

UNIVERSITY TRANSPORTATION CENTER FOR MOBILITY

STRATEGIC PLAN FOR FY 2006 - 2009

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UNIVERSITY TRANSPORTATION CENTER FOR MOBILITY
At the
Texas Transportation Institute
TAMU University System

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I. PROGRAM OVERVIEW

A. Glossary

ASCE	American Society of Civil Engineers
ARTBA	American Road and Transportation Builders Association
CUTC	Council of University Transportation Centers – a national organization of university-based transportation research centers.
DOT Liaison	A representative from USDOT who helps to ensure that UTCM research is supportive of the national strategy for surface transportation research.
FTA	Federal Transit Administration – the modal agency of USDOT that focuses on public transportation
ITE	Institute of Transportation Engineers
P3	Public Private Partnerships
PI	Principal Investigator – professional staff or faculty member in charge of technical, financial, and administrative conduct of a UTCM project.
Project Monitor	An expert from the transportation industry selected to serve as a technical advisor on a UTCM research project and whose expertise and/or experience includes a familiarity of the technical aspects of the topic being researched.
RITA	Research and Innovative Technology Administration – the agency within USDOT that administers the UTCP
RFPS	Request for Problem Statements, issued once a year by UTCM, to solicit research ideas for potential inclusion in UTCM’s research program.
SAFETEA-LU	The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users was enacted August 10, 2005, as Public Law 109-59. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009.
SWUTC	Southwest Region University Transportation Center - a consortium of three universities (TAMU University, Texas Southern University, and University of Texas at Austin) formed in 1988 as a Region 6 Center of Excellence in the UTC program.
T2	Technology Transfer

TAMRF	TAMU Research Foundation - a non-profit, private entity established by TAMUS to perform contracting services for TAMUS institutions; located in College Station.
TAMU	Texas A&M University - the nation’s sixth largest university in enrollment, with 45,000 students at the main campus in College Station. TAMU ranks among the top 20 public universities by “U.S. News and World Report” in 2005, and was also in the top 5 in its “Best Values” ratings.
TAMUS	Texas A&M University System - the parent unit of TAMU and TTI.
TRB	Transportation Research Board
TSTI	The Texas Summer Transportation Institute has been presenting summer programs for high school students since 1999. TSTI is part of a national USDOT program and is sponsored by the Federal Highway Administration and a joint public-private partnership.
TTI	Texas Transportation Institute - located at TAMU, TTI is the largest university-based transportation research center in the U.S.
TxDOT	Texas Department of Transportation - the state’s primary transportation operating agency.
Title III UTC	A UTC designated in Title III of SAFETEA-LU and administered through the UTCP. Unlike other UTC designations, Title III Centers are funded through FTA and have no dollar-for-dollar match requirement. UTCM is a Title III UTC.
USDOT	United States Department of Transportation
UTC	University Transportation Center – A university-based transportation center funded through the UTCP.
UTCM	University Transportation Center for Mobility – a Title III UTC designated by SAFETEA-LU, located at TAMU/TTI. UTCM is a part of the UTCP.
UTCP	The University Transportation Centers Program – administered by RITA within the USDOT, the UTCP has as its vision a program of “ Internationally recognized centers of excellence, fully integrated within institutions of higher learning, that serve as a vital source of leaders who are prepared to meet the nation’s need for safe, efficient and environmentally sound movement of people and goods.” The UTCP’s mission is “To advance U.S. technology and expertise in the many disciplines comprising transportation through the mechanisms of education, research and technology transfer.”

B. Center Theme

The theme of this Center is “Improving the quality of life by enhancing mobility.”

Mobility is at the very center of the American way of life; it is critical to commerce, economic development and quality of life. It is difficult to enjoy the unalienable right to pursue happiness while stuck in traffic or delayed by congestion. Transportation and mobility issues impact nearly every aspect of society, including health care, recreation, education, goods manufacturing and delivery, and national security.

B.1. National Research Priorities

UTCM’s mobility theme is directly in line with national research priorities, as detailed below and summarized in Table 1.

The 2002 report of the National Highway Research and Technology Partnership, entitled *Highway Research and Technology: The Need for Greater Investment*, identified five needed research and technology areas. Of these, one was Operations and Mobility. The proposed activities of the UTCM, described in section I.C, also directly impact the other four areas identified in the report: 1) Safety, 2) Infrastructure Renewal, 3) Policy Analysis, Planning and Systems Monitoring, and 4) Planning and Environment. Table I shows the correlation between the research areas identified in *Highway Research* and the 4 proposed Research Focus Areas of the UTCM. Because over 170 federal and state transportation agencies, associations, foundations, institutes, consultants, industries, universities, and organizations (including modal agencies of USDOT and the Transportation Research Board) were involved in the development of this report, it may be the most comprehensive source to date of a national research agenda. That UTCM’s proposed theme is in lockstep with the priorities identified in this report bodes well for the relevance and applicability of the outcomes of the UTCM.

The *FTA Strategic Research Plan*, published in September of 2005, lists 5 Strategic Research Goals:

- Provide Transit Research Leadership,
- Increase Transit Ridership,
- Improve Capital and Operating Efficiencies,
- Improve Safety and Emergency Preparedness, and
- Protect the Environment and Promote Energy Independence.

It is anticipated that UTCM activities in rural public transportation could positively impact all of FTA’s strategic goals, as all five are highly correlated to UTCM Research Focus Areas, as shown in Table 1. We will seek input from FTA through our DOT Liaison on research and activities of interest to FTA, and will welcome their leadership.

The *Department of Transportation Strategic Plan*, published by USDOT in September of 2003, named “Mobility” as one of five Strategic Objectives. While this has the most obvious synergy with UTCM’s theme, the program focus of the center will have direct impact on all the other strategic objectives identified in the Plan, as shown in Table 1. The planned activities of the UTCM will address all of

these outcomes with its research, education, and technology transfer programs.

The *USDOT Research, Development, and Technology Plan*, published in 2005, bases its research, development, and technology strategy on the same five Strategic Objectives as the DOT Strategic Plan published in 2003. It then describes the research and development activities of each DOT modal agency. Again, because the UTCM research agenda is directly in line with the five strategic objectives it follows that UTCM's research and program agenda will be in line with this document as well.

UTCM is fortunate to have a representative from the USDOT Office of the Secretary as our DOT Liaison. His global perspective and "Big Picture" thinking will greatly enhance the ability of UTCM to remain in accordance with DOT priorities. Such a close working relationship with OTS is a first for the UTCP, and will be greatly beneficial to the center and the USDOT.

B.2. Texas Research Priorities

TxDOT released a Strategic Plan for 2007-2011 in July of 2006. This visionary document, *TxDOT has a Plan*, outlines five goals to help TxDOT achieve its mission of providing "safe, efficient, and effective means for the movement of people and goods throughout the state, facilitating trade and economic opportunity." These goals are

1. Reduce congestion
2. Enhance safety
3. Expand economic opportunity
4. Improve air quality, and
5. Increase the value of transportation assets.

The four strategies the Plan outlines to accomplish these goals are

1. To use all available financial tools to build transportation projects.
2. To empower local and regional leaders to solve local and regional transportation problems.
3. To increase competitive pressure to drive down the cost of transportation projects, and
4. To demand consumer-driven decisions that respond to traditional market forces.

Because UTCM is located in the state of Texas, it is important that center activities are complimentary to the goals and strategies in TxDOT's Strategic Plan. As shown in Table 1, the four Research Focus Areas and proposed education and T2 activities of UTCM will address TxDOT's goals and strategies in a significant way.

Two of UTCM's Research Focus Areas, **Coast-to-coast, border to border mobility** and **Congestion management and mitigation**, will directly address TxDOT's goals of reducing congestion, enhancing safety, and increasing the value of transportation assets. They will also positively impact expanding economic opportunity and air quality. The information made available through these research initiatives will empower local and regional leaders by helping them make more informed decisions.

