

Semi-Annual Progress Report for University Transportation Centers

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Small Urban, Rural and Tribal Center on Mobility (SURTCOM)

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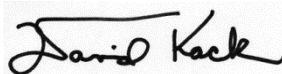
Recipient Organization: Montana State University
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Signature:



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 October 2020 – March 2021:

- Work was completed on the WTI/MSU project entitled *Using WIFI to Determine Transit Ridership*, which investigated using devices searching for WIFI signals as a potential low-cost way to count riders on transit vehicles. The project report will be posted to the SURTCOM website within the next month once the DOI number is received.
- Work was paused on a WTI/MSU project, *Autonomous Paratransit in Rural Areas*. This project had initiated a preliminary review (cost/benefit analysis) of using an autonomous paratransit vehicle in a rural setting. However, it was paused due to the tragic and untimely death of the graduate student doing the primary work on the project. WTI is determining whether the information gathered in the initial steps of this project could be rolled into another project, or if the project will need to be closed out.
- WTI/MSU continues providing 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. During this reporting period, technical assistance was provided to Ennis, Montana, which included working with the Montana Department of Transportation (MDT), since like many rural communities, Ennis' Main Street is also a State Highway. In addition, WTI/MSU continues to help with Safe Routes to School efforts in Montana; and worked with the Human Resource Development Council and City of Bozeman Parks Department to obtain a Safe Routes to Parks grant.
- 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 and should be completed by September.
- WTI/MSU began working with the Montana Department of Transportation on a project entitled *Use of Fluorescent Delineators in Temporary Traffic Control Work Zones*. The project is currently delayed due to the COVID-19 pandemic. It is anticipated that work will resume on this project in the late Spring/early Summer of 2021. It is anticipated that the project will show that using these delineators will help enhance the safety of

motorists, workers, and others in small urban work zones, as well as in rural and tribal areas.

- Work continues 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. The California Department of Transportation is currently in the design phase for a wildlife crossing using FRP materials, based to an extent on this project.
- WTI/MSU continues work on two projects in collaboration with the National Association of Development Organizations (NADO) to improve mobility in rural areas around Fort Smith, Arkansas and Augusta, Georgia. The timeline for these projects was extended to July 2021 in response to the COVID-19 pandemic.
- WTI/MSU started work on additional projects with NADO related to transportation and its ties to economic development. The National Rural Technical Assistance Program (National RTAP) is also involved. This new effort includes working with the Hopi and Fort Belknap Tribal Governments, as well as with locations in Northcentral New Mexico, and the Big Sandy and Cumberland development areas in Kentucky. These projects were also extended due to the COVID-19 situation.
- WTI/MSU completed work with the Idaho Transportation Department (ITD) on a project examining public transportation options in Twin Falls, Idaho, a community which is expected to transition from a Federal Transit Administration (FTA) Section 5311 funded system to a FTA Section 5307 transit system, once the 2020 Census is certified. The report for the completed project can be found at: [Twin Falls Transit Study Final Report](#). The project team just began working with ITD on a follow-on project to support implementation of new transit services both in Idaho Falls and Twin Falls (Idaho).
- WTI/MSU continued work on a transit study in Humboldt County, a coastal county in northern California. The goal is to provide the Humboldt County Association of Governments (HCAOG) and the Humboldt Transit Authority with a review of all current transportation services, and to investigate the potential for new service in the town of McKinleyville.
- WTI/MSU continued work on a follow-on project to the initial study of *Bicycle and Pedestrian Infrastructure Improvements Realized in Communities of Less than 10,000 People*. The new study includes communities in the states of Florida, Kentucky, Minnesota and Vermont.
- Work continues on Transportation Demand Management (TDM) efforts in the greater Bozeman (Montana) area. WTI/MSU had assisted Gallatin County and the City of Bozeman with TDM efforts under the SURLC UTC and is continuing efforts through the SURTCOM UTC. As part of this on-going project, TDM efforts were re-branded to “Go

Gallatin” to reflect the larger commuting patterns in the area, and in addition, the City of Bozeman is expected to hire a TDM Coordinator in the next six months.

