

STRATEGIC PLAN

ALASKA UNIVERSITY TRANSPORTATION CENTER

Prepared For

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## I. Program Overview

This strategic plan outlines the activities the Alaska University Transportation Center (AUTC) has planned for its initial five year period.

### I.A. Glossary

The following terms and acronyms are used throughout this plan.

AUTC	Alaska University Transportation Center
ASCE	American Society of Civil Engineers
AKDOT&PF	Alaska Department of Transportation and Public Facilities
AMHS	Alaska Marine Highway System
AOGA	Alaska Oil & Gas Association
ARRC	Alaska Railroad Corporation
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FHWA Region 10	Alaska, Idaho, Oregon, Washington
FTA	Federal Transit Association
GI	Geophysical Institute
IARC	International Arctic Research Center
INE	Institute of Northern Engineering
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
LTAP	Local Technical Assistance Program
MPO	Metropolitan Planning Organization
NAFTA	North American Free Trade Agreement
NHI	National Highway Institute
PI	Principle Investigator
RFID	Radio Frequency Identification
RFP	Request for Proposal
RITA	Research and Innovative Technology Administration
TRB	Transportation Research Board
UA	University of Alaska System
UAA	University of Alaska Anchorage
UAF	University of Alaska Fairbanks
UAS	University of Alaska Southeast
USDOT	United States Department of Transportation
UTC	University Transportation Center

## **I.B. Center Theme**

The theme for the Alaska University Transportation Center (AUTC) is **“Transportation Safety, Security and Innovation in Cold Regions.”** This theme is selected to complement the mission and direction of the University of Alaska. This theme also meets the needs of the Alaska Department of Transportation & Public Facilities, the Alaska Railroad Commission, the Alaska Oil and Gas Industry and the Alaska transportation community. Research at UAF will also fill a national need in that, while the demand for addressing transportation in cold regions is recognized, no UTC focuses specifically on that demand. We recognize that other University Transportation Centers that address cold regions issues. AUTC will coordinate and collaborate with those centers on any projects which may be of common interest. In addition, we will provide links from the AUTC web page to those university transportation centers known to have cold regions research. We will also provide a link to the TRB Research-in-Progress web page.

The theme and AUTC’s efforts will apply to all modes of transportation. Alaska depends on multi-modal transportation as part of its economic growth. For example, the state depends on a mix of highway, air, marine, rail, and pipelines to meet its transportation needs. Alaska faces unique challenges, including diversity of population density; large distances between communities, often with no inter-connecting roads and a high emphasis on aviation and marine transportation; a diversity of geographic features, along with permafrost and cold temperatures; and high transportation costs. Pipelines dramatically impact the economy of Alaska and the economic well-being and security of the nation. However, because the pipelines traverse arctic and subarctic terrain, the challenges of planning, designing, constructing and maintaining pipelines are unique.

Alaska’s Representative Don Young recently stated, "Living in a climate where the weather has such a large impact on the condition of our roadways and infrastructure, it is especially important for us to study how we can improve on what is already being done. A focus of this should be better ways to pave our roadways and keep them intact." Mr. Young and AUTC are in agreement that improvements in cold regions transportation engineering must be a key aspect of the AUTC.

The center will also address issues related to those identified in the Highway Research and Technology report as key R&T themes, including but certainly not limited to: the impact of climate change on permafrost, reducing construction and maintenance costs of transportation infrastructure, improving air quality during the winter months, and other measures to address multi-modal issues facing Alaska and the nation’s transportation community.

FTA has five strategic research goals:

- Provide Transit Research Leadership
- Increase Transit Ridership
- Improve Capital & Operating Efficiencies

- Improve Safety & Emergency Preparedness
- Protect the Environment & Promote Energy Independence.

AUTC strategies for addressing these goals must take into account the environmental and cultural parameters specific to the circumpolar north. Techniques which increase ridership differ significantly in cold regions from those in warmer climates. For example, acceptable walking distances to transit pickup locations are shortened, park and ride facilities requirements differ or become impractical (it may be necessary to provide bolt heaters for vehicles, for instance), and warm bus stop facilities become necessary.

Any potential improvements in capital and operating efficiencies must include operating in cold temperatures, on roads and streets covered with snow and ice. A complete understanding of seasonal variations in vehicle operations, rider expectations and route selection is critical to efficient operations. As the temperature drops the fuel economy drops in all vehicles. At temperatures below minus 10 degrees F, fuel consumption can increase as much as 30%. Research in this area can certainly improve operating costs in cold temperatures.

Safety & Emergency Preparedness in cold regions also requires special considerations. For example, an equipment failure at -40°F can be a major concern. Similarly, when ice-fog is present, a disabled vehicle can become a real safety hazard.

One of the major arguments supporting more use of mass transit is the environmental benefits and a reduction in the use of fossil fuels. Many cities in cold climates face poor air quality during part (or all) of the winter months due to vehicle emissions. While park and ride facilities are popular in temperate climates and do reduce emissions in the city, they typically do not work in cold regions for several reasons. First, emissions are highest when vehicles are started after being “cold-soaked”. Further, this is the period of highest wear because the engine is starved for oil. If the drive is short, the vehicle never reaches operating temperature. Consequently, most drivers feel that if they are going to start a vehicle, they might as well complete the trip in it rather than driving a very short distance and transferring to transit.

All of these areas must be addressed if the goals of FTA are to be met in cold climates.

Alaska is spending millions of dollars on a feasibility study to connect the Alaska Railroad to the continental US through Canada. This is the first potential major expansion of the nation’s rail system in many years. This effort is an opportunity to address many of the issues raised by FRA, including:

- A review of future trends in rail and intermodal traffic
- Research related to energy and alternative fuels
- Development of potential new markets
- Improving operating efficiencies.

Several State DOTs are beginning to ask FAA to allow the harmonization of airport materials and construction specifications with highway specifications. Many state decision-makers feel there is a potential to reduce costs and to reduce construction errors

through harmonization. Reviews by the State of Alaska indicate that many of the specifications are already close.

These are but a few examples of national research needs which are likely to be addressed by AUTC.

### **I.C. Director's Summary Current Situation**

In the past, most funding for transportation research in Alaska has come from AKDOT&PF, whose primary focus has been on finding solutions to immediate highway-related problems, with some sparse attention to aviation, railroad, and boat and harbor facilities. While the University of Alaska (UA) routinely participates in these studies, available research funding and the overriding focus on only one mode of transportation has neither allowed nor encouraged UA to reach its potential in addressing the breadth of transportation needs in cold regions.

The UA System is comprised of three primary campuses and numerous remote satellite campuses. The three main campuses are the University of Alaska Fairbanks (UAF), the University of Alaska Anchorage (UAA), and the University of Alaska Southeast (UAS; located in Juneau). While the satellite campuses fall under the UA System, each is largely autonomous and independent. Each main campus resides in its own distinct geographic region and associated climate. UAA lies in south central Alaska with a climate ranging from maritime to sub-arctic including both wetland and mountainous terrain. UAF lies in the interior of Alaska with climate ranging from sub-arctic to arctic. UAS is located in southeast Alaska with a maritime climate.

At present, no UA campus has a strong, interdisciplinary transportation program. A limited number of potential transportation students are spread throughout Alaska's three main campuses. Expertise is also distributed among campuses. The challenge is getting instructors and students together. AUTC expects the video classroom and other distance learning tools to play a major role in accomplishing this goal.