The **Rural public transportation** Research Focus Area will expand economic opportunity by addressing the needs of rural transportation dependent populations, which will positively impact the workforce. This will empower local and regional leaders by helping them make more informed decisions regarding transportation options for rural areas. Air quality will also be improved by

Table 1 – Objectives in Strategic Planning Documents pertaining to UTCM Research Focus Areas

Strategic Plan Document	UTCM Research Focus Areas			
	coast to coast, border to border mobility	rural public transportation	alternative financing	congestion management and mitigation
<i>Highway Research and Technology: The Need for Greater Investment</i>	Safety, Infrastructure Renewal, Operations and Mobility, Planning and Environment	Safety, Operations and Mobility, Planning and Environment	Safety, Infrastructure Renewal, Operations and Mobility, Planning and Environment	Safety, Infrastructure Renewal, Operations and Mobility, Planning and Environment
<i>FTA Strategic Research Plan</i>	Provide Transit Research Leadership, Increase Transit Ridership, Improve Capital and Operating Efficiencies, Improve Safety and Emergency Preparedness, Protect the Environment and Promote Energy Independence	Provide Transit Research Leadership, Increase Transit Ridership, Improve Capital and Operating Efficiencies, Improve Safety and Emergency Preparedness, Protect the Environment and Promote Energy Independence	Provide Transit Research Leadership, Increase Transit Ridership, Improve Capital and Operating Efficiencies, Improve Safety and Emergency Preparedness, Protect the Environment and Promote Energy Independence	Provide Transit Research Leadership, Increase Transit Ridership, Improve Capital and Operating Efficiencies, Improve Safety and Emergency Preparedness, Protect the Environment and Promote Energy Independence
<i>Department of Transportation Strategic Plan</i>	Safety, Mobility, Global Connectivity, Environmental Stewardship, Security	Safety, Mobility, Environmental Stewardship	Safety, Mobility, Global Connectivity, Environmental Stewardship, Security	Safety, Mobility, Global Connectivity, Environmental Stewardship, Security
<i>USDOT Research, Development, and Technology Plan</i>	Safety, Mobility, Global Connectivity, Environmental Stewardship, Security	Safety, Mobility, Environmental Stewardship	Safety, Mobility, Global Connectivity, Environmental Stewardship, Security	Safety, Mobility, Global Connectivity, Environmental Stewardship, Security
TxDOT Strategic Plan	Reduce Congestion, Enhance Safety, Expand Economic Opportunity, Improve Air Quality, Increase the Value of Transportation Assets	Expand Economic Opportunity, Improve Air Quality	Reduce Congestion, Enhance Safety, Expand Economic Opportunity, Improve Air Quality, Increase the Value of Transportation Assets	Reduce Congestion, Enhance Safety, Expand Economic Opportunity, Improve Air Quality, Increase the Value of Transportation Assets

increased transit Ridership.

UTCM's Research Focus Area of **Alternative Financing** directly addresses TxDOT's goals of reducing congestion, enhancing safety, expanding economic opportunity, improving air quality, and increasing the value of transportation assets by promoting innovative means of financing for transportation infrastructure improvements, and also all of TxDOT's strategies for accomplishing them.

C. Center Director's Summary

The UTCM represents a unique opportunity to make a difference in mobility for Texas, the region, and the country. The combination of the considerable capabilities of TTI, paired with the structure of the UTC Title III program, makes this possible.

TTI, as detailed in Section II.A., has expertise in virtually all areas of surface transportation. TTI research is performed by both professional research staff and tenure track faculty. The presence of SWUTC (the Region 6 UTC) within TTI provides opportunity for collaboration and synergy with UTCM. Add to these advantages the resources and facilities of TAMU, TAMUS and TTI combined, and the result is unparalleled possibilities for education, research and technology transfer. Because the UTCM is a Title III UTC, it does not have the practical consideration of making sure that its research and programs are "matchable" with non-federal funding, which can sometimes be somewhat limiting. Neither does UTCM have geographic boundaries – meaning that the UTCM can conduct research and programs with far-reaching benefits without having to consider the boundaries of whatever agency or organization is providing match funds. That said, opportunities to leverage additional funds, whether public or private, will be aggressively sought and utilized to maximize UTCM programs as much as possible.

So, what does a UTC do if it has the structure and expertise to do quite literally anything? This was the question pondered during the Strategic Planning process. Input was sought from professionals within TTI and TAMU, representatives of DOT modal agencies, and other transportation professionals, agencies, and organizations. In this way it was determined where strategic expertise within TTI could be bolstered by the new center, and where these areas overlapped with the priorities of DOT and other agencies/organizations. It soon became apparent that "Mobility" was the common theme, and the one that addresses all needs identified by the process.

As stated before, mobility is at the very core of the American way of life. While there are other UTCs whose themes address various aspects of mobility, there are some unique opportunities for UTCM. These are broken down in the following discussion into the three components of the UTC program: research, education and technology transfer.

Research

The facilities and expertise represented by TTI and TAMU together cover the full spectrum of mobility issues. While any research topic that will improve the quality of life by enhancing mobility will fit the theme of the center and will therefore be considered, some Research Focus Areas emerged during the

Strategic Planning process. These are areas where it was determined that the structure of UTCM would be especially beneficial in making a positive difference in the topic. The Research Focus Areas identified are

- Coast-to-coast, border-to-border mobility,
- Rural public transportation.
- Congestion management and mitigation, and
- Innovative financing.

Coast-to-coast, border-to-border mobility This Research Focus Area is intended to address all modes and the linkages between them from a regional and national viewpoint. TTI has expertise in border issues, port issues, freight issues, congestion, transportation planning, and virtually every other issue potentially affecting this topic. Emphasis will be placed on the transportation of both people and freight. It is anticipated that this effort will aid in developing logistics expertise within TTI and/or partnerships with other entities with experience in the logistics field.

It has been difficult up to this point for any one agency to get a handle on how a breakdown in the transportation system in one area of the country might affect the entire system and the country as a whole. The ability to analyze and mitigate this type of situation, and identify “chokepoints” and how they affect the nationwide transportation system, would be greatly beneficial. This topic has implications not just for transportation, but for commerce, national security, and quality of life in general. The security implications alone of a catastrophic failure in transportation infrastructure (for example, the collapse of an interstate bridge over the Mississippi due to a barge collision, an earthquake on the New Madrid Fault Zone, or a terrorist act, or the loss of a major port due to a hurricane) are potentially devastating. UTCM will seek to develop a national model to predict the impact of such a failure and to aid in analyzing proposed mitigation measures.

The Trans-Texas Corridor provides a unique opportunity to study how a multi-use corridor will function in a real-world setting. Other unique opportunities exist within TAMU to address this topic, such as the presence of the Bush School of Government and Public Service’s Institute for Science, Technology and Public Policy, which is a research institution integrated into the academic environment of TAMU. A Strategic Partnership will be forged between TTI and the Bush School, facilitated by UTCM. Additional funding to address this topic will be aggressively sought from other agencies impacted by coast-to-coast, border-to-border mobility issues. Some of these may include other modal agencies of USDOT, the Department of Homeland Security, the Department of Commerce, and the Department of Defense. It is envisioned at the end of the grant that the UTCM, through the expertise available within TTI and TAMU, will be the “go-to” UTC for issues involving nationwide mobility.

Rural public transportation This Research Focus Area has perhaps the most potential for directly affecting quality of life. Former Vice President Hubert H. Humphrey once said that “The moral test of a government is how that government treats those who are in the dawn of life - the children; those who are in the twilight of life - the elderly; and those who are in the shadows of life - the sick, the needy, and the handicapped.” The categories he described could also be used to summarize transportation dependent populations – those who most benefit from public transportation. This research area is traditionally difficult to fund from any source, and it is even more challenging to find a non-federal

source of match for this type of activity in a typical UTC environment. This is a huge opportunity for UTCM to make a difference in the quality of life for rural people.

TTI has significant expertise in the transit area. Research topics could include better routing methods, the use of technology in rural transit systems, safety issues, and more. The Colonias, a series of economically disadvantaged small communities along the Texas/Mexico Rio Grande border, provide a natural laboratory for such studies. A Strategic Partnership with the Center for Housing and Urban Development (<http://archone.tamu.edu/chud//>), housed in the College of Architecture, could facilitate work with the Colonias and provide opportunities for collaboration. The TAMU Health Science Center's School of Rural Public Health, the first in the nation of this type (<http://www.srph.tamhsc.edu/>), could also prove to be a valuable partner in this effort. UTCM's programs in this area would be directly applicable to other economically disadvantaged rural areas, such as the Mississippi delta, the Appalachian regions, and the Four Corners area of the American Southwest.

Congestion management and mitigation Former USDOT Secretary Norman Y. Mineta said it best, "Congestion kills time, wastes fuel, and costs money... We need a new approach and we need it now," noting that this country loses \$200 billion per year just to freight bottlenecks and delayed deliveries. Secretary Mineta added further that Americans lose 3.7 billion hours and 2.3 billion gallons of fuel per year due to traffic jams.

TTI is well-known for its work in the areas of congestion management and mitigation. Many successful programs in lane management, such as HOV and reversible lanes, and toll facilities in Texas were developed and implemented through TTI research and innovations. The Annual Urban Mobility Report issued regularly by TTI (see more information at <http://mobility.tamu.edu>) includes studies of mobility and traffic congestion on freeways and major streets in 85 cities, and also strategies to address mobility problems and "chokepoints" identified. Interest for this Report has grown but support for this vital activity has been variable in recent years. UTCM can give the Mobility Report a "home," and facilitate partnerships with interested partners who may be able to support this effort until more permanent sources of funding can be identified. UTCM support will facilitate an expansion of the current efforts in congestion management and mitigation, provide support for expanding the estimates of benefits from mobility improvement programs and projects, and set the stage for a major, long-term research initiative in this area.

Innovative financing The transportation infrastructure system continues to be adversely impacted from the double-edged sword of ever-increasing vehicle miles traveled combined with decreasing resources available for both new construction and the improvement of existing facilities. Simply put, more and more work on the transportation system is needed with less and less funds available. Clearly, alternative sources of funding for transportation improvements and new construction should be considered. In addition, Public-Private Partnerships (P3s) have the potential to generate revenue that can be used to support other infrastructure needs, such as transit systems. Texas is already a leader in the area of innovative financing, having enacted landmark legislation in the past five years to enable these types of partnerships.

