

**EXHIBIT A
SCOPE OF SERVICES**

UNDERSTANDING PEDESTRIAN TRAVEL BEHAVIOR AND SAFETY IN RURAL SETTINGS

BACKGROUND

MnDOT is conducting a research and implementation project to increase understanding of pedestrian travel behavior and safety in rural settings. The project involves working with priority populations identified in Minnesota Walks: Current and Future Steps towards a Walkable Minnesota. Minnesota's Native American population is among the priority populations. The Advocacy Council for Tribal Transportation (ACCT) represents the tribes and advocates on their behalf for improvements in transportation systems. At the April, 2016 ACCT meeting, five tribes expressed interest in participating in the project and subsequently provided feedback to MnDOT about locations where studies of pedestrian behavior could address safety concerns. This proposal outlines an approach to the project that involves collaboration with the tribes to assess pedestrian safety at five locations, monitor pedestrian traffic at selected locations, and develop recommendations for countermeasures to address safety concerns at the selected locations. The proposal also includes development and delivery of an online course in non-motorized traffic monitoring in collaboration with rural tribal and community colleges.

OBJECTIVE

This project will benefit Minnesota taxpayers by identifying methods for assessing pedestrian traffic risks in rural, tribal settings and by developing plans for countermeasures to reduce risks. The project will help achieve safety objectives established in Minnesota's Toward Zero Deaths program.

SCOPE

The project methodology involves collaboration with Technical Advisory Panel (TAP) members, including representatives of tribal nations, site investigations, characterization and assessment of pedestrian safety, pedestrian traffic monitoring at selected locations, analysis of monitoring results, identification of potential countermeasures, and development of plans for implementing countermeasures. Specific monitoring methods will be depend on site investigations and safety assessments but are likely to include use of video and passive infrared technologies. The methodology also includes development of an online class for pedestrian traffic monitoring that to be delivered in collaboration with rural tribal and community colleges. The tasks do not include construction or implementation of countermeasures.

Table 1: Potential Project Locations

Priority Population	Tentative Project Location	Notes
Bois Forte Band of Chippewa	Vermilion Pedestrian/Bike Trail	Trail currently connects Vermilion reservation residential neighborhoods to the casino (location of employment) and the Government Center/Health Clinic/Fitness Center/ Recreation Area/Headstart. Proposed extension would connect the last residential area (Duffy Point). Propose to monitor five locations on trail to assess use from different residential neighborhoods. Results may inform trail extension as well as safety.
Mille Lacs Band of Ojibwe	Highway 169 Frontage Road	TAP funding committed for sidewalk improvement. Pre-post design possible. Project designed in response to two pedestrian deaths in recent years. Pedestrians cross road in many locations; video monitoring probably required.
Fond du Lac Band of Lake Superior Chippewa	Big Lake Road Corridor	High traffic count; bicycle and pedestrian traffic. Is main roadway for area. Access to convenience store, clinic, housing, school, and several office buildings.
Leech Lake Band of Ojibwe	Heartland Trail, near a School (MnDOT monitoring site), or Tribal Road, near the Casino	Heartland Trail site designed to monitor children walking to school. Pedestrian deaths have occurred along road near casino (no lighting).
Grand Portage Band of Ojibwe	Walking Path and Route 61 Crossings	New walking path; levels of use not documented. Risks associated with Rt. 61 pedestrian crossings between two residential areas unknown.

WORK PLAN

Task Descriptions

Task 1: Convene TAP

Task 1 involves convening a TAP that will guide project implementation. The TAP will include representatives of ACTT, tribes participating in the project, MnDOT, and local or district transportation professionals. The TAP will be responsible for helping to assist with finalize the project scope, assist with site investigations, review safety assessments, select monitoring locations, interpret monitoring results, and identify and recommend countermeasures to be implemented. TAP Meeting 1 will focus on finalizing the project scope and confirmation of monitoring locations. Table 2 lists five potential project locations that tribes had identified as of May 2016. The TAP and the project team will review the proposed locations, identify an additional location(s) if necessary, and confirm the proposed project plan, including the project schedule and list of deliverables.

Task 2: Conduct Site Investigations and Assess Safety Problems

Task 2 involves site investigations at each of the five potential project locations to assess safety problems and gather information for design of pedestrian monitoring and identification of potential countermeasures. The site investigations will include inventory of roadway characteristics that pose safety risks, review of crash records, identification of preliminary monitoring strategies, and preliminary identification of opportunities for counter measures. After the site investigations, the project team will prepare a memorandum that summarizes findings for presentation to the TAP.