However, one of UA's strengths is its laboratories and associated programs. The asphalt, water quality, engine performance and frost heave laboratories within the Institute of Northern Engineering, College of Engineering and Mines, are state of the art. Other available labs on campus include marine biology, plant ecology, seismic, volcanology, radio frequency identification and chemistry. Since the UAF campus has a long and rich research history, it is well-suited to developing a strong transportation research program.

The College of Engineering and Mines on the UAF campus and the School of Engineering on the UAA campus provide the bulk of the engineering expertise. Transportation study at UA has historically been engineering centric. Consequently, UAS has not routinely participated in transportation research. We see a growing awareness that while transportation project delivery is engineering-based, many study areas influence transportation. Examples include environmental, finance, human factors,

land use planning, right-of-way, and marketing. Even technical writing, journalism, and video production have some influence on, and are influenced by, transportation. One of the center's goals is to bring all disciplines into transportation education and research.

### **Vision of the Future**

Through a strong inter-campus transportation program, the University of Alaska will build a prominent organization to address transportation in cold climates. The Alaska University Transportation Center (AUTC), managed from the UAF campus, will become the focal point of all transportation-related education, research and technology transfer activities within the UA System. This will be accomplished by engaging all three main campuses.

*AUTC's first goal is to coordinate the activities of the three major campuses.* Faculty members and administration will be encouraged to participate and collaborate in the program by lending their individual interests and expertise. Communication, trust, and pride are essential to a successful program. Developing these attributes is both a goal and an expected outcome, and must be achieved in order for the center to realize its full potential.

*The next goal is to raise awareness of all faculty and administrators on all campuses regarding transportation issues.* This includes not only engineers, but also business, natural sciences, behavioral sciences, communication, and other disciplines. Too often, transportation issues are approached using only one discipline, which leads to ineffective and incomplete communication and results in conflict and distrust. Consequently, AUTC's policy is to include all appropriate disciplines in executing transportation research. Further, education in all disciplines supporting the transportation field will be encouraged.

*A third goal is to work with other universities.* Because of the low student density in the transportation field, UA's ability to fully meet current transportation education needs is limited. Consequently, AUTC recognizes the need to work with other universities to provide classes which cannot be offered through the University of Alaska. Agreements with other universities for distance learning are desirable. In return, the UA System is expected to offer courses in subjects related to transportation in cold regions or other areas where AUTC has specific expertise. AUTC is already developing alliances with the UTCs in the northwest and other UTCs across the nation. We expect this endeavor to occur rapidly because it will be facilitated by already-existing relationships as well as UAF staff and the AUTC Director's past and current activities with TRB and other national and international transportation-related organizations. Indeed, several meetings aimed at fostering collaboration with Northwestern UTCs have already occurred.

*A fourth goal is to share resources and knowledge, whereby we can leverage our efforts.* We recognize there are significant advantages to working with other countries who share climates similar to Alaska, including Canada, Scandinavian countries, China, Japan, and Russia. The UAF engineering community already has strong ties with other

countries in the circumpolar north, through collaborative international research projects and such partnerships as the Alaskan Russian Center within the UA system. Such international cooperation is already common practice throughout the UA System, as it is to a small degree with AKDOT&PF. In addition, the UA System has a tuition waiver for the Yukon Territory, Northwest Territories, British Columbia and Nunavut Territory so students can attend at Alaska resident tuition rates.

At the end of the grant, AUTC expects to have a robust transportation program capable of providing education, research and outreach programs for cold regions. We also anticipate that strong working relationships will exist between and among the Center and AKDOT&PF, FHWA, FAA, USDOT, other universities (especially those in the Northwest U.S.) and other transportation agencies. Ongoing efforts include continuing to partner with the University of Washington, Washington State University, the University of Idaho, University of Oregon, Oregon State University, the University of Idaho, the University of Maryland, and Michigan Tech University. We recognize there are numerous other universities with expertise and facilities necessary to address research needs within our theme, and we will seek out those universities.

AUTC will strive to be self-sustaining at the end of the grant by developing a strong staff, facilities and reputation. In doing so, AUTC should be able to attract sufficient research to sustain its research faculty and operations. UA will also strive to develop a recognized education program to attract students throughout Alaska, the United States and throughout the world.

## **Section II Program Activities**

The activities outlined below focus on establishing reliable procedures for enhancing cold regions specific, multi-modal transportation research in Alaska, and goals in education and human resource development that support this theme

### **II.A. Research Selection**

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

- 1. Baseline Measures:** The points from which progress will be measured with respect to the Center's research selection program are Baseline Measures 1 and 2, provided in Appendix A. Transportation at UA in the past has been reactive to available funding; that is, historically the transportation research at UAF was driven by researchers responding to state and federal RFPs rather than developing a targeted program of its own with independently designed goals, then pursuing research funding that fulfilled these goals. As a result, UA has had little or no control over its transportation research program, except by hiring faculty who sought funding in their area of expertise. Funding stability did not allow for developing a strong transportation program with long-range goals, including the development of transportation faculty.

This is unfortunate because much of the nation's -- and the world's -- future growth in transportation due to mineral and oil development is expected to take place in cold regions. Further, the challenges of cold regions require specialized expertise not readily available in other areas.

- 2. Research Selection Program Outcome:** The Center's research selection process is designed to address its theme of enhancing and developing transportation in cold regions. This process will provide flexibility, maintain fairness and objectivity, and maintain research quality. All faculty at all campuses will be informed about the process and will have equal opportunities to submit proposals. This process includes external peer review at the initial stages of project selection, at critical decision points during the project, and at the completion of the project. The criteria for proposal evaluation, administrative procedures, and operating policies will be developed by an Executive Committee to ensure that the program operates as intended and that all efforts are channeled toward meeting AUTC goals and objectives and adhering to its theme.

Over the life of the grant, AUTC anticipates significant increases in the number of projects conducted, the number of PIs conducting these projects, and the total funds expended. As AUTC matures, the objectives will become more keyed to national transportation priorities, involving more faculty and students with broader discipline diversity.

We see the need to educate our faculty on both national priorities and the focus area of AUTC (transportation in cold regions). Current faculty have traditionally focused on Alaska-related research, often closely influenced by state DOT goals. This education process will be accomplished through workshops and through attendance at TRB and other national meetings which focus on a national transportation research agenda.

- 3. Planned Activities:** AUTC will devise and implement a process to select research projects. This process will include peers and other experts in the field. Selection criteria will reflect cold regions transportation needs, and will support national transportation strategies. AUTC will hold workshops on each campus to explain the research selection process to those who may wish to participate in AUTC research.

**3.a. Required Activities.** A Governing Board will be a key component of the research selection process. The board will be selected and charged with ensuring the integrity of the process. The initial board will be comprised of one member from each of the following:

- AKDOT&PF
- FHWA
- FAA
- The Alaska Marine Highway System

- The Alaska Railroad Corporation
- the Denali Commission
- the Alaska Oil and Gas Association
- Professional Engineering Community at Large
- A metropolitan planning organization
- One ex-Officio member from each of the University of Alaska campuses

Each member of the Governing Board represents a segment of the transportation industry. While the funding provided under SAFTEA-LU does not necessarily provide funding for some of the transportation segments represented, it is important that all segments be represented. In an effort to become self sufficient, AUTC intends to maintain and seek out funding and activities outside of those required by SAFTEA-LU. For example, AUTC is a member of the Center for General Aviation Research (CGAR) funded by FAA. Representation and participation in research for other modes of transportation also helps ensure that multi-modal issues are addressed. AUTC recognizes that the UTC and CGAR programs are separate programs and that the funding streams for each program must remain separate. However, when appropriate AUTC will coordinate the activities of the programs within the guidelines contained within SAFTEA-LU.

The center director will prepare a draft research roadmap identifying both short term and long term research needs which support the AUTC theme. The roadmap will include both regional and national priorities. The governing board will review and modify that roadmap as necessary. The intent is to develop and prioritize specific goals to improve Alaska's and the nation's transportation system. This roadmap will be reviewed and modified annually by the board. The director will report to the board annually concerning how the center is meeting these goals.

The center director will develop criteria for evaluation of proposals and selection of projects for approval by the Executive Committee, which will be comprised of the director, one associate director from each campus, and the grant administrator. These criteria may be modified annually to address changing goals or to meet special needs established by the governing board.

AUTC will issue a Request for Proposals to all faculty members on all three campuses and to members of partner universities. The roadmap, evaluation criteria, and selection process will be provided along with the RFP. Shortly after issuance, a workshop will be held on each campus to educate potential proposers on the process.

Two-page pre-proposals or white papers will be accepted from faculty and reviewed by the executive committee members. The executive committee will select those preproposals that meet AUTC's themes and goals, and forward these to at least one technical reviewer. All reviewers must be recognized in the discipline area represented by the preproposal.

Preproposals will be forwarded to a selection committee with the reviewers' comments and recommendations. The selection committee may reject a preproposal as not meeting the strategic plan or the goals established by the governing board or prioritize the proposal for funding, or they may prioritize preproposals for possible funding. Based on the selection committee's ranking and the available funding, AUTC will request detailed proposals for projects.

The selection committee will have the same representation as the governing board, except that the center director and associate directors will be given voting status. The individual members may or may not be the same as the governing board. The intent is that the selection committee has the technical expertise to judge the merits of the preproposals.

When the requested full proposals are submitted, the executive committee will approve for funding and assign each to an expert task group (ETG) comprised of at least three members, who will track the progress of the project, provide technical input, and review and accept the final product. The ETG Chair will be a member of the executive committee. The ETG may request additional input as appropriate, and will have final yes/no approval of any project proposed for funding. For a schematic outlining this process, see Figure 1.

AUTC will place an annual budget of \$200,000 in a rapid response program which may be spent at the discretion of the executive committee for projects requiring immediate attention. No more than \$50,000 of these funds may be allocated to any one project. The director will detail how these funds are disbursed annually.

The governing board may revise this procedure periodically as AUTC evolves.

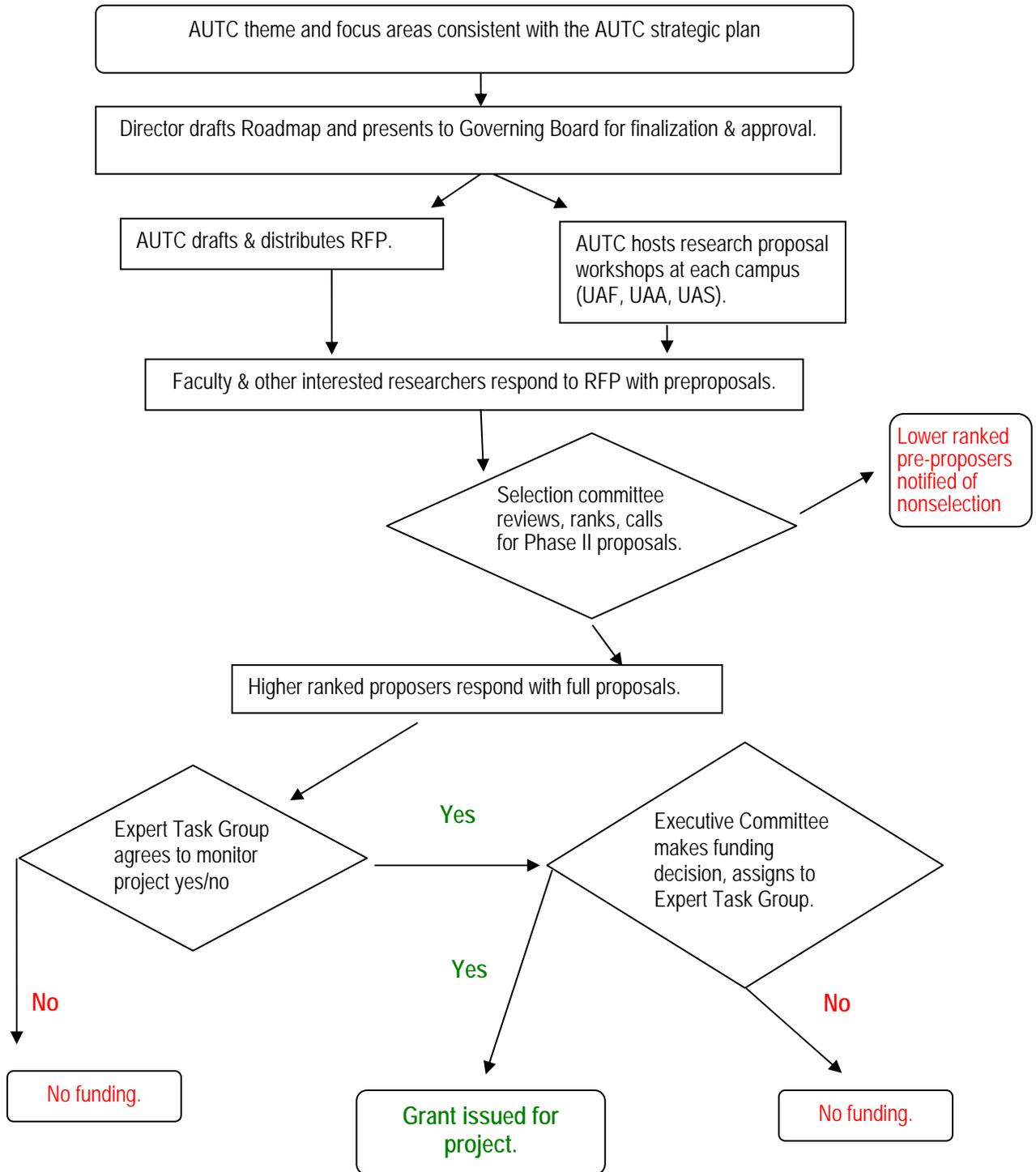


Figure 1. Flow chart describing initial research funding process (updated 2008).

**3.b. Recommended Activities.** AUTC will support national transportation needs by addressing high-priority areas identified by USDOT and its operating administrations. Two such USDOT-wide priority areas, as of the initial award date of this grant, are: advanced research and congestion. These are discussed in more detail under 3.b.1 and 3.b.2.

In addition, AUTC will be addressing climate change and environmental concerns related to transportation.

Alaska's climate is rapidly changing, with associated impacts on designing, constructing, and maintaining the state's transportation infrastructure. Alaska's breadth of geographic regions increases the variety of change occurring. Studying these change impacts is of utmost necessity. The knowledge developed in Alaska can be transferred to other parts of the United States and other countries.

In Alaska numerous public and private groups monitor the environmental health of the state. Consequently, every transportation activity must meet stringent environmental standards. AUTC intends to become a leader in enhancing transportation with minimal adverse environmental impacts. Examples include managing vegetation along right-of-ways to reduce vehicle-animal crashes, improving fish passage through hydraulic structures, and reducing emissions during the winter months. Transportation ecology will become a focal point of the program.

#### 3.b.1. Advanced Research.

AUTC will undertake advanced research in collaboration with and in support of FHWA's Advanced Research Program requirements or similar requirements established by other DOT operation administrations. For example, AUTC expects to explore the use of RFID to identify research areas and to assess how applied research may be used to solve Alaska's transportation problems. Department of Defense grants have helped the UAA campus establish a program to advance RFID. This program will easily be expanded to meet transportation needs on both regional and national levels.

Other areas will include:

- improving fuel economy of vehicles in extreme cold
- improving asphalt performance in cold temperatures
- exploring the use of composite bridge materials in cold regions
- developing technologies to monitor transportation facilities including highways, railways, remote airports, and pipelines
- improving rapid construction techniques in cold climates
- improving safety through improved snow and ice control

#### 3.b.2. Congestion Chokepoints.

While Alaska does not have congestion issues typical of the continental US, AUTC does recognize the need to take action to ensure those conditions do not develop in Alaska's urban areas. Consequently, projects which deal with traffic

and capacity are expected to consider the impact of that effort on congestion. AUTC also recognizes the impact of climate on traffic flows and intends to seek out methods of mitigating these impacts.

Further, transportation instructors will be encouraged to discuss congestion mitigation techniques.

- 4. Performance Indicators:** AUTC will track its progress using Performance Indicators 1 and 2 in Exhibit A of the *Reporting Requirements for University Transportation Centers (3/06)*, referred to hereafter as the “UTC reporting requirements.”

The UA statewide system reliably collects some education and research related performance data, but in general each research unit identifies and tracks its own performance markers. AUTC will allocate the resources necessary to track indicators including the number of proposals received, the number of projects awarded, yearly budgeted costs, the number of PIs, and the number of students involved with research – including the number of degrees obtained – will be collected and summarized. These data will be reported to the governing committee and in the AUTC Annual Report.

## **II.B. Research Performance**

*AUTC’s Research Performance Goal* is 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.

- 1. Baseline Measures: See Baselines 3 and 4, Appendix A**
- 2. Research Performance Program Outcome.** AUTC expects improvement in four areas:
  - a.** An increase in the number of scholarly activities, including papers and presentations related to transportation.
  - b.** Increase the number of professors and researchers in transportation from one to at least six.
  - c.** Increase the number of graduate and undergraduate students in the transportation field from 6 per year to 15 per year at the end of the grant.
  - d.** Develop a reliable research funding stream for future projects.

Each of these areas represents a cornerstone to a sustainable university research program and each is inseparably linked to the others. Researchers are expected to document and present their research results. If these papers and presentations are consistently relevant, innovative, and high quality, they in turn become marketing tools for faculty, researchers, and students. Quality of research and reputation of the staff in turn attract funding and become self-perpetuating. This leads to increased scholarly activities and long-term program sustainability.

3. **Planned Activities.** All research conducted with UTC funding is subject to external, merit-based peer review. Further, all reports will be reviewed by a technical editor to ensure the readability of the reports. When the results are suitable, a strong emphasis will be placed on dissemination and implementation

The progress of each project will be tracked by a program assistant through semi-annual reports, and these reports will be posted on the web. When appropriate, intermediate results will be posted on the AUTC webpage.

All projects will also be submitted to the AASHTO Research in Progress webpage.

4. **Performance Indicators.** AUTC will obtain the information necessary to track its progress using Performance Indicators 3 and 4 as set forth in Exhibit A of the UTC reporting requirements.

## II.C. Education

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

1. **Baseline Measures:** To establish the point from which progress will be measured with respect to the center's education program, Baseline Measures 5 and 6 are given in Appendix A. While UAF and UAA have strong engineering programs, variation in available faculty and students has precluded these programs from offering a strong transportation program. Yet the majority of graduates from the UA engineering programs work some or all of their careers in transportation. Indeed, AKDOT&PF is a major employer of engineers in Alaska. Unfortunately, these students begin their transportation careers without the benefit of basic courses in highway geometric design, transportation environmental law or transportation materials. AKDOT&PF spends over \$500,000 in training each year. Yet UA provides almost none of that training.

AUTC intends to become more proactive in meeting these needs.

2. **Education Program Outcome:** AUTC's education program as it is envisioned by the grant's end will be an enriched multidisciplinary program of course work and experiential learning that reinforces transportation for both traditional and non-traditional students. Part of this process will include curricula sharing among partner universities both within the United States and with international universities. For example, LeVal University, Ontario, Canada expects to send graduate students to the University of Alaska Fairbanks to perform permafrost research beneath roadways in Alaska and the Yukon Territory. This provides the opportunity for research of mutual benefit to both universities while exposing

students to a broader spectrum of knowledge. In the past, the university has hosted graduate students from Finland, Canada, China, and Russia. In some cases, the host university provided funding for the student.

3. **Planned Activities.** Described below are major activities that AUTC will undertake to bring about the Program Outcome.

3.b.1. Conduct an annual review of the transportation education program with both academic staff and industry leaders, and make revisions and additions to course work where necessary.

3.b.2. Develop an internship program with transportation organizations and industries, with the requirement that the internship program be directly related to the AUTC theme.

3.b.3. Require that all other student support such as fellowships, research assistantships, scholarships, etc. support research work or course work that relates directly to the AUTC theme.

3.b.4. Develop transportation workshops related to the AUTC theme for information exchange between UA, public and private transportation agencies, and the end user (that is, the general public) of transportation facilities and services.

3.b.5. Develop shared courses with partner universities through distance-delivery techniques.

3.b.6. Develop continuing education related to transportation for transportation agencies such as AKDOT&PF, local governments, private transportation companies, state and federal resource agencies, and others.

**3.a. Required Activities.**

3.a.1. Present a multi-disciplinary program of coursework and experiential learning that reinforces the theme of enhancing and developing multi-modal transportation in cold regions. AUTC will reinforce the College of Engineering and Mines on the UAF campus and the School of Engineering on the UAA Campus by supporting expansion of the graduate and undergraduate programs in transportation related fields. To this end, both campuses will be increasing the number of faculty dedicated to transportation.

3.a.2. AUTC will participate in meetings with UTC or USDOT experts on high-priority topics or will provide expert advice to USDOT on technical or education topics. Further, representatives from FHWA and FAA will be members of the Governing Board and the project selection committee.

The strategic plans developed by FTA, USDOT and FHWA in coordination with the AKDOT&PF, the oil and gas industry and FAA will be used as a roadmap for the AUTC research program. These and other documents will be made available to all those who wish to participate in AUTC research.

Finally, funding priorities will be given to research that is coordinated with the national priorities, as identified in the US DOT Strategic Goals.

3.a.3. Each year, one outstanding student of the year will be selected and awarded \$1,000 and travel expenses to attend the annual TRB meeting and the TRB award ceremony in Washington DC. The selection process will be developed by the executive committee.

4. **Performance Indicators.** AUTC staff will obtain information necessary to track education progress using Performance Indicators 5 and 6 in Appendix A of the UTC reporting requirements. Each year, AUTC staff will update education performance indicators by collecting requisite data from each campus in the UA System.

## II.D. Human Resources

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

1. **Baseline Measures.** Baseline Measures 7, 8, and 9 are given in Appendix A.