- WTI/MSU continues its effort on a small research project (*Implication of School Format on Women in STEM*) that seeks to document the importance of K-12 school format (e.g., online, hybrid, in-person, “pandemic pod”) on women in science, technology, engineering and mathematics (STEM) who have K-12 children. This will be accomplished by conducting three separate surveys administered to women in STEM at three discrete periods of time to capture how changes in K-12 school format have impacted their work and family lives. The results are intended to provide input regarding how policies in the future can better support women who work in STEM fields, including transportation.
- WTI/MSU is conducting a project with the Montana Department of Transportation entitled *Effectiveness of Highway Safety Public Education at Montana Motor Vehicle Division and Vehicle Registration Stations by Streaming a Variety of Safety Content*. The purpose of this project is to research which safety messages, if any, affect those who watch the messages (i.e., increase safety behavior). The pace of this project was slowed down due to the COVID-19 pandemic, so the deployment of surveys was delayed. However, surveying is expected to begin during the summer of 2021.
- WTI/MSU began the *Montana MPO Travel Survey Analysis* project. The purpose of this study is to provide additional information and greater understanding of transportation planning and travel behavior in the areas served by the Billings-Yellowstone County Metropolitan Planning Organization and the Missoula Area Metropolitan Planning Organization, two of the three metropolitan areas in Montana.
- In conjunction with the Montana Department of Transportation (MDT), WTI/MSU began the *Statewide GNSS RTN System* project. The objectives are to perform an assessment of the various alternative business models and to recommend to MDT the most appropriate business model(s) to pursue in the planning and development of a Statewide Global Navigation Satellite System (GNSS) Real-Time Network (RTN) system.
- WTI/MSU began the *Commercial Package Delivery through Public Transportation Systems in Rural Areas* project, which will provide information and greater understanding of the feasibility of last mile package delivery for commercial entities via public transportation in rural and tribal areas.
- WTI/MSU staff are working with the University of Florida on the NCHRP 08-135, *Reliability and Quality of Service Evaluation Methods for Rural Highways* project. The objectives of this research are to: 1) develop reliability and quality of service predictive methodologies for rural road facilities accounting for the new context and functional classifications of the Green Book, and 2) develop a guidebook on application of the methodologies for a broad range of users.
- Working with Battelle, staff from WTI/MSU are working on the *Traffic Incident Management (TIM) Strategies for Rural Environments* project. The objectives of this FHWA research project are to research the unique challenges, good practices, and

opportunities necessary to assist rural responders and motorists to improve safety and incident mitigation of rural roadways.

- Work 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 project team presented a synopsis of the work to date during the 2021 TRB Annual Meeting.
- *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 are in final paper review for the project *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 paper will highlight the transportation needs of American Indian reservations and note 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.
- *Tribal-State Relations in Transportation: A Western States Analysis, Part 1: Evidence from Nine States* and *Part 2: Jurisdiction Overlaps* are two parts of 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 how well these agencies work with the tribes to address their transportation needs. A survey related to the first part of the project is underway with tribes in the western United States to provide a quantitative approach/framework. The COVID-19 pandemic has delayed the survey analysis longer than expected, but the analysis should be concluded within the next six months.
- EWU staff continued work on 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.

- EWU staff began a new project, *The Relationship between Reservation Geography & Jurisdiction Overlaps* to highlight why jurisdiction matters to Indian Country. This project attempts to correlate the effects of jurisdictional overlap with federally recognized continental American Indian Reservations and Tribal Lands through examination of how they are divided across states, counties, school districts, and congressional districts. This is mainly accomplished by using GIS. Staff are investigating instances of these jurisdictional overlaps with the 397 census-identified continental reservations and tribal areas.
- The EWU team is working on several additional research reports, including: *Dangers Related to Mobility for Tribal Women (MMIW)*; *Human Trafficking as Related to Transportation*; *Effects of Climate Change on Tribal Mobility on Land & Water Based Tribes: Sustainability, Resiliency, & Mobilizing for Climate Change*; and an *Environmental Review on Colville Confederated Tribes Roads Damage Due to Climate Change: A Preventative Measures and Cost Analysis Report*.
- SURCOM/NDSU developed two Tribal Transit Training modules: “Customer Service for Rural and Tribal Transit Providers” and “Grant Writing for Rural and Tribal Transit Providers.” Both are available online at [SURCOM - eLearning Courses \(ugpti.org\)](https://www.ugpti.org). This training was developed to improve the effectiveness and efficiency of tribal transit systems.
- SURCOM/NDSU is in the final stages of completing the project *Tribal Transit Study: Demographic Needs Indicators, Funding Needs, and Livability*. The study was delayed due to COVID-19, but the final case study is now underway. Public transportation needs, the importance of providing critical lifeline services to transit dependent populations, and their contribution towards tribal community livability have not been studied to a significant degree. The objectives of the study are 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.
- SURCOM/NDSU completed the study *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. The final report is currently out for review and will be posted to the SURCOM and SURTCOM websites once the review is finalized.
- SURCOM/NDSU finished the draft report for the NCHRP Project *Opportunities for State DOTs to Encourage Shared Use Mobility*. The final report is available at <https://www.ugpti.org/resources/reports/details.php?id=998&program=surcom>.
- SURCOM/NDSU completed work on a *Rural Transit ITS project*, which investigated ITS technologies that are being used in rural areas. The final report for this project was published in April 2020, and is available [here](#).