Task 3: Select Monitoring Sites and Prepare Monitoring Plans

Task 3 involves selection of specific monitoring sites within the general project locations and preparation of site monitoring plans. Because patterns of pedestrian traffic are expected to be quite varied both within and across locations, it is likely that most monitoring will need to be done using video monitoring with either automated or manual reduction to identify patterns. New open source programs for classification of pedestrians in video tapes will be tested to assess whether the information generated is useful for understanding pedestrian behaviors. For some sites where intersections between trails and roadways are a concern, infrared counters may be deployed. After the monitoring and deployment strategies have been developed, the project team will convene the TAP to select specific monitoring locations and affirm monitoring plans. Prioritization and selection of sites is necessary because funds are insufficient to monitor all specific locations where risks may exist at the five project sites. Following monitoring site selection, the project team will obtain or schedule use of the equipment necessary to monitor traffic at each site. For sites involving video-taping, the project schedule will clarify when and how video monitors will be deployed. Where infrared technologies can be deployed productively, monitoring equipment will be purchased and dedicated for ongoing use on tribal lands.

Task 4: Conduct Pedestrian Monitoring

Task 4 involves monitoring pedestrian volumes and behaviors at each of the chosen project locations. Monitoring will begin in the spring of 2017 and continue as long as possible given the technology available within the constraints of the overall project budget and schedule. Monitoring results will be presented to the TAP in the fall of 2017. The TAP will be asked to assist with interpretation of the results, assess implications for safety, and brainstorm potential countermeasures to increase safety. The project team will revise the draft summary of results to include TAP comments.

Task 5: Identify Potential Countermeasures and Implementation Plans

Task 5 involves identifying countermeasures and other interventions to address safety concerns identified as a result of site investigations and monitoring. The project team will include both structural and behavioral measures depending on the volumes of traffic that are measured and the nature of the safety risks that are identified. The project team will present the potential list of countermeasures for each location to the TAP (Meeting 4). The TAP will be asked to review the potential countermeasures, assess their feasibility and likely effectiveness, and, where alternatives exist, to identify the strengths and weaknesses of each option. The project team will revise the list of countermeasures to include TAP comments. The project team then will prepare and present countermeasure implementation plans to the TAP (Meeting 5) for review and assessment. Because of budgetary limitations and time constraints, countermeasures will not be implemented as part of this project. However, the plans and schedules identified in the project will be suitable for guiding project implementation.

Task 6: Conduct Online Non-motorized Traffic Monitoring Class with Community Colleges

Task 6 involves preparation of a syllabus for an online class in monitoring non-motorized traffic and delivery of the class in collaboration with community colleges. The principal investigator will develop the syllabus and begin discussions with tribal and community college officials about strategies for delivery of the online class. The syllabus and class will be delivered in the

fall of 2017 or spring of 2018 depending on arrangements that are completed. The purpose of the course is to enable students in rural community colleges to learn and practice basic principles of pedestrian and bicycle traffic monitoring.

Task 7: Compile Report, TAP Review and Revisions

Under this task, the University will prepare a draft report, following MnDOT’s publication guidelines, to document project activities, findings and recommendations. This report will need to be reviewed by the TAP, updated by the Principal Investigator to incorporate technical comments, and then approved by Technical Liaison before this task is considered complete. Holding a TAP meeting to discuss the draft report and review comments is strongly encouraged. TAP members may be consulted for clarification or discussion of comments.

Task 8: Editorial Review and Publication of Final Report

During this task, the Approved Report will be processed by MnDOT’s Contract Editors. The editors will review the document to ensure it meets the publication standard. This task must be completed within the contract time because the editors will provide editorial comments and request information from the Principal Investigator.

Task Deliverables

Task:	Deliverable(s):
1:	TAP Meeting 1; Task 1 Memorandum, including a list of TAP members and a meeting summary
2:	Task 2 Memorandum, summarizing site investigations and safety assessments
3:	TAP Meeting 2; Task 3 Memorandum, summarizing site monitoring plans and equipment to be deployed
4:	TAP Meeting 3; Task 4 Memorandum, summarizing monitoring results
5:	TAP Meeting 4; TAP Meeting 5; Task 5 Memorandum, summarizing potential countermeasure implementation plans
6:	Syllabus, for non-motorized traffic monitoring class; Online Class
7:	TAP Meeting 6; Draft Final Report
8:	Final Report

PROJECT SCHEDULE

Task Durations

Months:	2016						2017												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Task 1	X	X	X	X															
Task 2		X	X	X	X	X													
Task 3					X	X	X	X	X										
Task 4										X	X	X	X	X	X	X	X	X	X
Task 5																		X	X
Task 6												X	X	X	X	X	X	X	X
Task 7																			
Task 8																			

Months:	2018									
	19	20	21	22	23	24	25	26	27	28
Task 1										
Task 2										
Task 3										
Task 4	X									
Task 5	X	X	X	X	X					
Task 6	X	X	X	X	X					
Task 7						X	X	X		
Task 8									X	X

Deliverable Due Dates

Task:	Draft Deliverable Due Date:	Final Task Approval Date:
1:	August 31, 2016	October 31, 2016
2:	October 31, 2016	December 31, 2016
3:	January 31, 2017	March 31, 2017
4:	November 30, 2017	January 31, 2018
5:	March 31, 2018	May 31, 2018
6:	Syllabus: July 31, 2018 Class: January 1, 2018	May 31, 2018
7:	June 30, 2018	August 31, 2018
8:		October 31, 2018

THE BALANCE OF THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK