

## Semi-Annual Progress Report for University Transportation Centers

Submitted To: Office of the Assistant Secretary for Research and Technology  
U.S. Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Federal Grant Number: 69A3551747122

Project Title: Tier 1 University Transportation Center  
Small Urban, Rural and Tribal Center on Mobility (SURTCOM)

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Submission Date: October 31, 2019

DUNS Number: 6254479820000

EIN Number: 81-6010045

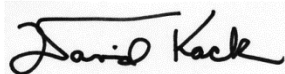
Recipient Organization: Montana State University  
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Project Grant Period: November 30, 2016 – September 30, 2022

Reporting Period End Date: September 30, 2019

Report Term: Semi-Annual Report #5

Signature:



## 1. Accomplishments

### What are the major goals and objectives of the program?

The mission of the Small Urban, Rural and Tribal Center on Mobility (SURTCOM) is to conduct research and provide leadership, education, workforce development and technology transfer in all transportation-related aspects of mobility for people and goods, focusing specifically on small urban, rural and tribal areas. Montana State University (MSU) is the lead institution, with consortium members including Eastern Washington University (EWU) and North Dakota State University (NDSU).

### What was accomplished under these goals?

During the period April – September 2019:

- WTI/MSU neared completion on a small exploratory research project in conjunction with the Montana Manufacturing Extension Center (MMEC) regarding freight/transportation issues for manufacturers in small urban, rural and tribal areas.
- Work continues with two WTI/MSU projects entitled *Using WIFI to Determine Transit Ridership* and *Autonomous Paratransit in Rural Areas*. The first project looks at using devices searching for WIFI signals as a potential low-cost way to count riders on transit vehicles, while the second project is a preliminary review (cost/benefit analysis) of using an autonomous paratransit vehicle in a rural setting.
- WTI/MSU began an effort to provide technical assistance to rural and tribal communities that want to increase biking and walking in their towns. The *Building Active Communities Technical Support* project will identify changes in infrastructure that can increase the number of people using active modes of transportation.
- Work continues on a WTI/MSU project entitled *Developing a Methodology for Implementing Safety Improvements on Low-Volume Roads in Montana*. This project is being conducted in conjunction with the Montana Department of Transportation.
- WTI/MSU is working with MDT to initiate a project *Use of Fluorescent Delineators in Temporary Traffic Control Work Zones*. The project is currently in the contracting stage. Expanding the use of this technology will help enhance the safety of motorists, workers and others in small urban work zones, as well as in rural and tribal areas.
- Work began on a WTI/MSU project which will identify fiber-reinforced polymer (FRP) materials and systems suitable for bridge superstructure and related design elements (e.g. fencing, sound barriers) that can be designed for bike/ped (and wildlife) crossings to meet American Association of State Highway and Transportation Officials (AASHTO) standards. Consideration will be given to the complete bridge system (superstructure, abutments, foundations, fencing, railings, sound barriers, etc.) to identify how FRP materials can be utilized for their design.
- WTI/MSU began working on two projects in association with the National Association of Development Organizations (NADO) to improve mobility in rural areas around Fort Smith, Arkansas and Augusta, Georgia.