- SURCOM/NDSU supports a Ph.D. student who is working on a *Cyclist Riding Behavior Rating System*. The student conducted a national survey to identify cycling behaviors that are perceived as reckless and risky by U.S. residents and to understand the perceived magnitude of each risky behavior. The study also simulated risky behaviors to evaluate and develop a new method for capturing the behaviors using sensors embedded in mobile phones. This research was completed, and the report is being finalized. This student completed his dissertation defense March 30, 2020, finalized his dissertation and graduated May 2020. The dissertation has not yet been posted to the website. The student was completely funded by UTC dollars.
- SURCOM/NDSU began a study for the North Dakota Department of Transportation (NDDOT) to look at the state's mobility services and transit systems, and to evaluate how well they serve the needs of North Dakota residents. The study has been completed and approved by the NDDOT and will be posted to the website after NDDOT submits it to the ND Legislature.
- SURCOM/NDSU started the project *Improving Mobility Among America's Aging Population to Combat Social Isolation*. This project will quantify the cost of providing greater mobility options to aging adults in small urban and rural communities to lower social isolation. This will be compared to the increased medical spending attributed to current levels of isolation.
- SURCOM/NDSU started the project *Interest of Shared Mobility and Emerging Vehicle Technologies in Rural America*. This project will document and analyze the interest and adoption patterns for shared mobility, and emerging vehicle technologies in rural communities. The case study portion of this study has been delayed due to COVID-19 but will resume.
- SURCOM/NDSU started a project to develop a *Web Application for State of Good Repair Reports for Small Urban and Rural Transit Systems*. The objective of the project is to develop a state of good repair predictive model for small urban and rural transit systems to be able to predict the service life of revenue vehicles and is based on the work from the *Develop a Revenue Vehicle Rehabilitation or Replacement Predictive Model for Small Urban and Rural Transit Systems* project noted herein. A financial analytical tool to estimate the current backlog and predict the yearly projected vehicle replacement cost will also be developed. The goal of the project is to provide a tool that helps transit managers prioritize investment needs for rehabilitation and replacement of vehicles.
- SURCOM/NDSU started the project, *Understanding How Bicycle Facility Characteristics and the Built Environment Influence Bicycle Use in a Small Urban Area: Case Study of Fargo-Moorhead*. The study will use bicycle count data and develop a model to estimate the relationships between bicycle facility and street characteristics and bicycle usage.
- SURCOM/NDSU started the project, *An Analysis of NHTS Travel Behavior Data for Transportation-Disadvantaged and Rural Populations*. Understanding trends in the travel behavior of transportation-disadvantaged populations in rural areas is important

for understanding how well the mobility needs of these populations are being met and for informing policy and transportation investment decisions.

- SURCOM/NDSU started the project, *Pedestrian User Experience at Roundabouts* for the Minnesota Department of Transportation. The objectives of the research are to understand pedestrian user experiences at roundabouts, identify how they can be enhanced through various pedestrian treatments, and develop related decision tools and guidance.
- SURCOM/NDSU started a project, *What Role Does Public Transportation Play to Help Solve Access to Food Issues in Rural and Small Urban Areas of the United States?* To identify how public transportation can play a role, surveys were administered to rural and small urban transit agencies during the winter of 2020 and results are being analyzed with a follow-up to identify some best practices.
- SURCOM/NDSU published: Rahim-Taleqani, Ali and Jill Hough. [Risk Perception of Bicycle/Scooter Riders Risky Behaviors](#), SURTCOM 20-04, North Dakota State University, Fargo: Upper Great Plains Transportation Institute, 2020. [Video Summary](#)
- SURCOM/NDSU published: Mistry, Dilip and Jill Hough. [State of Good Repair Predictive Models for Small Urban and Rural Transit System's Rolling Stock Assets](#), SURTCOM 20-03. North Dakota State University, Fargo: Upper Great Plains Transportation Institute, 2020. [Video Summary](#). This study attempted to model and accurately predict the service life of revenue vehicles to achieve a state of good repair.