In discussions with transportation organizations and agencies, several issues have emerged that provide

opportunities for UTCM. There is not an established financial model for P3 in this country, and there are many ways to utilize Public-Private Partnerships (P3s) for infrastructure improvements. For state departments of transportation to take advantage of P3 arrangements they need more information on how to assess and implement P3 contracts and operations. What contract structure would be most advantageous to state DOTs? What political and/or public relations strategy would be most effective in overcoming resistance to the concept? In some states it is illegal according to state and local laws to enter into P3 arrangements for infrastructure improvements.

UTCM, because of the impartiality and credibility of the academic environment, would be the ideal entity to seek answers to these types of questions. Within TTI, UTCM will work together with the TTI Center for Tolling, along with other interested parties. Industry partners will include ARTBA, which is already active in this area. TTI has demonstrated success in promoting managed lane facilities and developing associated public information campaigns (see <http://managed-lanes.tamu.edu>), and this expertise could prove invaluable in the public education efforts necessary for successful implementation of P3s in Texas and nationwide.

Other research topics While it is envisioned that UTCM will make an impact on the state of practice in these four Research Focus Areas, it should be stressed that other research topics that pertain to the UTCM theme of “Improving the quality of life by enhancing mobility” are eligible for sponsorship by this center and will be considered. This will enable UTCM to respond to emerging issues in mobility in a timely way.

Education

TAMU offers degrees in 150 courses of study in 10 colleges and schools. Mobility is a key issue in many of these programs, although traditionally transportation is thought of as an engineering discipline. The interdisciplinary education programs of UTCM could enhance awareness of mobility issues in other disciplines, resulting in graduates better prepared to address the transportation aspects of their professions, and who have a greater understanding of the importance of mobility to overall quality of life. The opportunity to make a difference at TAMU is significant. For example, with more than 60 faculty, 1000 undergraduate students, and 350 graduate students, the department of civil engineering at TAMU is the largest in the country. TAMU also has a top ten architecture program. Both have a transportation track within their programs, providing students and faculty interested and actively working in mobility issues. There are also programs consistently rated as among the best in the country in agriculture, business, and the Bush School that may provide opportunities for collaboration in transportation education.

All research projects funded by UTCM would require significant student involvement. In this way, synergy is created between the research and education components of projects and UTCM programs. In addition, some of the programs that will be implemented as part of the education component of UTCM include student support and course and program development.

Student Support Direct support to students (support not issued as part of a research project) will be a part of the education program of UTCM. Students in transportation-related programs may be supported by means including fellowships, scholarships, stand-alone assistantships, and tuition and/or

fee awards. It is anticipated that UTCM will work with SWUTC to develop a coordinated interdisciplinary support program.

Course Development Grants will be made to develop new transportation courses at TAMU. These would be proposed by faculty and professional staff and are intended to enrich courses available for students, as well as for professional development. It is anticipated that these may be replicated in transportation programs at other universities.

Program Development UTCM will also consider grant applications for the development of new transportation programs at TAMU. These could be within a department or interdisciplinary in nature. The grant would support the activities necessary for the development and approval of a new degree or program, including curriculum development and support for those shepherding the proposal through the process. The development of other types of education activities, such as short courses, outreach programs, or curriculum analysis and enhancement may also be supported.

It is envisioned that these activities will have substantially increased the quantity and, more importantly, the quality of graduates prepared to enter the professional transportation workforce. It should be noted as well that some T2 activities planned by UTCM will have the effect of professional-level education for those who utilize research results.

Technology Transfer (T2)

All projects funded by UTCM will require a T2 component. Depending on the nature of the project, this could be a published paper in a refereed journal and/or conference presentation, course materials, or professional training program. Innovative T2 mechanisms will be encouraged. T2 activities will be established in the proposal phase of a project and projects will not be considered complete until T2 activities are concluded. It is envisioned that at the end of the grant that all UTCM research will be successfully transferred to those who can benefit from it.

The Center for Professional Development (CPD), located within the Transportation and Operations Group in TTI, has as its mission “to foster and enhance the development of knowledge, skills, and abilities of existing and future transportation professionals to ensure the success of the transportation industry both now and in the future, by providing quality leadership, education, technology transfer, and research implementation.” (http://tti.tamu.edu/groups/program.htm?p_org_code=XPD) A Strategic Partnership will be sought with CPD to utilize their expertise to enhance the technology transfer activities of UTCM, and to seek ways to utilize UTCM to enhance the successful programs CPD already has in place.

As UTCM matures, local, state, and/or national conferences may be sponsored or co-sponsored by UTCM. These will be facilitated by enhanced linkages with other UTCs and universities in Region VI and nationally. The culmination of the grant will be a National Mobility Conference to showcase the state of the art in transportation mobility and provide an opportunity for interaction in the transportation community.

As previously discussed, there is a large amount of diverse transportation expertise at TAMU.

However, as is not uncommon in large organizations, there is limited opportunity to exchange ideas between departments, colleges, and programs within the university. One of the planned UTCM T2 activities is the development of an on-campus colloquium, held regularly, that would provide an informal opportunity for TTI and TAMU personnel to hear a presentation by a TAMU expert in their field. It is envisioned that the Transportation Mobility Colloquium will be held during the workday, perhaps as a brown bag lunch, with a 15-20 minute presentation on a select topic. These topics may range from a TTI center director discussing their center activities, to an agriculture professor discussing how transportation affects his/her research, or someone from the Bush School discussing transportation issues and national security. This relaxed opportunity for interaction will hopefully result in a better understanding of what people across campus are doing in transportation and provide an opportunity for research professionals to interact and develop ideas for collaboration. A similar program has been developed for researchers within the TAMU College of Architecture and is considered to be very successful in bringing people together.

II. PROGRAM ACTIVITIES

A. Research Selection

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

A.1. Baseline Measures

See Appendix A for Research Selection Baseline Measures

A.2. Research Selection Program Outcome

It is envisioned that, at the end of the grant period, UTCM will have conducted a successful research program with emphasis on each of the Research Focus Areas. Through this program, TTI will have established itself as the national “go-to” agency on mobility issues.

As UTCM activities highlight the interdisciplinary, intermodal aspects of mobility, the universal impact of mobility issues will be demonstrated. As a result, additional sources of funding for mobility research will be identified and combined with UTCM funds to maximize impact on quality of life through mobility. Effective and ongoing partnerships will be developed with other centers and agencies affected by mobility issues. Technology transfer activities will get the results of UTCM research to those who can benefit from it. A requirement that students be involved in all research projects will result in an enhanced educational component as well.

A.3. Planned Activities

The research selection process in the following sections will facilitate the described research selection program outcome.

Required Activities

The research selection process will be guided by the UTCM theme of “Improving the quality of life by enhancing mobility”. Research project ideas will be actively sought two ways: First, through an advertised Request for Problem Statements (RFPS), and second, through research initiatives developed with UTCM Strategic Partners, which may include proposals to other funding entities. No more than 30% of research funds shall be used in any given year for research initiatives with partners. Proposed projects will be subject to the review process described below.

Advertised RFPS Once a year, project ideas will be solicited from faculty and staff researchers in a problem statement format see (Appendix B). Problem Statements will then be reviewed by members of the UTCM advisory groups and UTCM’s USDOT Liaison, who will then independently rank them. Among the evaluation criteria will be the following:

- The degree to which the project statement addresses the UTCM theme and the Research Focus Areas,
- Technical soundness of research approach,
- The documented and established expertise of the principal investigator and researchers applicable to the proposed project and the ability to devote adequate time to complete the work on schedule,
- Potential for leveraged funds (funds in addition to the UTC grant),
- The adequacy of the proposed technology transfer outlined, and
- The degree of student involvement.

A decision will then be made by the Center Director (with input from the Executive Committee and the USDOT Liaison) regarding which PIs to invite to submit a formal proposal based on the combined rankings of the reviewers, funding available, and the balance and diversity of the program.

After the formal proposals are received, the final decisions of which projects to award will be made by the Executive Committee (with input from the Center Director and the USDOT Liaison) based on the previously established criteria, UTC grant funding available, amount and source of leveraged funds, and the balance and diversity of the program.

Research initiatives with partners UTCM may join with a Strategic Partner to seek funding from another source. In this event, before any UTCM resources are committed, guidance will be sought from UTCM advisory groups, the USDOT Liaison and the Executive Committee to ensure that these activities are in accordance with the Center’s theme and objectives.

To meet the requirement that USDOT personnel be involved in the annual research project selection process, our DOT Liaison, Edward Weiner, Office of the Secretary, will be actively involved in the research selection process as described above. The Liaison’s involvement will facilitate the merits and appropriateness of UTCM’s research agenda in supporting USDOT’s mission and goals.

The completion of this process on a yearly basis produces a coordinated research agenda to be

implemented by UTCM during each year of the grant period.

Recommended Activities

UTCM will support national transportation needs by addressing the high-priority areas of advanced research and congestion chokepoints, among the others detailed in Section I. Program Overview.

Advanced Research The Research Focus Areas of the UTCM naturally lend themselves to advanced research, defined by RITA as “research that involves and draws upon basic research results to provide a better understanding of phenomena and develop innovative solutions – sometimes referred to as exploratory research in order to convey its more fundamental character, its broader objectives, and the great uncertainty in expected outcomes compared to problem-solving research.” Some advanced research topics UTCM will consider, according to Research Focus Area, are as follows:

Advanced research topics related to “Coast-to-coast, border-to-border mobility” may include

- Developing new and improved models describing the linkages among activities, information exchange, and travel behavior of individuals,
- Improved models of dynamic traffic networks,
- Improved dynamic models for describing the linkages among air quality, urban traffic system performance, and individual travel preferences,
- Developing improved models for analyzing and describing the linkages between economic activity locations, freight transportation demands, and transportation system efficiencies, and
- Improving methodologies for identify, measuring, and mitigating congestion chokepoints in a multimodal transportation network.