- Worked continued with an EWU project entitled *The Status and Issues for American Indian Transit in the West*. Beginning with a 2012 report, the EWU team has sought to conduct a “state of tribal transit” update, including the identification of critical issues, and an assessment of western tribes in relation to transit.
- *The Impact of the Automobile on American Indian Reservations*, an EWU project, saw further progress. This report will assess the culture, use, and impact of the automobile on land use and reservation design, which will inform efforts to address unmet transportation needs.
- EWU staff continued working on the project entitled *Mobility & Access on American Indian Reservations in the Western United States: Phase I*. This initial study has documented issues related to distance and access and is establishing a framework for more detailed mobility analysis. The long-term goal is to understand the needs of American Indian reservations and address the transportation systems and resources that serve them.
- *Mobility on American Indian Reservations: A Tribal Context for Transportation*, an EWU project, continued its progress. This project will provide a perspective on mobility, including historic change from successful tribal specific cultures pre-contact to contemporary mobility related to American Indian reservations to other emerging transportation and key issues. An important component of this work is to understand the dynamics of mobility, particularly within tribal and community cultures, access, needs, and issues.
- EWU staff continued work on *Best Cases for Tribal Transportation Safety: Media, Planning and Action*. These small research projects are underway to support tribes on how to safely provide mobility and raise awareness of the importance of mobility.
- EWU staff began a new project, *Tribal Mobility and Access to Healthcare in Washington State*. This project uses a GIS analysis to determine tribal mobility, isolation, and access to healthcare for land both on and off a reservation.
- *Tribal-State Relations in Transportation: A Western States Analysis* is a new project started by the EWU staff that will analyze how well States (and their Departments of Transportation) recognize the sovereignty of Tribal Governments, and work with the tribes to address their transportation needs.
- EWU staff began the project *Data Driven Planning and Tribal Implementation for Tribal Safety on Reservations*. This project will analyze how Washington State traffic safety programs may empower tribal programs and implement a culture of safety.
- The EWU team is working on several additional research reports, including: *Colville Reservation Seatbelt Use, a Focus Group Survey; Dangers Related to Mobility for Tribal Women; A Tribal Short Course on Local Planning; and Tribal Engagement for a Culture of Tribal Traffic Safety*. Richard Rolland, part of the EWU team, presented *Tribal Approaches to Emergency Planning and Resilience* at the TRB Annual Meeting (January 15, 2019).

- EWU staff continue to teach numerous planning classes, including fifteen different classes during the Fall 2019 quarter, and has plans to teach twelve different planning classes during the Winter 2020 quarter.
- NDSU continues work to develop two Tribal Transit Training modules that will be available online. This work included site visits and interviews with tribal transit staff in Wisconsin (January 14, 2019). This training should improve the effectiveness and efficiency of tribal transit systems.
- SURTC/NDSU just began work on the project *Tribal Transit Study: Demographic Needs Indicators, Funding Needs, and Livability*. Public transportation needs, the importance of providing critical lifeline services to transit dependent populations, and their contribution towards tribal community livability has not been studied to a significant degree. The objectives of the study are designed to identify research needs for tribal communities and address challenges including: 1) determine ways to understand mobility needs of tribal communities, 2) analyze transit operations and service coverage, 3) study demographic livability indicators, and 4) understand ways to improve livability of residents in tribal communities..
- SURTC/NDSU also began work on *Develop a Revenue Vehicle Rehabilitation or Replacement Predictive Model for Small Urban and Rural Transit Systems*. The primary objective of this research is to improve the process to maintain America's small urban and rural revenue vehicles in a good physical condition, in a cost-effective manner.
- SURTC/NDSU finished the draft report for the NCHRP Project *Opportunities for State DOTs to Encourage Shared Use Mobility*. The final report is under review by the NCHRP Panel.
- SURTC/NDSU began working on a Rural Transit ITS project. This study will investigate ITS technologies that are being used in rural areas. A survey is currently being developed.
- SURTC/NDSU supports a Ph.D. student who is working on a Cyclist Riding Behavior Rating System. The objectives are to conduct a national survey to study which cycling behaviors are perceived as reckless and risky from U.S. residents' perspective and the perceived magnitude of each risky behavior. The study will also simulate risky behaviors to evaluate and develop a new method for capturing the behaviors using sensors embedded in mobile phones.
- SURTC/NDSU began a study in August for the NDDOT to look at North Dakota's mobility services and transit systems, to evaluate how well they serve the needs North Dakota residents.

What opportunities for training and professional development has the program provided?

- SURTCOM's Director (David Kack) and Jill Hough (SURTCOM Deputy Director) attended the National Mobility Summit in Washington, D.C. (April 11, 2019).
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- David Kack attended the National Association of Development Organizations (NADO) conference in Columbus, OH (June 17 & 18, 2019).
- David Kack and Jill Hough, along with one staff from MSU and one from NDSU attended the 2019 CUTC Summer Meeting in Norman, OK (June 24-26, 2019).
- David Kack attended the Idaho Transportation Department's Transit Summit in Boise, ID (July 30-31, 2019).
- David Kack and Matt Ulberg, Montana Local Technical Assistance Program (LTAP) Director met with FHWA Staff from the state (Helena, MT) office on September 9.
- David Kack and Nic Ward from MSU, along with Jill Hough and five staff from NDSU, along with Margo Hill (SURTCOM Associate Director) and one staff from EWU participated in the National Transportation in Indian Country Conference (NTICC) in Big Sky, MT (September 16-19, 2019).

How have the results been disseminated? If so, in what ways?

- See the information in Section 1, Accomplishments for project report information. Highlights include:
  - WTI/MSU staff have presented the results of the research from the three NADO projects at multiple conferences/meetings.
  - SURTC/NDSU staff have provided multiple trainings of their Transit I and Transit II classes.

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

- Additional projects will begin, based on the SURTCOM UTC proposal and input from the SURTCOM Advisory Committee.

## **2. Participants & Collaborating Organizations**

What organizations have been involved as partners?

- Eastern Washington University and North Dakota State University are partners/collaborators in SURTCOM.
- The Montana Manufacturing Extension Center is partnering on some exploratory research concerning freight issues in small urban, rural and tribal areas.
- MSU/WTI, SURTCOM Lead, is working with the National Association of Development Organizations (NADO) on two mobility/transit projects which are fully funded by NADO.
- The Washington State DOT (WSDOT) has worked with EWU for several years and continues that collaboration.
- Additional EWU partners include the Affiliated Tribes of Northwest Indians (ATNI), numerous individual tribes, the Bureau of Indian Affairs (BIA) and the Federal Highway Administration (FHWA).

- The Montana Department of Transportation (MDT) is working on two projects with SURTCOM lead WTI/MSU.
- The Minnesota Department of Transportation (MnDOT) is working with SURTCOM partner NDSU on a project. NDSU/SURTC also works with the National Transit Institute (NTI), and additional partners including the Oklahoma Transit Association.
- NDSU is working with the North Dakota Department of Transportation (NDDOT) to look at North Dakota mobility services and transit systems, and how well they serve the needs of North Dakota residents.
- NDSU worked with WSP to conduct the NCHRP study *Opportunities for State DOTs to Encourage Shared Use Mobility*.

Have other collaborators or contacts been involved?

SURTCOM’s Advisory Board, which consists of one representative (each) from the Montana, North Dakota and Washington (state) DOTs, three tribal representatives, and one person from the National Association of Development Organizations (NADO), receives PPR reports and is encouraged to submit topics/issues for potential research projects. Further, staff from SURTCOM organizations attend meetings of relevant TRB Committees and other organizations (ATNI), where issues/topics are discussed, and potential projects identified.

### 3. Outputs

Publications, conference papers and presentations

Publications

- Final project reports as noted in Section 1, Accomplishments
- Taleqani, Ali R., Raj Bridgelall, Jill Hough, and Ken Nygard. (2019). “Data Driven Analytics of Road Quality.” Proceedings of 34th International Conference, 58, pp. 454-463.
- Rahim Taleqani, Ali, Jill Hough, and Ken Nygard. (2019). “Public Opinion on Dockless Bike Sharing: A Machine Learning Approach.” Transportation Research Record. P.0361198119838982.

Conference Papers

- Gallagher, S., I. Karapetyants, K. Clouser, and N. Villwock-Witte. Comparative Approaches to Accessibility Education in the United States and Russia. American Society for Engineering Education (ASEE) 126th Annual Conference, Tampa, FL, June 16-19, 2019.

Policy Papers

- Ranjit Godavarthy (SURTC/NDSU) is a panel member on *NCHRP Project 20-102(11): Impacts of Connected Vehicles and Automated Vehicles on State and Local Transportation Agencies*. This project is expected to be completed in Fall 2019.
- Mr. Godavarthy served as the author for the chapter on transit of the 2019 North Dakota ASCE Infrastructure Report Card.