We have seen a steady erosion of the engineering program on the UAF campus over the last 15 years. A recent reorganization resulting in the College of Engineering and Mines has resulted in a renewed commitment by UAF to more directly meet the needs of industry. Projections for future engineering professions in Alaska and the nation make it clear that our universities must become more robust in their ability to attract students and prepare them for the workforce. To that end, both UAF and UAA are joining their energy and resources to meet those needs.

2. **Human Resources Program Outcome.** At the end of the grant, AUTC expects to increase the number of students and faculty involved in the center's program. An increase in instruction resources will be realized with:
  - Adding tenure-track transportation positions on both the UAF and UAA campuses.
  - Increasing input and support by industry professionals on the UAF, UAA, and UAS campuses.
  - Offering joint transportation curriculum with partnering universities.

- Developing faculty outside of engineering, such as the Schools of Business, Natural Sciences, and Behavior Sciences, to teach courses related to transportation fields. Examples include transportation financing and environmental law in transportation.

### **3. Planned Activities.**

#### **3.1. Recruitment Activities**

3.a.1. Graduate Student Recruitment. In order to recruit top students to the transportation graduate program, financial aid in the form of fellowships, research assistantships, teaching assistantships, and internships will be offered to prospective graduate applicants. An internship program at AUTC will be established to take advantage of an increasing support and interest demonstrated by local transportation organizations such as AKDOT&PF and local consulting companies. Internships will provide financial assistance while providing the graduate student with industry experience.

AUTC will also work with non-traditional students to encourage and assist them in seeking advanced degrees. This is an area where AUTC expects to see the greatest growth.

3.a.2. Undergraduate Student Recruitment. In order to recruit top undergraduates into transportation courses and potentially into the graduate transportation program, undergraduate financial aid will be provided to top students in the UA transportation undergraduate courses in the form of scholarships and undergraduate research assistantships. In addition, an internship will be established to help provide the match requirements. We will also raise our profile in the high schools, with visits particularly to math and science classes, to talk about engineering and demonstrate research projects. This is a companion activity to outreach and technology transfer activities; see 3.b.1 below and II.F.3.f on page 14. AUTC intends to sponsor workshops and sponsor continuing education with and for high school teachers and counselors to educate them about opportunities in the transportation field.

3.a.3. Faculty Recruitment Activities. In order to increase the number of tenure track positions, the university will be providing dual appointments. These positions will be co-funded by UA and AUTC at 50% each: the university for teaching and AUTC for research. This allows UA to expand the number of teaching faculty with the available budget while increasing the available expertise. We will actively recruit adjunct faculty from other departments and industry, as well as transportation industry professionals who may serve as guest lecturers or instructors.

3.a.4. Developing Additional Support. The transportation faculty will endeavor to obtain research grants and contracts independent of AUTC or that supplement AUTC funding. These will provide additional student support and will increase our ability to attract top students.

### **3.b Outreach Activities**

3.b.1. Demonstration and Display Activities. AUTC will become an active participant in the UAF and UAA Engineering Open Houses, High School Career Days, and the Alaska Summer Research Academy. AUTC will also give presentations highlighting careers in transportation to high schools throughout Alaska. AUTC will seek to co-sponsor a hospitality room at the annual TRB meeting which will feature center activities. We will provide demonstrations and displays to public officials, transportation professionals, the media, and potential students over the grant period.

3.b.2. Newsletter Activities. AUTC will publish a semi-annual newsletter highlighting research, education, and technology transfer activities. The newsletter will also highlight those participating in AUTC.

3.b.3. Conference and Workshop Activities. AUTC will sponsor an annual Transportation Forum to bring together public, private, and university transportation officials to provide a venue to discuss a variety of transportation issues. AUTC will sponsor and/or co-sponsor conferences and/or workshops that address issues consistent with the center's theme.

4. **Performance Indicators.** AUTC staff will collect information necessary to track its human resources progress using performance indicators 7, 8, and 9, set forth in Appendix A of the UTC reporting requirements. Both UAA and UAF have instituted strong recruitment programs with associated tracking as part of the UA Compact Plan. The Compact Plan outlines UA's future and defines how each program will meet those goals. AUTC is an integral part of both UAA and UAF plans to meet industry needs. This strategic plan is consistent with those plans.

These plans call for aggressive recruitment with appropriate tracking of students entering and graduating from our engineering programs, including transportation. Further, industry panels have been established to grade each engineering program on their progress. AUTC will use these panels to help track its progress in addition to the requirements of this grant.

## **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.

1. **Baseline Measures.** RITA no longer requires the collection of performance measurements regarding diversity, so AUTC will not have a reporting requirement for this goal.
2. **Diversity Program Outcome.** The composition of students, faculty, and staff participating in AUTC currently reflect the growing diversity in the U.S. work force and will continue to do so in the future. During the grant period, every effort will continue to be made to involve women and minorities, particularly Alaska Natives who participate in all of our AUTC activities.
3. **Planned Activities.** The University of Alaska has a number of programs for increasing diversity in the workplace. A focal point is the Alaska Native groups, which are under-represented in the workplace. AUTC will work with ANSEP (Alaska Native Science & Engineering Program) to recruit Alaska Natives into transportation related fields. AUTC will also work with the UA campuses to actively recruit minority groups, targeting such organizations as the Society of Women Engineers.
4. **Performance Indicators.** RITA no longer requires collection of performance measures regarding diversity.

## **II.F. Technology Transfer.**

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

1. **Baseline Measures.** The information called for as Baselines 10 and 11 are provided in Appendix A. We recognize the technology transfer at UA engineering programs is critical. Both programs have re-dedicated themselves to meeting the needs of the engineering community through short courses, and other technology transfer activities beyond those required by this grant. For example, UAF is currently offering a pavement design course that allows participants to take the class either for graduate credit or for continuing education credits. Further, the class is taught in the AKDOT&PF classroom at a time convenient to AKDOT&PF employees. The enrollment in the class has risen from the typical 5 or 6 to 25. We anticipate expanding this model not only at the UAF campus but on the other campuses as well. We also recognize that workshops and other meetings, both locally and nationally offer the opportunity for technology transfer. AUTC expects to actively participate in these activities.
2. **Technology Transfer Program Outcome.** Technology transfer is a multi-faceted activity which includes written reports, workshops, continuing

education, formal education, and, in some cases influencing changes to codes and specifications. The approach depends upon the subject matter, the target audience, and the desired outcome. AUTC will aggressively seek implementation through appropriate means. Our goals are:

- Increase the number of publications to 15 per year.
- Increase the number of workshops to 5 per year.
- Increase the number of refereed publications to 5 per year
- Increase the number of transportation related courses by 4 per year.
- Develop a distance learning program in transportation.
- Develop an active outreach program to the state and local governments and the private sector .

Some specific strategies are outlined in the following sections.

### **3. Planned Activities.**

The major activities to achieve the Technology Transfer program outcome are listed below:

3.a.1 All projects will have a technology transfer plan incorporated into the proposal. Experience shows that if technology transfer is an outcome of the proposed research from the beginning, it is more likely to be implemented.

3.a.2 As implementable information becomes available, it will be added to the web site, summarized for a trade journal, or forwarded to other centers for dissemination. Often, a combination of all three techniques will be used.

3.a.3 A webmaster will be employed by AUTC to create and maintain a homepage and additional web pages outlining the status of all research. The web site will also provide access to all information produced by AUTC and its predecessor, the Transportation Research Center. We will also provide links to appropriate resources, including State, Federal, and International sites.

