transportation research projects selected for funding.

152

1a. Number of those projects that you consider to be: basic research **25**, advanced research **13**, and applied research **71**. Projects may be included in more than one category if applicable.

2. Total budgeted costs for the projects reported in 1 above.

\$9,004,000

Research Performance

3. Number of transportation research reports published.

36

4. Number of transportation research papers presented at academic/professional meetings.

64

Education

5. Number of courses offered that you consider to be part of a transportation curriculum. Report courses shown in the university course catalog as being offered, whether or not they were conducted during the academic year being reported.

Undergraduate: **40**

Graduate: **82**

6. Number of students participating in transportation research projects. Count individual students (one student participating in two research projects counts as one student).

Undergraduate: **39**

Graduate: **48**

Human Resources

7. Number of advanced degree programs offered that you consider to be transportation-related.

Master's Level: **8**

Doctoral Level: **3**

8. Number of students enrolled in those transportation-related advanced degree programs.

Master's Level: **25**

Doctoral Level: **6**

9. Number of students who received degrees through those transportation-related advanced degree programs.

Master's Level: **8**

Doctoral Level: **1**

Technology Transfer

10. Number of transportation seminars, symposia, distance learning classes, etc. conducted for transportation professionals.

41

11. Number of transportation professionals participating in those events.

1013

APPENDIX B ODOT RESEARCH SELECTION PROCESS