Some of the advanced research topics in “Rural public transportation” may include

- Technology applications in routing,
- Fare collection, and
- Vehicle advances for rural public transportation systems.

Advanced research topics related to “Congestion management and mitigation” may include

- Improved methods for measuring and predicting societal costs of transportation congestion,
- Improved methods for identifying and measuring congestion chokepoints, and
- Improved analytical techniques for multimodal chokepoint solutions.

Congestion Chokepoints TTI’s established research programs in mobility and traffic congestion, which include the annual, well-publicized Annual Urban Mobility reports, and in lane management, provide excellent opportunities for collaboration with UTCM.

UTCM’s Research Focus Area of “Coast-to-coast, border-to-border mobility” is a natural fit for addressing the issue of congestion chokepoints, as the focus of this area is to identify where problems may occur in providing a safe, efficient, intermodal, national mobility system for

people and freight from a national standpoint. “Congestion management and mitigation” relates directly to the chokepoints issue from a local perspective. Even UTCM’s program focus area of alternative financing issues is related to chokepoints, as problems identified will have to be addressed by infrastructure improvements, and may require innovative or alternative financing measures. UTCM plans to integrate alternative financing issues throughout program activities.

A.4. Performance Indicators

One of the anticipated synergies of the UTCM and SWUTC is the benefit of SWUTC’s experience in collecting and documenting the information needed for performance indicators. This relationship will be utilized to the fullest in meeting the report requirements for UTCM’s grant.

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.”

B.1. Baseline Measures

See the Appendix for Research Performance Baseline Measures

B.2. Research Performance Program Outcome

By the conclusion of the current grant period, UTCM research activities will have produced deliverables which have withstood the more formal test of peer review and acceptance. UTCM-sponsored work will appear in all major transportation venues, such as Transportation Research Board conferences and refereed journals, and be held in high regard in the UTC community, USDOT, and the transportation community at large. Finally, our research faculty members will be in leadership positions in the leading transportation professional organizations, both nationally and internationally.

B.3. Planned Activities

During the grant period, UTCM will pursue the following four objectives:

- Utilize the review and critique of industry-based Project Monitors in the development and reporting of research results. Each researcher establishes a working relationship with the Project Monitor to determine the type and level of interaction needed to develop the project,
- Produce results that are published/presented in the best technical venues (journals, proceedings, conferences, organizational meetings, websites, etc.),
- produce results that are adopted for use and practice in transportation agencies/entities and by our peers in other research universities, and
- Qualify UTCM researchers to serve in leadership positions in national and international professional organizations.

A peer review and monitor process will be established for all phases of research activities including the evaluation of research ideas, project selection, conduct of the research work plan, and the reporting of research results. This process applies the following specifics to every research project:

- The research idea evaluation and project selection phase will be conducted by the UTCM Advisory Groups and Executive Committee and assisted by UTCM's USDOT Liaison. In this way, UTCM will develop an annual research agenda that supports the theme of UTCM and supports the research agenda of USDOT.
- The Principal Investigator will identify a Project Monitor, who will be a transportation professional from the public or private sector whose expertise and/or experience includes a familiarity of the technical aspects of the topic being researched. The Project Monitor will provide advice and assistance throughout the research work plan activities. At the beginning of the project, UTCM will provide the Project Monitor a copy of the Research Project Proposal. At the conclusion of the project, UTCM will provide a draft report to the Project Monitor and solicit review and comments to be provided to the Principal Investigator prior to report publication.
- Principal Investigators must engage in technology transfer as a part of the completed research cycle. The Principal Investigators are encouraged to utilize existing professional venues for publication and presentation of their results in addition to the publication of the research report (see previous bullet). These venues typically have well-developed peer review selection and editorial processes. Innovative methods of technology transfer will be encouraged and supported by UTCM.

B.4. Performance Indicators

One of the anticipated synergies of the UTCM and SWUTC is the benefit of SWUTC's experience in collecting and documenting the information needed for performance indicators. This relationship will be utilized to the fullest in meeting the report requirements for UTCM's grant.

C. Education

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

C.1. Baseline Measures

See Appendix A for Education Baseline Measures

C.2. Education Program Outcome

At the end of the grant period, UTCM will have stimulated development of new courses and explored opportunities for additional transportation programs on the TAMU campus. Because all research projects will require student involvement, students involved in UTCM research will have the opportunity to benefit from the educational opportunities that research provides. The

interdisciplinary nature of UTCM's planned activities will result in more students of all disciplines being exposed to transportation issues.

C.3. Planned Activities

The education programs of UTCM will include the activities required by RITA and other activities developed by UTCM to enhance mobility.

UTCM Education program activities that directly address the requirements of the grant include:

- Promoting and supporting the development of courses and curricula in transportation-related programs across the TAMU campus.
- Student involvement in every UTCM research project. The nature and extent of this involvement will be detailed by the PI in the project proposal and will be a consideration for funding decisions.
- Relevance to USDOT priorities, as detailed in Section I.B. UTCM's theme and program focus areas are directly in line with USDOT research strategy.
- Each year, UTCM selection of one student to be named UTCM Outstanding Student of the Year. This student will be awarded \$1000 and a trip to TRB to attend the awards ceremony during the annual meeting of the Transportation Research Board in Washington, DC.

Other UTCM Education Activities:

- UTCM will support grants for the development of new transportation courses at TAMU. These would be proposed by faculty and professional staff as part of the research procurement process and are intended to enrich courses available for students and for professional development.
- UTCM will also consider grant applications for the development of new transportation programs at TAMU. These could be within a department or interdisciplinary in nature. The grant would support the activities necessary for the development of a new degree program and support during the approval process for a new degree program.
- UTCM will sponsor a Transportation Mobility Colloquium on a regular basis that will bring both the academic and professional transportation communities together for a presentation on a selected topic. This will provide an opportunity for fellowship between departments, colleges and programs with an interest in transportation that may result in opportunities for collaboration. UTCM will encourage students to attend the Colloquia, which will result in a valuable educational opportunity to learn more about a topic they might not be exposed to otherwise.
- Existing opportunities sponsored by others that could enrich the student learning experience, such as summer programs, conferences, or workshops will be supported by UTCM and promoted to students and/or the professional transportation community.

C.4. Performance Indicators

One of the anticipated synergies of the UTCM and SWUTC is the benefit of SWUTC's

experience in collecting and documenting the information needed for performance indicators. This relationship will be utilized to the fullest in meeting the report requirements for UTCM's grant.

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.”

D.1. Baseline Measures

See Appendix A for Human Resources Baseline Measures

D.2. Human Resources Program Outcome

At the conclusion of the grant, UTCM will have been directly responsible for an increase in the number of graduates prepared to enter the transportation workforce. In addition, the research opportunities provided by the grant will have attracted faculty and staff to UTCM's research program. Because the focus areas of UTCM are so closely aligned with USDOT research priorities, the efforts of the faculty, staff, and students working in these areas will result in not just a positive impact on the state of practice in these areas through the research results, but also trained professionals ready to continue making an impact in these critical areas after graduation.

D.3. Planned Activities

To increase the number of professionals ready to positively impact mobility issues in the workforce, UTCM will engage in a number of activities.

- UTCM will increase the number of undergraduate and graduate students enrolled in transportation-related courses or degree programs at TAMU. UTCM will work with SWUTC to develop recruitment materials to be used in aggressively marketing transportation programs at TAMU. These materials may include fliers, videos, and display units. Working with existing recruitment efforts at TAMU, we will help to promote awareness of transportation careers from the K-12 level up to the graduate level. Other existing USDOT recruitment efforts, such as the National Highway Institute's Summer Transportation Institute and the Garrett A. Morgan Technology and Transportation Education Program, will be utilized as appropriate in UTCM human resources activities.
- UTCM will increase the number of undergraduate and graduate students involved in transportation-related research at TAMU, both by increasing the opportunities available for research and by requiring student involvement in UTCM research.
- The UTCM will develop and promote its fellowship program. UTCM may also provide stand-alone assistantships and assistance with tuition and fees. These activities are intended to attract the “best and brightest” to the transportation profession.
- The UTCM will actively promote existing fellowship and scholarship opportunities to

transportation students to enhance their educational opportunities, and to provide exposure for the students and the center. Some of these are provided through the modal agencies of USDOT and professional and trade organizations (ASCE, ITE, ARTBA, etc). Information on scholarship and fellowship opportunities will be collected by UTCM, actively promoted, and made available for distribution to interested students.

D.4. Performance Indicators

One of the anticipated synergies of the UTCM and SWUTC is the benefit of SWUTC's experience in collecting and documenting the information needed for performance indicators. This relationship will be utilized to the fullest in meeting the report requirements for UTCM's grant.

E. Diversity

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

E.1. Baseline Measures

Not required

E.2. Diversity Program Outcome

UTCM is committed to furthering the diversity of the transportation workforce. It is anticipated that increased numbers of women and minorities will be attracted to transportation through the programs of the center. By the end of the grant, UTCM will have increased the numbers of women and minorities ready to address mobility issues in the workforce.

E.3. Planned Activities

UTCM, as a part of the Texas A&M System (TAMUS), has a unique opportunity to implement diversity programs through TAMUS's established network. TAMUS is one of the largest systems of higher education in the nation, with a statewide network of nine universities and seven state agencies. More information on the TAMUS can be found at <http://tamusystem.tamu.edu/overview/about.html>. Of these nine universities, Texas A&M International (in Laredo, Texas) and Texas A&M Kingsville are majority Hispanic institutions. Prairie View A&M, a Historically Black University, is located near Houston in Waller County. TAMUS in total has an ethnically and culturally diverse population of students in its programs across Texas. UTCM will develop partnerships with TAMUS campuses to promote careers in transportation mobility. Activities could include support for outreach programs, opportunities to promote targeted fellowships (see below) and collaborative research.

Specific activities may include:

- PIs will be encouraged to hire women and minorities to work on UTCM sponsored projects.
- As a result of the activities in II.D.3, existing fellowship and scholarship opportunities targeted to women and minorities will be identified. These will be actively promoted by UTCM to TAMUS students and used to attract qualified students to the transportation profession. Some examples of these are the categories of FHWA’s Eisenhower Fellowships targeted to minorities and the Hispanic Scholarship Fund Institute scholarships, co-sponsored by USDOT.
- UTCM fellowship programs, while not targeted specifically to minority students, will be advertised in minority targeted publications and promoted throughout the TAMUS, and also at other Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions to appeal to as diverse a student population as possible.
- UTCM will develop a partnership with the TAMU Office of Diversity to enhance opportunities for minority students, faculty, and staff in the transportation profession. TAMU has a strong commitment to diversity, with the head of the Diversity Office at the Vice President and Associate Provost level. This office sponsors a number of diversity initiatives every year, such as student conferences, festivals, and exhibits. A Proposed TAMU University Campus Diversity Plan is under development, with a draft posted in June of 2006 at <http://diversity.tamu.edu/documents/ProposedDivPlan.pdf>. A review of the core action areas of this document revealed several initiatives that could prove beneficial in UTCM diversity activities.
- UTCM will seek opportunities to support and enhance the Texas Summer Transportation Institute (STSI), which is already in place through TTI’s Center for Professional Development.

E.4. Performance Indicators

None required

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.”

F.1. Baseline Measures

See Appendix A for Technology Transfer Baseline Measures

F.2. Technology Transfer Program Outcome

By the end of the grant period, UTCM research and education programs will have delivered timely information to the people who can use it. This may be in the form of a paper published in a refereed journal, presentation at or sponsorship of a conference, development of a workshop, course, or seminar, or acquisition of patents. Also, newsletters, the website and press releases will have been used to keep interested parties up to date on the programs of the center. Innovative T2 activities will be encouraged and supported by UTCM.

F.3. Planned Activities

The planned T2 programs of the UTCM include activities required by the terms of the UTC grant and activities specific to our center.

During the grant period, UTCM will perform the following required T2 activities:

- An initial and continuing activity for the UTCM will be the development and continuous upkeep of a website. The website will contain, as a minimum, the reporting requirements specified by RITA. Other information may include announcements of scholarships and fellowships that are available or of award notices, announcements for meetings, links to helpful information, calls for problem statements and procurement information, and other articles of interest pertaining to UTCM programs.
- UTCM personnel and researchers will provide technical and educational expertise on mobility issues for USDOT, TxDOT, and other state and local officials and agencies upon request. Because UTCM will seek to be the “go-to” agency for mobility issues, we anticipate increased requests for information and assistance. UTCM will welcome and encourage such requests.
- UTCM personnel and researchers will participate in UTC meetings, and will be available to USDOT for assistance in planning these meetings if desired.

Other T2 activities planned for UTCM may include the following:

- T2 activities will be outlined by PIs as part of their research and education proposals. Projects will not be considered complete until T2 activities are substantially complete.
- Using the communications personnel at TTI, an initial effort of the UTCM will be the development of a logo and a visual theme for the center to create a strong identity and to “brand” the center.
- UTCM will seek opportunities to sponsor or co-sponsor seminars, conferences, symposia, or courses at the local, state, and national level that pertain to mobility issues. The culmination of the grant will be a National Mobility Conference to showcase the state of the art in transportation mobility and to provide an opportunity for interaction in the transportation community.
- At least twice a year, UTCM will issue a newsletter about activities taking place at the center. The newsletter will contain, at a minimum, one example each of research, education, and T2 activities that demonstrate the value of the UTC grant. All newsletters will be posted to the UTCM website for the duration of the grant, and will be in a format suitable for printing. The newsletter may also be distributed in hard copy, electronically, or both, to interested parties.
- Press releases on newsworthy UTCM activities will be utilized to keep the community and interested parties up to date on center programs.
- As described previously, UTCM will sponsor a Transportation Mobility Colloquium on a regular basis that will bring both the academic and professional transportation communities together for a presentation on a selected topic. This will provide an opportunity for technology transfer between departments, colleges and programs with an interest in transportation and may also result in opportunities for collaboration.
- Working with The Center for Professional Development (CPD), UTCM will seek opportunities to collaborate on T2 activities. These may include webinars on congestion

and mobility topics of UTCM, and short courses for working transportation professionals.

F.4. Performance Indicators

One of the anticipated synergies of the UTCM and SWUTC is the benefit of SWUTC's experience in collecting and documenting the information needed for performance indicators. This relationship will be utilized to the fullest in meeting the report requirements for UTCM's grant.

III. MANAGEMENT APPROACH

A. Institutional Resources

TAMU/TTI has significant facilities and resources that will be used in UTCM activities, including a presidential library, state-of-the-art computer facilities (including supercomputers), cutting edge labs, office space, and classrooms, and myriad support services available for use by the UTCM.

Overview of the Texas Transportation Institute

Established in 1950, TTI maintains research divisions, regional divisions, research centers, and six field offices. Major research areas include: Materials and Pavements; Safety; Transportation Systems; Structural Systems; Systems Policy, Planning and Environment; Traffic Operations; and Multimodal Systems. More than 600 people work in these divisions and centers. Expert personnel from appropriate areas--either a single division or an interdisciplinary project team--may join to make a uniquely specialized team. Faculty members from academic departments of TAMU University frequently collaborate with TTI researchers. With its long history and breadth of research, TTI has become home to over 100 senior transportation researchers--people who have "written the book" on the principles of safety, corridors, ITS, economics, asphalt, traffic engineering, HOV, planning and other topics. In addition, they have put principles to practice through inventions, procedures and patents that have saved thousands of lives, and strengthened the economy by reducing congestion and other waste, analyzing effective use of state resources, bringing 20 dollars in benefits to the state for every dollar spent on research, and reducing the loss and liability of traffic fatalities. These Principal Investigators (Project Supervisors) have personal and professional responsibility for the research project. TTI also maintains high-quality support services, including proposal and project administration, accounting and financial services, report/manual editing and reproduction, literature searching, and broadcast quality video/CD ROM production, web-based data and report files, which assure responsible project management and high quality deliverables.

TTI is also home to SWUTC, the UTC for Region 6, which is one of the prized activities within TTI, and has been operating since the inauguration of the UTCP in 1998. SWUTC will serve as a mentoring institution for UTCM, providing a synergetic relationship and opportunities for collaboration. SWUTC's structure, administration, programs, and outputs are widely known to be great examples of "how to do a UTC," and have been adopted by other UTCs in setting up

their programs. There are differences, however, in how the programs of SWUTC and UTCM will operate. UTCM is not a consortium, and does not have a structure requiring 100% non-federal match for the UTC grant. Therefore, it is anticipated that UTCM will pursue other sources of federal funding to enhance the programs of the center without the constraint of commitments to and geographical constraints of traditional match sources. Some UTCM research will be more global in nature than most SWUTC research. It is anticipated, however, that there will be some overlap in research interests and types of programs (especially in education and technology transfer), in which case the two centers may work together.

Overview of TAMU University

Established in 1876 as the first public college in the state, TAMU has become a world leader in teaching, research and public service. Located in College Station in the heart of Texas, it is centrally located among three of the country's 10 largest cities -- Dallas, Houston and San Antonio.

TAMU is the only university to be ranked nationally among the top 10 in all three areas listed below:

- Enrollment: Academic year 2005-2006 enrollment is 44,910, which places TAMU sixth among the nation's largest universities. Students come from every state in the nation and from 113 other countries.
- Value of research: Conducts research valued at more than \$500 million annually, placing it among the top 20 universities nationally.
- Endowment: Has an endowment valued at approximately \$4.4 billion, which ranks third among U.S. public universities and seventh overall, has already exceeded \$1 billion goal for current capital campaign

Other national highlights include:

- One of a select few institutions to hold the triple federal designation of Land Grant, Sea Grant and Space Grant.
- Home of the George Bush Presidential Library.
- Historically has led the state in retention of students overall, and of African- American and Hispanic students-keeping them enrolled and on track for graduation.
- Ranks second nationally in granting doctoral degrees to minority students.

TAMU's research budget for fiscal year 2004 (the most current period for which comparable figures are available) was \$400 million. On that basis, National Science Foundation tabulations place TAMU in the top tier nationally -- and first in the South and Southwest.

TAMU University has been a national leader in engineering education throughout its history. From its beginning in 1876, the mechanical arts have held a prominent place in the curriculum, and for several decades, the College of Engineering has enjoyed excellent ratings. Thousands of graduates hold high-level positions in the leading industries in the region and Nation, and TAMU

engineering graduates are highly recruited nationwide. Over 6,630 undergraduates (including over 1,260 women), and over 2,150 graduate students are currently enrolled.

The Transportation and Materials Engineering areas at TAMU University prepare engineers for professional careers in industry, government, academia, and research. Advanced study in transportation engineering offers a practical balance between scientific theory and engineering practice, while allowing students the opportunity to specialize in one or more areas of interest. Graduate degrees in transportation include the Master of Science in Civil Engineering, Master of Engineering (non-thesis option) in Civil Engineering, Doctor of Philosophy in Civil Engineering, and Doctor of Engineering.

TAMU University is also home to the Bush Presidential Library and the Bush School of Government and Public Service whose mission is to educate and prepare students for careers in public service spanning the public, not-for-profit and private sectors both domestically and internationally.

TTI also utilizes the services of the TAMU Research Foundation (TAMRF) to provide supplementary managerial support, particularly in the administration and financial control of contracts with USDOT as well as sub-contracts with TSU and UT-Austin. The TAMRF is a non-profit scientific research corporation organized under the laws of the State of Texas and governed by a board of trustees. It is not a state agency, so it can extend credit and offer indemnification. TAMRF submits proposals, administers contracts, and has the authority to sign contracts, liability statements, representations and certifications, and other administrative documents.

B. Center Director

It is proposed that Melissa S. Tooley, PhD, PE, will serve as the Director of the UTCM. Dr. Tooley previously served as the Director of the Mack-Blackwell Rural Transportation Center (MBTC), a UTC located at the University of Arkansas. She will engage at least 60% of her total budgeted time as UTCM Director over the course of the grant, and up to 85% of her time the first year. Dr. Tooley is a civil engineer with a Professional Engineer's license in the state of Arkansas (and soon to be licensed in Texas as well), is the immediate past president of CUTC, and a former Young Engineer of the Year for the state of Arkansas. She is currently serving on the Executive Committee and Board of Directors for ARTBA, and is the current President of ARTBA's Research and Education Division. She reports to Dr. Dennis Christiansen, who is the Deputy Director of the Texas Transportation Institute.

Dr. Tooley is very much a product of the UTC program, as well as other DOT programs developed to increase the number of trained transportation professionals. She is a former Eisenhower Fellow at the Master's and PhD Award levels, and MBTC's first Student of the Year in 1992. Many of the graduate courses she took, the professors she worked with, and the research she conducted, were all sponsored by the UTC at the University of Arkansas. She was named an Eno Fellow due to the experiences made available to her by MBTC. Her first job as a graduate student was to assist the original Director of MBTC, and after she graduated and joined the faculty at the Universities of Florida and Arkansas, she was selected to be the Director of

MBTC. As a result of her experience, she is dedicated to providing these opportunities for others and to the continued success of the UTCP. Dr. Tooley's resume is included as Appendix C.

There will be three advisory groups that provide guidance and input into UTCM research, education, and technology transfer programs.

- The research advisory group is made up of individuals from TTI who are involved in mobility issues
- The academic advisory group is made of up persons whose activities are primarily academic in nature and/or who are well versed in academic issues at TAMU
- The industry advisory group is made up of persons from industry and agencies who are concerned with mobility issues. The UTCM DOT liaison is a part of this group.

These three groups will review Problem Statements and proposals, and provide input as required to enhance the programs of the UTCM.

UTCM's USDOT Liaison will be involved in the research and program selection process at all levels. UTCM is fortunate to have Edward Weiner from the USDOT Office of the Secretary as our Liaison. His global perspective and "Big Picture" thinking will greatly enhance the ability of UTCM to remain in accordance with DOT priorities from all modes. Such a close working relationship with the Office of the Secretary is a first for the UTCP, and will be greatly beneficial to the center and the USDOT.

The Executive Committee will be made up of management level personnel at TTI and will make the ultimate decisions regarding UTCM research and programs with input from the Center Director and the USDOT Liaison.

Dr. Tooley will plan, execute, and report the approved activities of the Center. She has principal responsibility for complying with the provisions of the UTC grant and maintaining a sound relationship with the UTC program office at RITA. She will be assisted by an Administrative Assistant, who has yet to be hired. It is anticipated that the UTCM will take full advantage of the experience and expertise of the Director and staff of SWUTC, and of business and accounting specialists both in the TAMU Research Foundation (TAMRF) and TTI, where the detailed financial management, accounting, and reporting will be conducted. The USDOT grant contract is administered by TAMRF, and any state agency contracts will be administered by TTI.

The detailed duties and responsibilities of the UTCM Director will be:

- To Serve as Chief Executive Officer of the Center. As the leader of the UTCM, the Director accepts primary responsibility for the timely planning of, the execution of, and reporting of the activities of the Center.
- To actively seek out and build partnerships with other departments and centers at TAMU who are involved in transportation-related activities, and use these partnerships to identify additional sources of funding to help meet the goals and objectives of the UTCM.
- To serve as the primary representative of the UTCM in external relationships. The Director is responsible for interactions and attending formal meetings with RITA and other program sponsors, CUTC, potential and existing clients and partners, and others.

- To develop policy for the UTCM with advice and guidance from research, academic, and industry advisory groups, and the Executive Committee.
- To provide leadership and vision for future developments of UTCM. The Director will nurture a vision for the UTCM, and will maintain the relevance of the Center's theme, goals, objectives, and policies; and incorporate them into an annual comprehensive, integrated plan.
- To be held accountable for the performance and activities of the UTCM.
- To develop clearly understandable measures and methods for systematically explaining the effectiveness of the Center in managing its resources to achieve its goals and pursue its theme-oriented activities.
- To expand the resource base for UTCM activities.

C. Center Faculty and Staff

An Administrative Assistant will be hired for UTCM. Responsibilities will include fulfilling the UTC reporting requirements, which entails preparation of the Directory of Key Center Personnel, Research Project Descriptions, UTCM Newsletters, the UTCM Annual Report, review and distribution of Final Research Reports, and creating and maintaining the UTCM Web Page. In addition, the Administrative Assistant will oversee the daily operational activities of the Center including preparing required business forms, reviewing program budgets and proposals, assisting Center Principal Investigators as needed, facilitating the issuing of press releases, making arrangements for UTCM advisory group meetings, and logistics and planning for conferences, other UTCM meetings and DOT Site Visits.

Only the Center Director and the Administrative Assistant will spend 50% or more of their time on UTCM activities.

D. Multiparty Arrangements

Not applicable.

E. Matching Funds

While matching funds are not required for Title III UTCs, significant leveraging of additional funding sources will be sought to enhance the programs of the UTCM.

IV. BUDGET DETAILS

A. Format

The UTCM Total Budget Plan is included as Appendix D. This is further broken out into Administration and Education Program Budget and the Research Program Budget. Explanatory notes as required below are provided on the appropriate budget.

B. Grant Year

The fiscal year of TAMU will be adopted by UTCM. Therefore, the grant year for UTCM will begin on September 1 of every year, and end on August 31.

C. Salaries

See Appendix D.

D. Scholarships

See Appendix D.

E. Equipment

See Appendix D.

F. Foreign Travel

See Appendix D.

G. Other Direct Costs

See Appendix D.

H. Facilities and Administrative (Indirect) Costs

See Appendix D.

Appendix A - Baseline Measures for UTCM (9/1/04-8/31/05)

Research Selection

1. Number of transportation research projects selected for funding: 304

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

Basic Research	Advanced Research	Applied Research
15	61	228

2. Total budgeted costs for the projects reported in 1 above: \$35,741,437

Research Performance

3. Number of transportation research reports published: 160

4. Number of transportation research papers presented at academic/professional meetings: 216

Education

5. Number of courses offered that are be part of a transportation curriculum.

Undergraduate	Graduate
20	40

6. Number of students participating in transportation research projects.

Undergraduate	Graduate
204	145

Human Resources

7. Number of transportation-related advanced degree programs offered.

Master's Level	Doctoral Level
2	2

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

Master's Level	Doctoral Level
34	15

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

Master's Level	Doctoral Level
24	7

Technology Transfer

10. Number of transportation seminars, symposia, distance learning classes, etc. conducted for transportation professionals: 24

11. Number of transportation professionals participating in those events: 4859

Appendix C - Resume for Melissa S. Tooley, PhD, PE

CONTACT INFORMATION:

Texas Transportation Institute
University Transportation Center for Mobility
3135 TAMU
979-845-8545 (Office)
979-845-9873 (FAX)
m-tooley@ttimail.tamu.edu

PROFESSIONAL EXPERIENCE

1998 to April 2006 - University of Arkansas

- Director, Mack-Blackwell Rural Transportation Center (May 1999 – April 2006)
- Assistant Professor, Department of Civil Engineering (July 1998 – April 2006)

1997 to 1998 - University of Florida

- Assistant Professor, Department of Civil Engineering (July 1997 – May 1998)

1992 to 1997 - University of Arkansas

- 1/96 to 12/96 – Assistant to the Civil Engineering Department
- 8/94 to 5/97 - Senior Graduate Assistant conducting rural transportation planning studies
- 8/92 to 8/94 - Administrative Assistant, Mack-Blackwell Rural Transportation Center (MBTC)

1985 to 1992 - Civil Engineering Consulting

- 8/87 to 7/92 - Project Manager for Summerlin Associates, Inc., Little Rock, Arkansas
- 3/85 to 8/87 - Design Engineer, Black and Veatch, Dallas, Texas

EDUCATION:

- Ph.D., University of Arkansas, May 1997, dissertation topic: “The Use of Urban Transportation Models in Rural Areas: The Northwest Arkansas Study”
- MSCE, University of Arkansas, December 1994
- BSCE, Louisiana Tech University, March 1985, cum laude
- Louisiana Tech Rome, Summer 1984

PROFESSIONAL REGISTRATION

Registered Professional Engineer, Arkansas, certificate number 7387

ACHIEVEMENTS AND ACTIVITIES

Community Activities

- Member of P.E.O. (a national women’s philanthropic organization)
 - Keynote Speaker, 1996 state P.E.O. Convention

Honors and Awards

- Champion Paper Award (one of 5 selected for the Conference and presented at a “best of” session at TRB) for “*Small and Medium-Sized Communities and the UTC Program – Public*”

/Academic Partnerships that Work!” proceedings of the Tools of the Trade Conference (sponsored by the TRB Committee A1D05), Colorado Springs, CO, September 21-24, 2004.

- 2003 CIEC Best Paper Award for “*The Genesis Connection*,” co-authors O. Loewer, J. English, January 2003
- 1999 ASEE Best Paper for Professional Interest Council II for “*Using a Capstone Design Course to Facilitate ABET 2000 Outcomes*,” co-author K. Hall, Proceedings, 1999 ASEE Annual Conference, Charlotte, NC, June 20-23, 1999
- 1996 Student Paper Contest Winner - Missouri Valley Institute of Transportation Engineers
- 1996 Federal Highway Administration - Eisenhower Fellowship Award Recipient (PhD level)
- 1996 WISE Award (Women in Significant Endeavors)
- 1995 Eno Transportation Foundation Fellowship
- 1995/1996 PEO Scholar Award
- 1994/1995 Arkansas Society of Professional Engineers - Outstanding Young Engineer of the Year
- 1994 William Randolph Hearst Fellowship Award
- 1993 Mack-Blackwell Transportation Center Student of the Year
- 1993 Federal Highway Administration - Eisenhower Fellowship Award Recipient (Master’s level)
- Tau Beta Pi
- Chi Epsilon

Professional and Technical Activities

- American Road and Transportation Builders Association
 - 2006/2007 President, Research and Education Division
 - 2005/2006 Vice-President, Research and Education Division
 - Executive Committee (2005-present)
 - Board of Directors (2003 – present)
 - Reauthorization Task Force
- Council of University Transportation Centers
 - 2005/2006 President
 - 2004/2005 Vice-President
 - 2003/2004 Secretary
 - 2002/2003 Treasurer
 - 2002/2003 Chair, Task Force on Strategic Assessment of CUTC Activities
 - 2001-present, Strategic Alliance Subcommittee
 - 2001-present, Subcommittee for Center Profiling
 - 2000-Present, Executive Committee
- Transportation Research Board
 - Member, Committee A1A04 - Committee on Transportation Education and Training
 - Member, Committee A1D05 – Committee on Transportation Planning Needs and Requirements of Small and Medium-Sized Communities
 - Member, Subcommittee on Planning for the Conference on Small and Medium-Sized Communities (A1D05(1))

- National Society of Professional Engineers
 - 1995/1996 NW Arkansas Chapter President
 - 1994/1995 NW Arkansas Chapter Vice-President
 - 1993/1994 NW Arkansas Chapter Secretary/Treasurer
 - Central Arkansas Transportation Advisory Committee
 - Summer Transportation Institute, UA Pine Bluff, Steering Committee
 - 2002 FHWA Excellence in Design Awards Panel
- WIN (Women In Engineering) Program Coordinator and Founder

PUBLICATIONS

Refereed Journals

- “*Evaluation of Automated Work Zone Information Systems,*” co-authors J. Gattis et al, Transportation Research Record 1877, Transportation Research Board, Washington, DC, 2004, pp 69-76.
- “*Incentives and Rate of Return for Travel Surveys,*” Transportation Research Record 1551, Transportation Research Board, Washington, DC, 1996, pp 67-73.

Refereed Conference Proceedings

- “*Small and Medium-Sized Communities and the UTC Program – Public /Academic Partnerships that Work!*” proceedings of the Tools of the Trade Conference (sponsored by the TRB Committee A1D05), Colorado Springs, CO, September 21-24, 2004.
- “*Retaining Women in Undergraduate Engineering Programs Through Structured Mentoring,*” Youngblood, A. D., K. Schneider, and M. Tooley, Society of Women Engineers Annual Conference Proceedings, Birmingham, AL, October 9-11, 2003.
- “*The Genesis Connection to Research Partnerships in a College of Engineering,*” Loewer, O, M. Tooley and J. English, proceedings of the 2003 ASEE Conference for Industry and Education Collaboration, Tucson, AZ, CD-ROM, Session CPD 334, January 28-31, 2003
- “*The Northwest Arkansas Transit Assessment Study,*” proceedings of the 8th TRB Conference on Application of Transportation Planning Methods, Session XI – Transit Assessment and FTA New Starts, Corpus Christi, TX, April 22-26, 2001
- “*Intercity Transportation – Marketing Strategies for Increasing Ridership in Rural Areas*”, co-author V. Rodman, Proceedings of the 14th National TRB Rural Public and Intercity Bus Transportation Conference, CD-ROM, November 12-15, 2000
- “*The Northwest Arkansas Transit Assessment Study*”, Proceedings of Tools of the Trade – The 7th National Conference on Transportation Planning for Small and Medium-Sized Communities, Cincinnati, Ohio, CD-ROM, September 28-30, 2000
- “*The Use of Capstone Design Courses to Enhance Criterion 3 Outcomes in Engineering Graduates,*” proceedings of the Best Assessments Processes III: A Working Symposium, Rose-Hulman Institute of Technology, Terre Haute, Indiana, April 2-3, 2000
- “*The Mack-Blackwell Transportation Center: Improving the Quality of Rural Life Through Transportation,*” proceedings of the 25th ASEE Annual Conference for Industry and Education Collaboration, American Society for Engineering Education, pp 93-94, February 2000
- “*The Mack-Blackwell Transportation Center: Improving the Quality of Rural Life Through Transportation,*” proceedings of the 25th ASEE Annual Conference for Industry and

Education Collaboration, American Society for Engineering Education, pp 93-94, February 2000

- “*Using a Capstone Design Course to Facilitate ABET 2000 Outcomes*,” co-author K. Hall, Proceedings, 1999 ASEE Annual Conference, Charlotte, NC, June 20-23, 1999
- “*Dual Careers vs. Dueling Careers: Engineering the Two-Profession Household*,” co-author M. Tooley, Proceedings, 1999 ASEE Annual Conference, Charlotte, NC, June 20-23, 1999
- “*Enhancing Soft Skills with Capstone Design Courses*,” co-author K. Hall, Proceedings, 34th ASEE Midwest Section Conference, Stillwater, OK, April 14-16, 1999
- “*The WIN Program - A Mentoring Program for Women in the College of Engineering at the University of Arkansas*,” Proceedings, 1997 ASEE Annual Conference - International Division, Milwaukee, WI, June 15-18, 1997, CD-ROM, session 2360, 6 pages
- “*Data and Zonal Management for Conducting Areawide Planning*,” co-author R. Alguire, Proceedings, Fifth National Conference of Small and Medium-Sized Communities (sponsored by Transportation Research Board Committee A1D05 --Committee on Transportation Planning Needs and Requirements of Small and Medium-Sized Communities), Greensboro, North Carolina, October 2-4, 1996, pp 215-220
- “*A Student’s Perspective on Transportation Education and Curriculum*,” Proceedings, Institute of Transportation Engineers’ 66th Annual Meeting, Minneapolis, Minnesota, September 15-18, 1996, pp 464-467
- “*Incentives and Rate of Return for Travel Surveys*,” (Version 1) Proceedings, Fifth Transportation Planning Methods Applications Conference, Seattle, Washington, April 17-21, 1995, pp 19/29-19/39

Project Reports

- “*Evaluation of Automated Work Zone Information Systems*”, co-authors J. L. Gattis, R. Janarthanan, and L. K. Duncan, MBTC 2025, December 2002
- PB Farradyne, Gresham Smith and Partners, Cambridge Systematics, and the Mack-Blackwell Rural Transportation Center, “*Arkansas Statewide Intelligent Transportation Systems (ITS) Strategic Plan*,” prepared for the Arkansas Highway and Transportation Department, September 2002
- “*The Northwest Arkansas Transit Assessment Study*,” co-authors JL Gattis, and A Watts, Mack-Blackwell Transportation Center, MBTC FR-1103, March 2000
- “*Northwest Arkansas Regional Mobility Plan Technical Scope of Services*,” prepared for Ozark Regional Transit, January 19, 2000
- “*Mack-Blackwell Transportation Center Strategic Plan*,” MBTC, July 1999
- “*Rural Rest Area Privatization Conditions*,” co-author J. L. Gattis, Report No. MBTC FR 1071, Mack-Blackwell Transportation Center, University of Arkansas, December 1997
- “*Cultural Resources and the Design Professional*,” Monograph, Mack-Blackwell Transportation Center, University of Arkansas, Spring 1993, pp 1-2