3.a.4 AUTC will partner with AKDOT&PF's LTAP to maintain the existing transportation lending library on the UAF campus. The LTAP library, located in the Keith B. Mather library, which serves the International Arctic Research Center and the Geophysical Institute on the UAF campus, currently contains over 40,000 transportation related documents.

3.a.5 AUTC will partner with AKDOT&PF and University of Alaska Cooperative Programs to develop a continuing transportation education program for AKDOT&PF, local governments, and private sector transportation companies. Results of all transportation research will be incorporated into these courses.

3.a.6 AUTC will develop an outreach program designed for K-12 students. Faculty members will be encouraged to develop K-12 programs which encourage students to participate in transportation-related jobs. Projects will be selected on a competitive basis. Possible activities include developing written and video materials, presentations in schools, summer or weekend transportation camps, developing after-school activities related to transportation, or summer intern programs for older students.

3.a.7 Faculty will be encouraged to bring research outcomes into the classroom as part of the educational experience.

4. **Performance Indicators.** The data required to track the performance of the activities listed will be acquired by AUTC staff over each year. For example, we will keep records on the number of hits on the web site, the number of continuing education activities, the number of journal and trade papers, and the number of pre-college students reached.

### **SECTION III Management Approach**

The AUTC management approach adopts the philosophy of managing by objective. That is, all activities will be pointed to the objectives outlined in the enabling legislation and those established by the Governing Board. Please see the organizational chart (Figure 2, next page) for an outline of AUTC management positions.

The governing board plays an integral role in guiding AUTC and establishing center goals and objectives. The governing board will also evaluate the center and its effectiveness in meeting these goals. While this board will not have direct control over expenditures, it may recommend programs that meet the goals and objectives it establishes. For a description of the initial governing board, see Section II.A.3.a, under Research Selection.

A selection committee chaired by the director will review and select projects meeting the goals and objectives established by the governing board. This two-tiered approach marries the vision of the governing board with the technical expertise of the advisory panel. The approach also provides greater and broader participation and expertise in the activities of the center.

The management structure of AUTC consists of a director, located on the UAF campus, with an associate director located on each of the three campuses. The director and associate directors comprise the executive committee of the center. The executive committee formulates the operating policies and administrative procedures that guide AUTC business activities.

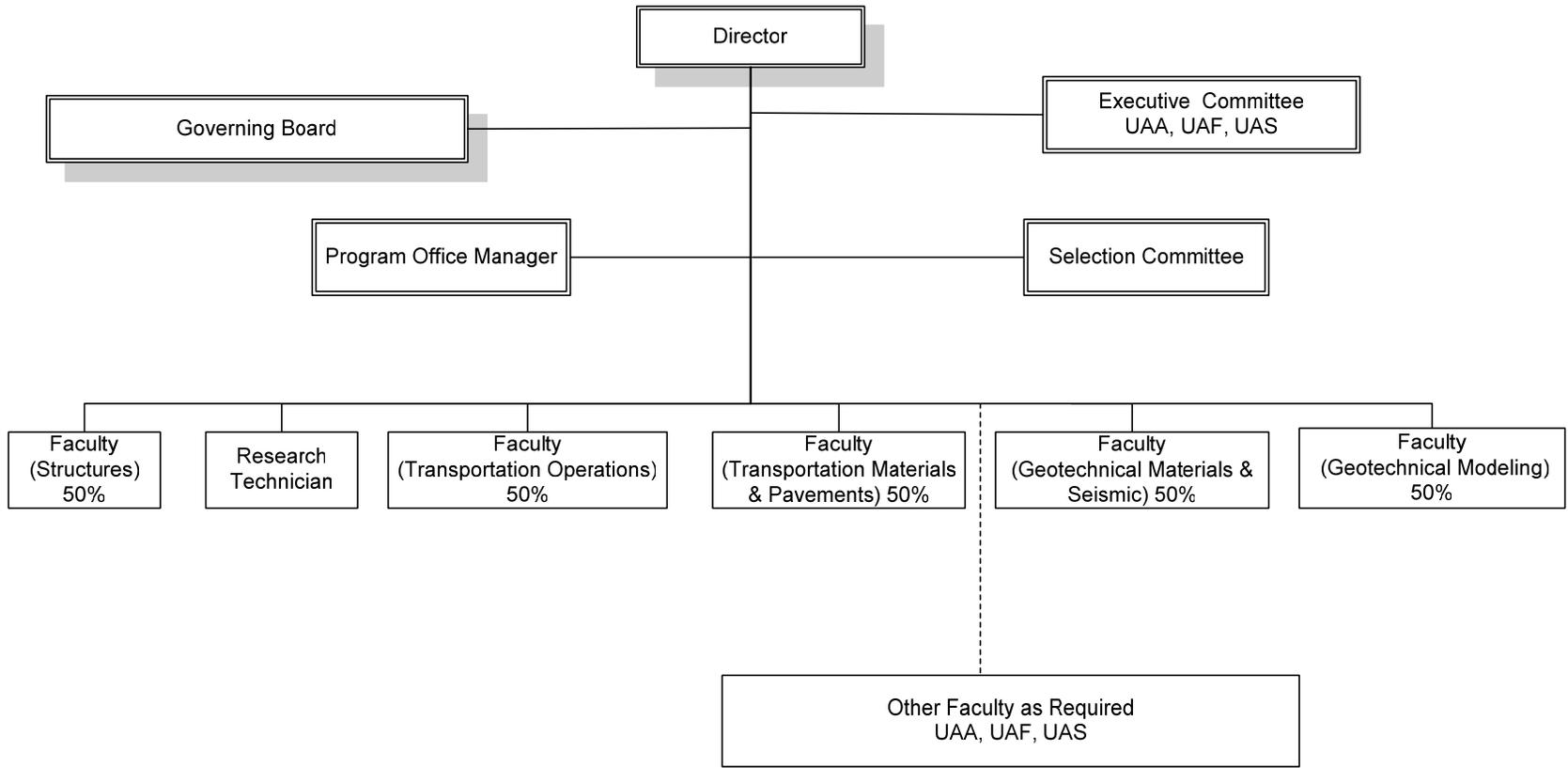


Figure 2. Organizational Chart for the Alaska University Transportation Research Center (AUTC).

AUTC will partner with the UAF School of Engineering and Mines and the UAA School of Engineering to share personnel. In some cases, faculty will teach one course with the remainder of their effort dedicated to AUTC activities.

### **III.A. Institutional Resources**

The three campuses of the University of Alaska System have excellent educational and research programs, along with support for these programs. Collectively, these resources provide a wealth of expertise and resources that are readily available to AUTC.

Research and Training Facilities. Training facilities at UAF, UAA, and UAS include conventional classrooms, as well as electronic and video classrooms for distance learning. Classroom sizes range from 30 to over 100. Auditoriums capable of seating around 1,000 are also available. If other venues are needed, the UA system has the capability to contract for that space.

Research facilities include:

- materials labs including soils, steel, asphalt, and concrete
- environmental laboratories capable of evaluating both air and water quality
- dedicated computer labs including the Arctic Regions Super Computing Center
- radio frequency identification labs
- electronic laboratories including the Office of Electronic Miniaturization
- hydraulic laboratories

Human Resources. Recent retirements have reduced the number of transportation faculty to one structures professor at UAF. However, UAF is recruiting four new transportation faculty, including one in traffic and operations, one in transportation materials and pavement design, one in geotechnical engineering, and one in construction management. In addition, UAF is hiring an additional faculty specializing in structures, water resources, and environmental engineering. While retirements are painful, the UAF College of Engineering and Mines is taking this opportunity to reevaluate its programs.

UAA has one transportation faculty and is in the process of hiring another. UAA has additional engineering faculty whose expertise can be directed toward transportation issues. UAA also has a logistics program which specializes in transportation issues including RFID.

UAS does not have transportation as part of its curriculum. However, fisheries-related research on the UAS campus will provide a valuable resource in addressing fisheries issues such as fish passage through hydraulic structures.

Physical Facilities. UAF has already set aside offices for AUTC. The assistant directors on the other campuses will use their existing academic offices to conduct AUTC

business. Extensive library facilities are available on all three campuses. A transportation library containing 40,000 documents is located at UAF as a subset of the research-oriented Keith B. Mather Library, which is maintained as part of the GI and IARC. UAA School of Engineering and UAF College of Engineering and Mines have dedicated, well-equipped laboratory facilities for structure, construction materials, geotechnical, and environmental instruction and research.

Institutional Support Capabilities. The academic and research resources on all three UA campuses will support all functions of AUTC. All three campuses will make available as necessary: space, communications, printing, computers, technical support, and staff support. Grants and Contract offices are available at each campus to facilitate handling and processing research grants. The Institute of Northern Engineering business office on the UAF campus will coordinate and track the expenditures of the other campuses through a dedicated grants administrator.

Technical staff members are available at the libraries discussed above to assist in locating literature and updating library holdings for civil engineering publications and periodicals. The university's library holdings are searchable on-line; this service is available to anyone with internet access. UA also supports a strong inter-library loan program which makes almost any document available.

All three campuses have computer labs available to engineering students and researchers. Each computer lab has technical staff capable of supporting the needs of faculty, students, and researchers.

### **III. B. Center Director**

The AUTC Director is Billy G. Connor, PE. Mr. Connor retired from the Alaska DOT&PF after 30 years of service. He spent twenty years in AKDOT&PF's research branch as a research engineer, ten of these as the Chief of Research for the department. His work covered a wide range of transportation activities including developing Alaska's pavement design procedures, pavement management, maintenance and forensic engineering, permafrost, frost heave and thaw weakening research, hydraulic research including fish passage, rip rap design and development of Alaska's Hydraulic Manual, and numerous other transportation related activities.

He has chaired two TRB committees and been active in numerous other TRB committees and activities. He has also served on the AASHTO Research Advisory Committee, ASCE Technical Council of Cold Regions Engineering (currently chairing the Frost Action Committee), and numerous other state and national activities. Mr. Connor has also worked as a Construction Project Manager for AKDOT&PF, managing over \$30 million per year.

### **III.C. Other Staff**

Saundra Jefko, Program Assistant (UAF), has ten years of experience in UAF Administration policies and regulations; five years experience in coordinating seminars, workshops and conferences, whether by Web, Video and/or Audio streaming; fifteen years experience communicating with local, State and Federal agencies and working to produce various reports to their specifications; extensive training in UAF operations and data management applications; training of faculty and graduate students in classroom technology for the use of research/teaching presentations; and vast training/experience in work management, timelines and coordination of working with other agencies.

Kathy Petersen, Grants Administrator (UAF), has worked in the grant administration field for the past five years and has experience with a variety of funding agencies and their regulations, as well as the university's regulations and the circulars that govern federal funding. Petersen managed fiscal and technical reporting for the Arctic Energy Technology Development Laboratory (AETDL) at UAF, a DOE-funded research center which has an annual operating budget of approximately \$4 million. She also coordinated this center's 2005 request for proposals and prepared the main 2005 budget request. Petersen is also skilled in directing and training staff; she organized AETDL's 2005 fall Rural Energy conference, and she regularly trains new grants managers for the Institute of Engineering, which has an annual operating budget of \$54 million.

For INE, Petersen addressed all levels of grant management, from research account set up, maintenance, and close-out to monitoring match commitments, preparing financial statements, no cost extensions, contract amendments, and budget revisions.

Additionally she has been a member of the National Council of University Research Administrators (NCURA) since 2001. She has trained other departments on campus, and she helped set up an efficient grant management system for the School of Fisheries and Ocean Sciences, one of the largest departments on the UAF campus. She also studied in the fields of finance and accounting while enrolled in the civil engineer

J. Leroy Hulsey, Ph.D., P.E., S.E. is Assistant Director of AUTC and an Associate Professor of Civil & Environmental Engineering at the University of Alaska Fairbanks. Dr. Hulsey has extensive experience in the private sector and as a professor of Civil Engineering. Dr. Hulsey's engineering experience includes the East Coast (Carolinas), Midwest (Illinois, Kentucky and Missouri) and the Western United States (Alaska, Texas and Washington). Dr. Hulsey was responsible for the design of large projects while serving as a project engineer in the Consulting Engineering field, and he ran a high technology consulting engineering firm for about nine years. During that period, he assisted other firms in the fields of Pavement Design, Pavement Management, Forensics, Geotechnical, Bridge Design and Construction related problems. In recent years, Dr. Hulsey has worked for numerous construction companies as a quality control engineer and construction project manager. On the academic side, Dr. Hulsey has extensive research in the field of bridge engineering. He previously taught courses in Bridge Maintenance, Bridge Inspection, and Bridge Rehabilitation courses for FHWA Dr.

Hulsey is active in TRB and serves on a NCHRP project panel on use of temporary bridging to avoid impacts to waters and wetlands during highway construction D2530. He is a member TRB Committee ABC20 Management and Productive and TRB Committee AFH40 Construction of Bridges and Structures.

Dr. Jang W. Ra, Ph.D., PMP, Professor and Chair of the University of Alaska Anchorage (UAA) Engineering, Science and Project Management (ESPM) Department, will serve as Associate Director for UAA. With specialties in Project Management and Engineering Management, Dr. Ra has taught over fifteen different graduate-level subject courses since 1987 at UAA, UAF, George Washington University and Portland State University.

His research has been in areas of multi-criteria decision-making techniques, statistical analysis for pipeline corrosion detection, ITS, and managerial analysis for facilities and capital projects. Dr. Ra had successfully organized two international conferences in Anchorage as Program Chair, the 32nd The Institute of Management Science Conference in 1994 and 21st Pan-Pacific Business Association Conference in 2004.

Dr. Ra also served as a trainer and consultant to Alaska Airlines, Alyeska Pipeline, ASRC Energy Services, BP, ConocoPhillips, Providence Hospital, State of Alaska Department of Transportation and Public Facilities, US Army Corps of Engineers, U.S. Public Health Service, and many others.

An associate director for the University of Alaska Southeast will be chosen in the near future.

### **III.D. Multiparty Arrangements**

There are no current multiparty arrangements. However, AUTC is working with the UTCs in the northwest to develop a consortium. This consortium will allow sharing of courses, expertise, and equipment. It also will encourage the participating states to pool funds to address common issues.

### **III.E. Matching Funds**

Matching funds will come from a variety of sources including State DOTs, direct allocations from the Alaska Legislature, AKDOTPF's LTAP program, the private sector, and the University of Alaska. All matching fund use will conform to 2CFR215 (OMB Circular A-110), including funding allowed under section 503, 504(b), or 505 of Title 23 USC. Approximately \$500,000 match has been identified so far.

## **Section IV Budget Details**

This justification details estimated costs for the first year of multi-year funding for the Alaska University Transportation Center. For itemization, please see Appendix B.