## Presentations

- Rebecca Gleason (WIT/MSU) presented a guest lecture *Health and Transportation* and conducted walk audit for a Global Health class at Montana State University, April 2, 2019.
- Dr. Jason Scully and Zack Becker (EWU) presented *Healthcare Deserts: Identifying Areas of Limited Access in Washington State* at the Association of American Geographers Conference, Washington D.C., April 3-7, 2019.
- Margo Hill (SURTCOM Associate Director) provided a presentation on *Urban Planning, Tribal Planning and Tribal Mobility* at Haskell Indian University, Lawrence, Kansas, April 5-6, 2019.
- David Kack (WTI/MSU) and Jill Hough (SURTC/NDSU) presented on SURTCOM's mobility research at the National Mobility Summit in Washington, D.C. (April 11, 2019).
- Margo Hill & Sherwin Racehorse (EWU) presented *The Tribal Power to Plan* at the American Planning Association Conference, San Francisco, CA (April 13-16, 2019).
- SURTC/NDSU Jill Hough (NDSU) presented John Maxwell's 15 Invaluable Laws of Growth for the South Dakota Department of Transportation to 26 public transportation providers within South Dakota.
- Rob Lynch (NDSU) presented 16 hours of Transit II to 31 transit professionals in Richland, Washington.
- Margo Hill and Dr. Ning Li (EWU) presented *Colville Tribal Mobility and Traffic Safety* at the Western Social Science Association, San Diego, CA, April 24-27, 2019.
- Jill Hough (NDSU) participated in the UTC Spotlight Conference May 14 by presenting a poster session at the U.S. Senate on the Tribal Projects being conducted at SURTC.
- Rebecca Gleason and Taylor Lonsdale (MSU) presented *Designating Scenic Bikeways: A Framework for Rural Road Owners* at the Association of Oregon Counties meeting in Hood River, Oregon (May 21, 2019).
- Angelena Campobasso, Margo Hill, Richard Rolland (EW) presented updates on all SURTCOM research to the Transportation Committee of the Affiliated Tribes of Northwest Indians (ANTI) at ATNI Spring Conference, Spokane, WA, May 19-22, 2019.
- SURTC/NDSU had a booth at the CTAA Expo May 21-23 in Palm Springs, California displaying training materials and executive summaries of completed reports. There were approximately 300 contacts made.
- Jill Hough (NDSU) presented at the FM Mobility Matters Summit on May 22 on Research and Emerging Technologies in Fargo for 40 attendees.
- Jeremy Mattson (NDSU) presented in Ankeny, Iowa on May 23 at a forum sponsored by the Iowa DOT on Measuring the Benefits of Transit Services for 95 attendees.

- Jill Hough (NDSU) presented two John Maxwell courses for a total of eight hours on May 29 to the South Dakota Transit Providers – “Becoming a Person of Influence” and “Everyone Communicates but Few Connect.” There were 26 transit professionals at each training session.
- Jeremy Mattson (NDSU) presented on the *Economic Benefits of Transit Services* at the Mid-Continent Regional Science Association Conference, Madison, Wisconsin (June 4-6, 2019).
- Jill Hough (NDSU) attended and presented “The Fuzzy Rule-based pricing scheme for dock-less shared-use systems” at the UITP Summit in Stockholm, Sweden June 9-12.
- Rob Lynch (NDSU) presented 16 hours of Transit II to transit providers in South Dakota on June 12-13.
- Susan Gallagher (MSU) presented and had a poster session on *Comparative Approaches to Accessibility Education in the United States and Russia* at American Society for Engineering Education (ASEE) 126th Annual Conference, Tampa, FL (June 16-19, 2019).
- David Kack presented *Three Different Mobility Challenges and Three Different Potential Solutions* at the National Association of Development Organizations (NADO) conference in Columbus, OH (June 17 & 18, 2019).
- Rob Lynch (NDSU) presented three training sessions for the Wyoming DOT at the WYTRANS Conference on June 19 in Cheyenne, Wyoming. The trainings included Workplace Behavior, Difficult Customers, and NTD 101.
- Natalie Villwock-Witte (MSU) presented *A Transportation Voucher Program through the Deep East Texas Council of Governments (DETCOG)* at the Aging in Texas Conference, Houston, TX (June 25-27, 2019).
- Rob Lynch (NDSU) presented two separate trainings of Transit II (each is 16 hours) to transit providers in Oregon. The first training took place in Corvallis, Oregon and the second in The Dalles, Oregon (July 8-12, 2019).
- Ranjit Godavarthy (NDSU) presented his work on autonomous vehicles at the Automated Vehicle Symposium in Orlando, Florida, July 15, 2019.
- David Kack presented *Wyoming Intercity Bus Service Study: Finding and Filling in the Gaps in Rural Areas* and *Three Different Mobility Challenges and Three Different Potential Solutions* at the Idaho Transportation Department’s Transit Summit in Boise, ID (July 30-31, 2019).
- Natalie Villwock-Witte (MSU) presented a poster along with the Minnesota Department of Transportation entitled, “Small Towns, Big Deal: Walking & Biking Infrastructure Connect People and Places” at the Association of Pedestrian and Bicycle Professionals (APBP) in Portland, Oregon (August 25-29, 2019).



- Natalie Villwock-Witte (MSU) presented *Characteristics & Reported Bicycle & Pedestrian Infrastructure for Communities of Less Than 10,000 People in Maine, Minnesota and New Hampshire* at the 2019 Western Planner Conference in Sante Fe, NM (September 8-11, 2019).
- SURTC/NDSU had a booth at the Transit Midwest conference in Kansas City, Missouri September 11-13, 2019, displaying training materials and executive summaries of completed reports. There were approximately 250 contacts made.
- Jeremy Mattson (NDSU) presented “Transit and Livability: Results from the National Community Livability Survey” for the Center for Urban Transportation Research Webinar Series on September 12.
- Natalie Villwock-Witte (MSU) presented on the Rural Intelligent Transportation System Toolkit at the Transportation Research Board’s Low Volume Roads (LVR) Conference in Kalispell, Montana (September 15-18, 2019).
- Susan Gallagher (MSU) presented *Successful Strategies Employed by Small Urban and Rural Transit Providers to Ensure Cost-Effective and High-Quality Accessible Transportation Services* at the 2019 National Rural Transit Assistance Program (NRTAP) annual conference, Portland, Oregon (September 15-18, 2019).
- Elvis Ndembe, Ranjit Godavarthy, Jeremy Mattson and Jill Hough (NDSU) presented the *Tribal Livability* project currently being conducted (summarized work to date and administered a questionnaire for the study) at the National Transportation in Indian Country Conference (NTICC) Conference in Big Sky, MT (September 17-19, 2019). Rob Lynch (NDSU) presented/demonstrated the Tribal eLearning Pilot project at the conference. David Kack (MSU) presented *Three Different Communities and Three Different Potential Mobility Solutions* at the same conference. Angelena Campobasso, Margo Hill, and Richard Rolland (EWU) also attended the conference. Margo moderated the session *Pedestrian Safety Strategies: Policy Implementation, Infrastructure and Engagement for Tribal Communities*. Margo presented on *Tribal Transit’s Role in Countering Human Trafficking and Safe Mobility for Indigenous Women in an Era of Missing and Murdered Indigenous Women*.
- During the NTICC event in Big Sky (noted above), the TRB Standing Committee on Native American Transportation Issues (ABE80) held their mid-year meeting, and Angelena Campobasso, Margo Hill, and Richard Rolland (EWU) attended, as well as David Kack (WTI/MSU). Angelena was asked to head up a group to discuss Climate Change from a Native American perspective, and Margo to head up a meeting on Opioid Use and the Dangers of Mobility for Native American Women.
- Ranjit Godavarthy (NDSU) presented “Opportunities for State DOTs (and others) to Encourage Shared-Use Mobility Practices in Rural Areas” for the Center for Urban Transportation Research’s Webinar series on September 22.
- Rebecca Gleason (MSU) presented *Transportation Choices in Montana* at the Montana Association of County Officials meeting, Great Falls, Montana (September 23, 2019).

Website(s) or other Internet site(s)

- SURTCOM website ([www.surtcom.org](http://www.surtcom.org))
- EWU website (<https://www.ewu.edu/cbpa/programs/urban-regional-planning/surtcom>)
- Small Urban and Rural Transit Center (NDSU) website (<https://www.surtc.org/>)

New methodologies, technologies or techniques

Nothing to Report

Inventions, patent applications, and/or licenses

Nothing to Report

Other products, such as data or databases, physical collections, audio or video products, application software or NetWare, analytical models, educational aids, courses or curricula, instruments, equipment, or research material

While not completed, NDSU continues to work on training modules for tribal transit. These on-line resources should be available soon.

#### **4. Outcomes**

SURTCOM is relatively new, with only one completed project that was funded with UTC dollars. That being said, SURTCOM staff have completed numerous projects related to the SURTCOM theme, such as the three projects completed in partnership with NADO. With one performance measure to disseminate research deliverables for each research project, that target was met, as the research reports for the three NADO projects: *Lebanon, Missouri Rural Transportation Feasibility Study*; *Deep East Texas Council of Governments Voucher System*; and *Southwest Colorado Council of Governments* were posted to the SURTCOM website, as well as distributed to the three governmental entities that were stakeholders in the projects. Another performance measure was to plan or participate in technology transfer activities that offer implementation or deployment guidance at a broader scale. The target of hosting or participating in at least one forum per year that offers implementation assistance on a key mobility topic was met when Natalie Villwock-Witte presented *A Transportation Voucher Program through the Deep East Texas Council of Governments (DETCOG)* at the Aging in Texas Conference, Houston, TX (June 25-27, 2019).

Increased understanding and awareness of transportation issues

The National Association of Development Organizations (NADO) National Regional Transportation Conference in Columbus, OH (June 17 & 18, 2019) offered a venue to have discussions of transportation/mobility issues throughout the U.S., and how these issues tie to economic development opportunities. As noted previously in this document, David Kack presented *Three Different Mobility Challenges and Three Different Potential Solutions* at this conference.

Passage of new policies, regulation, rulemaking or legislation

Nothing to Report

### Increases in the body of knowledge

All completed projects, with their final reports posted or presentation made, increase the body of knowledge related to transportation issues.

### Improved processes, technologies, techniques and skills in addressing transportation issues

Nothing to Report

### Enlargement of the pool of trained transportation professionals

EWU, MSU and SURTC/NDSU staff taught numerous classes related to planning and/or transportation. Further, outreach efforts were made to grade school, middle school and high school students to promote STEM activities, and to highlight the need for professionals in the transportation field.

### Adoption of new technologies, techniques or practices

Nothing to Report

## **5. Impacts**

### The effectiveness of the transportation system

The main goal of SURTCOM is to enhance mobility of both people and goods in small urban, rural and tribal areas. Through our research and other activities, we hope to:

- Increase access to opportunities that promote equity and economic development through mobility;
- Implement innovative multi-modal solutions in these areas;
- Implement smart cities innovations in small urban, rural, and tribal communities;
- Increase active transportation modes, especially walking and cycling; and,
- Address mobility issues on Federal lands.

### Technology transfer (including transfer results to entities in government or industry, adoption of new practices, or instances where research outcomes had led to the initiation of a start-up company)

The Deep East Texas Council of Governments (DETCOG) has continued the voucher program that was established with SURTCOM's assistance.

### The increase in the body of scientific knowledge

Nothing to Report

## **6. Changes/Problems**

### Changes in approach and reasons for change

Nothing to Report

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

Nothing to Report

Changes that have a significant impact on expenditures

Nothing to Report

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

Nothing to Report

## **7. Special Reporting Requirements**

Not Applicable