

Request for Information: #2524H049



State of Alaska
Department of Transportation & Public Facilities
Division of Program Management and
Administration

Date Issued: 3/19/2024
Responses Due: 4/2/2024

Innovative Technologies for Surface Transportation Needs: Market-Ready Solutions

Introduction

The State of Alaska (SOA) Department of Transportation and Public Facilities (DOT&PF) is seeking qualified applicants to submit a Request for Information (RFI) response outlining their product capabilities, novel solutions and/or devices to solve any or all the below needs. This request is part of a research project to inform an innovative partnership between DOT&PF Industry partners to 'field test' market-ready solutions that could answer long-standing gaps in coverage as well as emerging issues to inform future planning, policy and transportation projects in a low-cost and third-party review context.

Background Information

In May 2022 the DOT&PF Research Advisory Board approved a research project titled "Innovation Corridors-Pilot study Partnerships with Transportation Technology Industries" to deploy a project that would partner industry and academia to test products in the field to supplement DOT&PF's existing surface transportation system (Ferries, transit, roadway, non-motorized facilities, ice roads, ports, and harbors). DOT&PF recognizes that technology may provide new methods to evaluate long-standing challenges in transportation such as safety improvements, asset management, human behavior observations, and customer service as well as consider readiness for emerging technologies such as digital twins, real-time analytics, connected and autonomous vehicles (CAV) readiness systems, sensor technologies to enhance safety, materials and artificial intelligence. The recent [Mini-RWIS pilot study](#) within the RD&T2 Division showed that DOT&PF can successfully evaluate new products in the public Rights of Way (ROW) through Public-Private Partnership contracting. Pilot studies implemented in public ROW allow for advancing applied research into practice and can provide useful trials for DOT&PF, other surface transportation agency partners, the private industry that is leading the technology and University of Alaska. This proposed project these responses may inform would create an avenue to partner with industry that meets the goals for technology readiness outlined in the DOT&PF's Connected and Autonomous Vehicle Strategic Plan and is a similar effort to the Transportation Research Board's "[Innovations Deserving Exploratory Analysis \(IDEA\) Programs](#)."

Technological advances that are developing at a fast pace among industry leaders and researchers such as smart traffic devices and other technologies may struggle in Alaska's harsh weather conditions and limited telecommunications network. If Alaska doesn't prepare to address gaps/needs for implementation of both existing and up-and-coming technologies, then Alaska may lose the opportunity to influence the national rollout of transportation technology in the best manor possible.

Purpose

The purpose of this RFI is to collect technological market-ready devices, adaptive tools, innovative materials and processing techniques, and/or systems to address the needs describes in **Table 1-Topic Area Needs**. The RFI committee will review all responses, share them online for our research and innovation partners, and consider including relevant devices/tools in a Public-Private Partnership to evaluate for performance through deploying in 1 or more Alaska surface transportation locations, analyze in field and/or laboratory setting, share technology transfer training on the results in a final published report(s).

Table 1:Topic Area Needs

See Attachment 1

Resources/References:

- US DOT ITS Summary of national data available https://its.dot.gov/csai/datasets_externalLink.html
- Alaska DOT&PF Open Data site: <https://data-soa-akdot.opendata.arcgis.com/>
- Alaska DOT&PF RD&T2: <https://dot.alaska.gov/stwddes/research/index.shtml>
- Alaska DOT&PF Publications: <https://dot.alaska.gov/stwddes/dcspubs/>
- Alaska DOT&PF Design & Construction Standards-Preconstruction with Standard Plans: <https://dot.alaska.gov/stwddes/dcsprecon/index.shtml>
- Alaska DOT&PF Statewide Materials (Includes links to Quality Assurance, Qualified Products List, Pavement Engineering, Concrete Materials, manuals, etc): https://dot.alaska.gov/stwddes/desmaterials/mat_resource.shtml
- Alaska DOT&PF Asset Management: https://dot.alaska.gov/stwddes/asset_mgmt/
- Alaska DOT&PF Bridge: <https://dot.alaska.gov/stwddes/desbridge/>
- Alaska DOT&PF Environmental: <https://dot.alaska.gov/stwddes/desenviron/>
- Alaska DOT&PF Civil Rights Office: <https://dot.alaska.gov/cvlrts/>
- Alaska DOT&PF Strategic Investment Section: <https://dot.alaska.gov/stwdplng/sis/>
- Alaska DOT&PF Strategic Highway Safety Plan: <https://dot.alaska.gov/stwdplng/shsp/>
- Alaska DOT&PF Traffic: <https://dot.alaska.gov/stwddes/dcstraffic/resources.shtml>

Response Information

Interested parties are invited to submit one (1) page with responses to the following:

- Provide the name, address, email address and phone number of the primary contact person.
- Provide a detailed description of your company's capabilities and experience related to developing and deploying the respective tool(s)/device(s)/technology systems that addresses one or more of the 'Topic Area Needs' listed in Table 1;
- Cite published research (peer reviewed or preliminary) that describes collecting and analyzing product performance. If no published research exists, provide summary of initial findings and anticipated performance for an Alaska-specific application.
- Include in your response a recommendation for how the device/tool/technology/system should be deployed in a Public ROW location in Alaska and the benefits to the traveling public, and/or DOT&PF or other surface transportation partner agency. If the technology is solely computer based, describe how practitioners should trial the tool to produce the intended results for the proposed need and any required system conditions.

Responses to this RFI are for informational purposes only. Do not include cost estimates as they will not be considered in a response.

It is the responsibility of the interested party to follow up with the procurement officer listed below to ensure the

response was received prior to the time and date specified.

This RFI does not extend any rights to prospective vendors or obligate the state to conduct a solicitation or purchase any goods or services.