#### **IV.a. Salaries**

**Senior Personnel.** Funding to support a total of 1560 hours (.75 FTE) is requested for the Director (Connor), who will guide all AUTC activities. Connor's additional activities (.25 FTE) will be funded through research projects. Per UAF policy, administrators receive leave benefits at a rate of 17%, calculated on salary. *Total cost to Project: \$110,782.*

Funds are requested to support 780 hours (.5 FTE) for the Associate Director (Hulsey), who will support the director and serve as lead faculty for the UAF campus. Funds are requested to support activities by lead faculty at the UAA campus (Ra, 347 hours, (.22 FTE) and the UAS campus (TBN, 347 hours, (.22 FTE). Per UAF policy, faculty receive leave benefits at a rate of 1.5%, calculated on salary. *Total cost to Project: \$81,622.*

Funds are requested to support 780 hours (.5 FTE each) for three joint faculty, who will contribute to research efforts and technology transfer for AUTC in addition to their responsibilities as faculty in the UAF College of Engineering and Mines and the UAA School of Engineering. Per UAF policy, faculty receive leave benefits at a rate of 1.5%, calculated on salary. *Total cost to Project: \$103,529.*

**Other Personnel.** Support is requested to fund a Program Assistant (2080 hours, 1 FTE), who will serve both the Director and Associate Director, as well as coordinating many AUTC activities. Support is requested for a Grants Administrator (1040 hours, .5 FTE), who will monitor all expenditures and project accounts for AUTC. Support is requested for a Publications & Proposals Manager (693 hours, .3 FTE) who will participate in proposal, publication and web activities for AUTC. Per UAF policy, staff receive leave benefits calculated at 21.4% (program assistant) and at 19.7% (other staff) based on salary. *Total cost to project: \$96,297.*

**Support for other faculty and staff to be assigned to future research projects** (see Section II.A, Research Activities) is estimated at \$203, 213. These currently unallocated funds are estimated to include leave benefits of 1.5%, calculated on salary. Ultimately AUTC will distribute these funds to research projects (to be named).

#### **IV.b. Fringe Benefits**

Staff benefits are applied according to UAF's proposed benefit rates for FY07, which are negotiated with the Office of Naval Research (ONR) annually. Rates are 35.4% for administrators, 46.3% for faculty, 57.0% for classified staff, 44.9% for exempt staff, and 46.3% for other research support staff, to be assigned. *Total cost to Project: \$267,870.*

#### **IV.c. Travel**

**Domestic.** Funds of \$25,000 are requested to support the director's travel to various governing and technical advisory board meetings, as well as travel to other UA campuses and satellite campuses for AUTC activities. Funds of \$3,000 are requested to support a student travel award, for participation in the annual TRB conference. All costs (see

below) are based on current pricing, US Government figures, and UAF Board of Regents policy. *Cost to project: \$28,000.*

Travel detail Domestic - Director			
RT airfare	1000	days	p/d
per diem	970	5	194
reg/misc	530		
	10	2500	25000

Travel detail, student award			
RT airfare	1000	days	p/d
per diem	1250	5	250
reg/misc	750		
	1	3000	3000

#### IV.d. Other Direct Costs

**Materials & Supplies.** A total of \$5,000 is requested for expendable supplies, primarily for education and outreach about the AUTC.

**Publication & Dissemination.** A total of \$10,000 is requested to fund technology transfer and publication costs, to support distribution of AUTC materials and to defray the expenses of publishing our results in professional journals.

**Consultant Services.** Funds are requested to support work by SME Consultants, who will assist AUTC in the development of the strategic plan. Specifically SME will provide an independent review of the plan. *Total cost to project: \$22,500.*

**Other.** AUTC requests \$128,814 in federal funds for commitment to the AUTC/AKDOT&PF LTAP Project (see Section II.f., Technology Transfer).

*Total costs to project: \$161,314.*

#### IV.e. Facilities & Administrative Costs

Facilities and Administrative (F&A) Costs are negotiated with the Office of Naval Research and for research are calculated at 47.5% of the Modified Total Direct Costs (MTDC). MTDC includes Total Direct Costs minus tuition, subaward amounts over \$25,000, and equipment. A copy of the agreement is available at: [http://www.alaska.edu/controller/cost-analysis/negotiated\\_agreements.html](http://www.alaska.edu/controller/cost-analysis/negotiated_agreements.html) For unidentified research project funding, appropriate F&A will be charged according to the details of these as-yet unidentified projects.

#### IV.f. Cost Sharing

To meet the agency requirement for a 100% cost share, UAF will supply \$223,407 in salary, related benefits, and F&A costs for three joint faculty, who will support both the AUTC (see salaries above) and the College of Engineering & Mines with their activities. Some cost sharing will be supplied by AKDOT&PF, in the form of cost share for the AUTC/AKDOT&PF LTAP Project (\$190,000). Additional cost share will be collected in conjunction with future unidentified research projects, from various other sources; this figure is currently estimated at approximately \$783,727. (see Section III.E of this proposal). *Total cost share for this project: \$1,560,000.*

# APPENDIX A

## BASELINE MEASURES FOR THE ALASKA UNIVERSITY TRANSPORTATION CENTER

Below is data for the most recently completed academic year for the Institute of Northern Engineering and the College of Engineering and Mines.

### Research Selection

1. Number of transportation research projects selected for funding.

6

- 1a. Number of those projects that you consider to be:

basic research 0,

advanced research 0, and

applied research 6.

Projects may be included in more than one category if applicable.

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

\$ 715,938

### Research Performance

3. Number of transportation research reports published.

8

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

6

### 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: 8

Graduate: 8

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

Undergraduate: 4  
Graduate: 3

### **Human Resources**

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

Master's Level: 1  
Doctoral Level: 1

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

Master's Level: 6  
Doctoral Level: 2

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

Master's Level: 3  
Doctoral Level: 0

### **Technology Transfer**

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

2

11. Number of transportation professionals participating in those events.

60

**APPENDIX B**  
**Alaska University Transportation Center (AUTC) Budget Plan**

Name of Grantee: University of Alaska Grant Year: 7/1/06 thru 7/1/07  
(Date) (Date)

CATEGORIES	Budgeted Amount	Explanatory Notes
Center Director Salary	\$ 110,782	9 months for Director's salary
Faculty Salaries	\$ 288,679	Includes Ass't Directors & Joint Faculty
Administrative Staff Salaries	\$ 96,297	Program Assistant, 1/2 time Grant Manager, 1/3 time Publications & Proposals Manager
Other Staff Salaries	\$ 734,553	funds to be allocated to unidentified research projects
Student Salaries		
Staff Benefits	\$ 1,792,126	Staff Benefits for all positions
<b>Total Salaries and Benefits</b>	<b>\$ 3,022,437</b>	
Scholarships/Tuition		
Permanent Equipment		
Expendable Property, Supplies, and Services	\$ 166,314	Report & newsletter publication, website development and project supplies, LTAP project
Domestic Travel	\$ 28,000	Director, Gov & Advisory Board Meetings, TRB student travel support
Foreign Travel		
Other Direct Costs (Specify)	\$ -	
<b>Total Direct Costs</b>	<b>\$ 3,216,751</b>	
F&A (Indirect) Costs	\$ 1,004,746	
<b>TOTAL COSTS*</b>	<b>\$ 4,221,497</b>	
Federal Share	\$ 1,560,000	
Matching Share (if applicable)	\$ 1,560,000	

\*Includes Federal and Matching Shares