SELECTED PRESENTATIONS (*invited)

- * “*Small and Medium-Sized Communities and the UTC Program – Public /Academic Partnerships that Work!*”, Transportation Research Board Meeting, Washington, DC, January 11, 2005

- **Driving in Orange: AHTD/MBTC Partnerships for Safety,*” AHTD Transportation Research Committee Meeting, Fayetteville, AR, April 28, 2004
- *“Evaluation of Automated Work Zone Information Systems and Work Zone Capacity,”* ITS Safety and Security Conference, Miami, FL, March 24, 2004
- *“Evaluation of Automated Work Zone Information Systems,”* Transportation Research Board Meeting, Washington, DC, January 12, 2004
- **“Partnerships for Education and Training – The Academic Perspective,”* TRB Transportation Education and Training Forum, Transportation Research Board, Washington, DC, January 11, 2004
- **“UTCs and Relationship Building,”* Annual UTC Directors Meeting, Knoxville, Tennessee, June 6, 2003
- **“Opportunities in Transportation,”* presented to the Summer Transportation Institute, University of Arkansas at Pine Bluff, Pine Bluff, AR, June 25, 2003
- **“Partnering: UTCs and the Dwight D. Eisenhower Transportation Fellowship Program,”* Panel Member, 10th Annual Eisenhower Transportation Fellowship Program Research Showcase, Transportation Research Board Annual Meeting, Washington, DC, January 14, 2003
- *Tooley, Melissa and JL Gattis, *“Evaluation of Automated Work Zone Information Systems,”* AHTD Transportation Research Committee meeting, Little Rock, AR, November 21, 2002
- **“Transportation as a Career,”* presented to the Summer Transportation Institute, University of Arkansas at Pine Bluff, Pine Bluff, AR, July 2, 2001
- *“The Northwest Arkansas Transit Assessment Study,”* presented at the 8th TRB Conference on Application of Transportation Planning Methods, Session XI – Transit Assessment and FTA New Starts, Corpus Christi, TX, April 24, 2001
- *“Mentoring Programs for Women in the College of Engineering,”* presented to PEO Chapter BU, Fayetteville, AR, April 3, 2001
- **“Issues in Rural Transportation,”* Keynote Address for the Texas Rural Transportation Conference, College Station, Texas, February 21, 2001
- **“Increasing Diversity in Transportation Education: Success Stories and Lessons Learned,”* Panel Member, Session 306, Transportation Research Board Annual Meeting, Washington, DC, January 9, 2001
- *“Intercity Transportation – Marketing Strategies for Increasing Ridership in Rural Areas”*, presented with Valerie Rodman to the 14th National TRB Rural Public and Intercity Bus Transportation Conference, Session – Intercity Transportation: States and Carriers Focus on Multi-Modal Solutions, Lake Tahoe, NV, November 12-15, 2000
- *“The Northwest Arkansas Transit Assessment Study”*, presented at Tools of the Trade – The 7th National Conference on Transportation Planning for Small and Medium-Sized Communities, Session 4 – Integrated Transit Planning, Little Rock, AR, September 28-30, 2000
- **“Ethics in Today's Business Climate,”* a 6 hour workshop presented to the Arkansas Society of Professional Engineers, Little Rock, AR, February 11, 2000
- *“The Mack-Blackwell Transportation Center: Improving the Quality of Rural Life Through Transportation,”* presented at the 25th Annual Conference for Industry and Education Collaboration, American Society for Engineering Education, Orlando, FL, February 4, 2000

- **"What the Eisenhower Program Means to Me"* Presented at the Transportation Research Board Meeting Session "To Infinity and Beyond!" - The Eisenhower Transportation Fellowship Program - Contributions, Impacts, and Prospects - Links to the Transportation Education Pipeline for the 21st Century, Washington, DC, January 11, 2000
- **"Intelligent Transportation Systems for Small Urban and Rural Areas,"* Missouri Valley Institute of Transportation Engineers' Regional Conference, September 16-17, 1999
- *"Dual Careers vs. Dueling Careers: Engineering the Two-Profession Household,"* 1999 ASEE Annual Conference, Charlotte, NC, June 20-23, 1999
- * *"Dual Careers vs. Dueling Careers: Engineering the Two-Profession Household,"* 1999 Conference, Women in Lucent Leadership, Columbus, OH, June 2-5, 1999
- *"The WIN Program - A Mentoring Program for Women in the College of Engineering at the University of Arkansas,"* (Part 2) 1997 ASEE Annual Conference - International Division, Milwaukee, Wisconsin, June 15-18, 1997
- **"A Student's Perspective on Transportation Education and Curriculum,"* Institute of Transportation Engineers' 66th Annual Meeting, Minneapolis, Minnesota, September 15-18, 1996
- *"The WIN Program - A Mentoring Program for Women in the College of Engineering at the University of Arkansas,"* (Part 1) A Woman's Place - A Conference on Women in Engineering, Science, and the Humanities, Rose-Hulman Institute of Technology, Terre Haute, Indiana, April 18-20, 1996

Appendix D – UTCM Budget (9/1/06-8/31/07)

TOTAL CENTER BUDGET PLAN

CATEGORIES	BUDGETED AMOUNT	EXPLANATORY NOTES
Center Director Salary	\$106,209.00	
Faculty Salaries	\$61,323.00	
Administrative Staff Salaries	\$66,294.00	
Other Staff Salaries	\$337,422.00	
Student Salaries	\$120,645.00	
Staff Benefits	\$142,273.00	
Total Salaries and Benefits	\$834,166.00	
Scholarships/Tuition	\$83,800.00	
Permanent Equipment	\$9,000.00	
Exp. Property, Supplies & Services	\$69,112.00	
Domestic Travel	\$65,000.00	
Foreign Travel	\$0.00	
Other Direct Costs (Specify)	\$0.00	
Total Direct Costs	\$1,061,078.00	
F & A (Indirect) Costs	\$423,922.00	45.5% indirect rate on federal share less exempt items such as computer use costs, student awards, scholarships/tuition & permanent equipment.
TOTAL COSTS	\$1,485,000.00	

Modified 2-15-07

UTCM Administrative and Education Program Budget

CATEGORIES	BUDGETED AMOUNT	EXPLANATORY NOTES
Center Director Salary	\$106,209.00	Center Director @ 85% FTE
Faculty Salaries	\$0.00	
Administrative Staff Salaries	\$57,942.00	
Other Staff Salaries	\$3,735.00	
Student Salaries	\$0.00	
Staff Benefits	\$37,437.00	Fringe – 16.1% Medical - \$459/month
Total Salaries and Benefits	\$205,323.00	
Scholarships/Tuition	\$50,000.00	
Permanent Equipment	\$0.00	
Exp. Property, Supplies & Services	\$27,210.00	Includes: computer use, long distance, reproduction, misc. expendable supplies, office equipment, development of UTCM branding (i.e. logo & web page development) and student award @ \$1,000
Domestic Travel	\$45,000.00	Includes: Director's travel and student travel to professional meetings.
Foreign Travel	\$0.00	
Other Direct Costs (Specify)	\$0.00	
Total Direct Costs	\$327,533.00	
F & A (Indirect) Costs	\$118,951.00	45.5% indirect rate on federal share less exempt items such as computer use costs, student awards, scholarships/tuition and student travel expenses.
TOTAL COSTS	\$446,484.00	

Modified 2-15-07

UTCM Research Program Budget

CATEGORIES	BUDGETED AMOUNT	EXPLANATORY NOTES
Center Director Salary	\$0.00	
Faculty Salaries	\$61,323.00	
Administrative Staff Salaries	\$8,352.00	
Other Staff Salaries	\$333,687.00	
Student Salaries	\$120,645.00	
Staff Benefits	\$104,836.00	Fringe – students @ 1.2%, Others @ 16.1% Medical – students @ 194/month; non-students @ \$459/month
Total Salaries and Benefits	\$628,843.00	
Scholarships/Tuition	\$33,800.00	Tuition & fees for graduate student employees as supplement to salary
Permanent Equipment	\$9,000.00	
Exp. Property, Supplies & Services	\$41,902.00	Includes: computer use, long distance, reproduction, misc. expendable supplies, participant support, simulator costs and TTI proving grounds costs.
Domestic Travel	\$20,000.00	Data collection, meetings with project monitors or agencies, conferences and symposia to present research results.
Foreign Travel	\$0.00	
Other Direct Costs (Specify)	\$0.00	
Total Direct Costs	\$733,545.00	
F & A (Indirect) Costs	\$304,971.00	45.5% indirect rate on federal share less exempt items such as computer use costs, permanent equipment and tuition and fees.
TOTAL COSTS	\$1,038,516.00	

Modified 2-15-07