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

WTI/MSU, EWU and NDSU/SURCOM staff participated in the 2021 TRB Annual Meeting, through Committee Meetings, and Lectern and Poster Sessions, as well as Workshops.

NDSU provided research experience to Ph.D. student Ali Rahim-Taleqani, who was recognized as a 2020 UTC Outstanding Student of the Year. During his doctoral studies, he worked on several projects relating to micro-mobility using simulation, optimization, and machine learning. He is currently developing a web application that will help rural and small urban transit agencies identify and project the state of good repair of their vehicles.

WTI/MSU was awarded a \$5,000 seed grant through MSU's Outreach and Engagement Council and hired four MSU students to rebrand the Bozeman Commuter Project (TDM) and develop a social marketing campaign to encompass a broader audience across the Gallatin Valley. MSU students gained professional development in seeking solutions to transportation issues, interacting with faculty and staff, and growing existing collaborations with the City of Bozeman, Streamline Bus, MSU Sustainability groups, Gallatin College and others. In addition, MSU Engineering student Bryce Grame has worked on transportation projects with three different researchers, gaining valuable experience with a variety of real-world transportation projects.

SURCOM/NDSU has eight eLearning courses designed to primarily help rural and tribal transit system operators. These courses (see [National RTAP Portal > Courses](#) for more information) include:

- *Customer Service* is a self-paced course designed to assist rural and tribal transit managers, drivers, and frontline staff in delivering great customer service to the communities where they operate.
- *Grant Writing* is an interactive, self-paced course designed to assist rural and tribal transit managers with grant writing. The course focuses on basic structure and best practices to include a list of personalized action steps.
- *FTA 101* (previously existing) Provides information about the history, background and functions of the Federal Transit Administration as it relates to the work of transit managers in a state department of transportation.
- *Crisis Management* is an interactive, self-paced course designed to assist rural and tribal transit managers with the basics of crisis management.
- *Employee Recognition* is an interactive, self-paced course designed to assist rural and tribal transit managers with the basics of employee recognition.
- *Onboarding* is an interactive, self-paced course designed to assist rural and tribal transit managers with the basics of onboarding new employees.
- *Interview Questions* is an interactive, self-paced course designed to assist rural and tribal transit managers with developing transit interview questions (Published to NRTAP website).
- *Performance Appraisals* is an interactive, self-paced course designed to assist rural and tribal transit managers with transit employee performance appraisals (published to NRTAP website).

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

Research results have been disseminated through the presentations and publications noted herein, the SURTCOM website, and the websites of the SURTCOM partners (EWU & NDSU). In addition, videos were created for all the SURCOM/NDSU reports published in 2020, and are available on the SURCOM website and on the Upper Great Plains Transportation Institute's [YouTube channel](#).

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, input from the SURTCOM Advisory Committee, and topics/issues noted by State DOTs.
- Dissemination of research results will occur through national conferences and webinars.

2. Participants & Collaborating Organizations

What organizations have been involved as partners?

- Eastern Washington University and North Dakota State University are partners/collaborators in SURTCOM.
- MSU/WTI, SURTCOM Lead, is working with the National Association of Development Organizations (NADO) on a total of three mobility/transit projects, which incorporate ten communities/areas, which are fully funded by NADO (through a grant from USDA). Further, the Neponset Valley Transportation Management Association (TMA), which currently operates National RTAP, is involved in two of the NADO projects.
- WTI/MSU is working with the Idaho Transportation Department (ITD) on projects to implement or modify public transportation in two Idaho communities.
- WTI/MSU is working with multiple communities in Montana on pop-up traffic calming projects. Further, WTI is working with multiple departments within the City of Bozeman (MT) on pop-up projects, as well as the City's Climate Action Plan.
- 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 four projects with SURTCOM lead WTI/MSU.
- NDSU/SURCOM works with the National Transit Institute (NTI) and National Rural Transit Assistance Program (National RTAP) on various projects.
- NDSU/SURCOM 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.

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 SAPR 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 (such as ATNI), where issues/topics are discussed, and potential projects identified.

3. Outputs

Publications, conference papers and presentations

Publications

Final project reports were noted in Section 1, Accomplishments. In addition, SURTCOM staff collaborated on the following publications, papers and presentations:

SURCOM/NDSU published the following products (aside from the SURTCOM reports listed earlier) during this reporting time:

- Hough, Jill, Ali Rahim Taleqani, and Rob Lynch. [Assessment of Immediate Small and Rural Transit Training Needs](#), SP-185. North Dakota State University, Fargo: Upper Great Plains Transportation Institute, 2020.
- Ezekwem, Kenechukwu, Del Peterson, and Jill Hough. [North Dakota State University Transit Study Report 2018-2019](#), SP-186. North Dakota State University, Fargo: Upper Great Plains Transportation Institute, 2020.
- Mistry, Dilip, Del Peterson, and Jill Hough. [Statewide Personal Mobility Needs for Oklahoma](#), SP-184. North Dakota State University, Fargo: Upper Great Plains Transportation Institute, 2020.
- Mattson, Jeremy, Dilip Mistry, and Jill Hough. [Assessment of North Dakota Mobility Options, Transit Needs, and Characteristics of Users](#), DP-307. North Dakota State University, Fargo: Upper Great Plains Transportation Institute, 2020.

Conference Papers

- None at this time

Policy Papers

- None at this time

Presentations

- October 14, Margo Hill of EWU presented: *Missing Murdered and Indigenous Women (MMIW) – Indigenous Women & Girls and Transportation* for the America Walks Organization.
- October 22, Rebecca Gleason of WTI/MSU presented *Sustainable Transportation* to nearly 100 students in an Energy and Sustainability class at MSU.
- October 23, Margo Hill presented to a Portland State University class *Tribal Mobility, Accessibility, & Social Equity*.
- October 29, Jeremy Mattson of SURCOM/NDSU presented on the *Benefits of Rural and Small Urban Transit and Assessment of North Dakota Services* during a virtual NDDOT Summit. There were 110 people that attended.
- November 19, Jill Hough (SURCOM/NDSU) presented *Transportation & Equity how to Address Systemic Challenges in Rural Areas* for the Traffic21 UTC Deployment. There were 85 participants that attended the session.

- November 20, Jill Hough presented on the *University Transportation Centers Program* to the American Public Transportation Association Research and Technology Leadership members of the committee. There were 12 people in attendance.
- December 2, Jill Hough presented on the *University Transportation Centers Program* to the American Public Transportation Association Research and Technology Committee Meeting.
- December 2, Angelena Campobasso, EWU, presented *Climate Change: The Effects on Transportation, Sustainability, and Resiliency Policy Efforts* during the 2020 Promise Neighborhoods National Conference.
- December 9, Jill Hough Moderated the *UITP Research in Mobility Committee Meeting*.
- January 2, Angelena Campobasso presented *Climate Change: Part 2* during a meeting of the Affiliated Tribes of Northwest Indians (ATNI).
- January 26, Andrea Hamre and Jonathan Fisher of WTI/MSU presented *Travel Behavior and Transportation Planning Insights from the Small Urban Area of Chittenden County, Vermont: An Application of Traveler Segmentation* as part of the TRB Annual Meeting during Poster Session 1203: Advances in Travel Behavior Research.
- January 27, during TRB Lectern Session 1280: Hot Topics in Rural Transportation (moderated by WTI/MSU's Jaime Sullivan), Natalie Villwock-Witte of WTI/MSU presented *Development of Case Studies for Bicycle and Pedestrian Infrastructure Found in Communities of Less Than 10,000 People: Florida, Kentucky, Minnesota, New Mexico and Vermont*.
- February 7, Angelena Campobasso presented *The Effects of Climate Change on the Colville Reservation and Its Transportation System* at a 350 Spokane for Climate Change event.
- Margo Hill presented *Missing Murdered and Indigenous Women (MMIW) – Indigenous Women & Girls and Transportation* to a class at Spokane Falls Community College.
- March 4, Margo Hill presented *MMIW & Human Trafficking: A Transportation Issue* to leaders of the Lutheran Community Services organization.
- March 15, Angelena Campobasso presented *Climate Justice is Social Justice: Effects of Climate Change on Indigenous Communities* to a class at Gonzaga University.
- March 30, Rebecca Gleason of WTI/MSU presented *Sustainable Transportation* to nearly 100 students in an Energy and Sustainability class at MSU.

Website(s) or other Internet site(s)

- SURTCOM website (www.surtcom.org)
- EWU's SURTCOM related website (<https://www.ewu.edu/css/surtcom/>) has updated contact information, new lectures, outreach with lectures and PowerPoint presentations, and listings of on-going research.

- NDSU's Small Urban and Rural Center on Mobility website (<https://www.ugpti.org/surcom/>) includes project reports and video overviews.

New methodologies, technologies or techniques

- The [Web Application for State of Good Repair Reports for Small Urban and Rural Transit Systems](#) is a new application. To predict the service life of revenue vehicles, the SURCOM research team developed a state of good repair machine learning predictive model for small urban and rural transit systems. The team also developed a financial analytical tool to estimate the current backlog and predict yearly projected vehicle replacement cost. Even though these tools are very useful for decision-makers, they are not available for them to use. These tools were developed on local machine and only the research team can generate state of good repair reports for any small urban and rural transit agencies. Therefore, the objective of this project is to develop a user-friendly web application for transit professionals to produce state of good repair reports from the predicted results of a machine learning model on small urban and rural transit system's rolling stocks. These tools can be very useful for transit managers to prioritize investment needs for rehabilitation and replacement of vehicles. The state DOTs and the FTA will also be able to see the overall condition of the rolling stocks in any state's small urban and rural transit systems. This tool has been demonstrated to a few transit agencies who think it is an excellent tool.
- The new study: *Understanding How Bicycle Facility Characteristics and the Built Environment Influence Bicycle Use in a Small Urban Area: Case Study of Fargo-Moorhead* will take advantage of crowdsourced bicycle use data collected from Strava Metro, using Fargo-Moorhead as the study area.
- The analysis of travel behavior and transportation planning in Chittenden County, VT, provided an opportunity to use traveler segmentation based on values and attitudes. To our knowledge, this was the first application of this technique for use with small urban area household travel surveys.

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

Nothing to add that was not noted in other sections.

4. Outcomes

SURTCOM staff present the findings from research projects to the maximum extent possible, and present on all projects related to the SURTCOM theme. The Center has one performance measure to disseminate research deliverables for each research project; that target was met, as the research reports for all the completed projects are posted to the SURTCOM website and provided to the sponsor. 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 through participation in at least three different TRB Committee meetings (ABE 80: Native American Transportation Issues Committee; AP055: Rural Public and Intercity Bus Transportation Committee; and ADA40: Transportation Needs of National Parks and Public Lands Committee) in which SURTCOM research was shared with the Committees.

Increased understanding and awareness of transportation issues

The analysis of travel behavior and transportation planning in Chittenden County, VT, provided an opportunity to compare public priorities for transportation spending with the allocations in the Metropolitan Area Organization's Transportation Improvement Program. In addition, it offered an opportunity to assess support for increasing gas taxes. The analysis indicated greater support for non-roadway spending and increased fuel taxes than is generally assumed.

Passage of new policies, regulation, rulemaking or legislation

The Affiliated Tribes of Northwest Indians (ATNI) utilized research from EWU regarding missing and murdered indigenous women and transportation to ask for funding to be reinstated for a Tribal Liaison position with the Washington State Highway Patrol in eastern Washington. Maps created by EWU were used in this effort.

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, WTI/MSU and SURCOM/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 city of Bozeman continues to work with WTI/MSU to use “pop-up” installations to research the best methods for slowing traffic and improving safety for pedestrians and cyclists. As noted herein, other communities, such as Ennis, Montana, are also using pop-up projects.

The California Department of Transportation is currently in the design phase for a wildlife crossing using fiber-reinforced plastic (FRP) materials, based to an extent on a WTI/MSU project which shows how FRP materials can be used for pedestrian/bicycle bridges/overpasses, as well as wildlife crossings.

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

The COVID-19 situation has cancelled or delayed many conferences where SURTCOM staff were scheduled to present. Further, the COVID-19 has delayed some field work (gathering data), so projects will likely take longer to complete than originally planned. Finally, the COVID-19 pandemic may ultimately alter how people move within and between communities, which may affect comparing data gathered before and after the pandemic.

Further, classes at EWU have been taught online since April 2020, and travel, trainings and development work with Graduate Student Assistants (GSAs) and faculty have been cancelled due to the pandemic. While some virtual conferences, presentations and trainings have taken place, they do not have the same impact as in-person opportunities.

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