Procurement Officer Contact Information

Interested parties must submit a written response to the Procurement Officer no later than April 2, 2024, by 2:00 P.M. Alaska Time. Responses may be emailed to the following address:

dotstatewideprocurement@alaska.gov

Point of Contact:

Heather Pedersen
Procurement Officer
Department of Transportation & Public Facilities
Division of Administrative Services

Phone: 907-465-8558
Email: heather.pedersen@alaska.gov

Attachment 1

Subject	Topic Area	Need	Additional Information	Examples (Excluded from RFI)
Civil Rights	PROWAG	Audible Button for Traffic Signals	per August 8th, 2023 PROWAG Guidelines publication	
Civil Rights	PROWAG	Construction Zone Detour Audible Warning	per August 8th, 2023 PROWAG Guidelines publication	
Civil Rights	Intersections	User initiated walk-phase extended for disabled and senior pedestrians with approved People Mover transit cards	Similar to what is practiced in Singapore.	https://solve.mit.edu/challenges/solve-ed-youth-innovation-challenge-2/solutions/69341
Civil Rights	Transit	On-demand interpretation services for bus navigation at transit stops	Enhancing customer service to include visitors and residents who's primary language is not English will improve use and incorporate the goals of the Language Access Plan of the DOT&PF Title VI program https://dot.alaska.gov/cvlrts/docs/DOTPF-LEP-Plan.pdf	
Civil Rights	Administration	training tool to recommend corrections to existing DOT&PF websites and publications to be American Disabilities Act 508 compliant for improved customer service and consistent digital content.	Software and tools to assist DOT&PF in compliance with Federal Section 508 of the Rehabilitation Act, Information and Communication Technology (ICT). Examples of technologies: payment kiosks, websites, power point presentations, webinar content, web-based portals, electronic transportation reservation systems, automated messaging, digital push notifications	https://www.audioeye.com/post/accessible-website-design-examples/#understanding-ada-website-compliance
Active Transportation	Transit	Real-time Bike Rack Availability	Transit buses typically hold 2 or 3 bikes and potential riders are not able to know if any or all of the spots are available until the bus arrives, limiting their ability to plan their complete travel route.	
Active Transportation	Transit	Real-time Bus ridership data that connects to DOT&PF traffic count data system	Pedestrian data is difficult to capture, but syncing bus ridership data to bus stops would assist in capturing time of day and number of pedestrians who traveled nearby to incorporate that data into overall system traffic counts. Having a comprehensive data set that includes non-motorized users and transit stop use will inform corridor planning and safety analysis.	
Active Transportation	winter	Pavement marking projections when snow is covering driving surface.	snow regularly covers crosswalks at intersections until plowing can clear an intersection. Lighting is not always present at crosswalks and markings wear quickly from studded tire wear. Having illuminated crosswalk markings that are projected onto the surface could enhance conspicuity of the crossing for both drivers and pedestrians.	https://www.youtube.com/watch?v=8-1NolxYsBQ https://www.youtube.com/watch?v=iqYGF1J2Bic
Active Transportation	Intersections	Passive pedestrian detection activation & analytics that feeds to DOT&PF traffic count data system	Snow and ice can make activating a pedestrian push button difficult. In addition, many pedestrians may not know to press a push button to activate a walk phase. Passive detection could significantly enhance the pedestrian experience for a wide range of users	
Active Transportation	Intersections	Pedestrian crossing time collection, analysis, reporting	DOT&PF is interested in evaluating pedestrian crossing times to inform intersection design, signal design and signal timing to compare to existing Manual on Uniform Traffic Control Devices guidance.	
Active Transportation	Asset Management	Inches of snow on sidewalk data collection along major urban corridors	Assistance with sidewalk plowing prioritization and coordination amongst contractors, agencies, transit service, and the traveling public to optimize decision making based on recent storm events.	

Active Transportation	Asset Management	Non-motorized facility condition data collection, and/or analysis, and/or reporting	DOT&PF is interested in digitizing non-motorized facilities into GIS layers that would include approximate alignment, width, slope, and condition data to inform planning and maintenance activities. Utilizing video data with Artificial Intelligence analysis to create the dataset is also desirable.	
Maintenance	Asset Management	Real-time plowing and sweeping push notifications synced across public agency systems that clear transit stops, sidewalks, multi-use pathways, roadways	Public would like more real-time information to inform street parking clearing, street sweeping, sidewalk clearing and other maintenance activities.	
Multiple	Transit	Transit stop safety	Agency is interested in devices marketed to enhance safety and security for passengers waiting at transit stops and to inform	Adaptive lighting technologies? Camera detection?
Multiple	materials	Alaska sourced recycled material used for benches, guardrail spacing, fencing, guardrail block outs, sign posts.	DOT&PF and City of Anchorage are interested in innovative uses for recyclable, locally sourced materials such as plastics and glass for surface transportation materials. https://dot.alaska.gov/stwddes/desmaterials/mat_resource.shtml https://dot.alaska.gov/stwddes/dcsspecs/index.shtml	
Multiple	materials	Passive illuminense materials to embed in or apply to asphalt to reduce multi-modal trail user conflicts		
Resiliency	materials	Pavement treatments to reduce heat absorption as a means to preserve permafrost stability beneath roadway/pathway	surface applied treatments or additives to traditional asphalt mix designs.	https://www.epa.gov/heatislands/using-cool-pavements-reduce-heat-islands
Safety	Bridge	Near-miss bridge height detection	Eklutna Bridge has high-visibility paint, warning signs, and warning lights, yet still experiences bridge strikes. DOT&PF is interested in any new technologies to reduce/eliminate bridge strikes at this location	
Safety	Intersections	Near-miss conflict data collection, analysis and reporting	Urban and/or rural/remote applications are of interest.	
Safety	Intersections	Traffic violations detection such as No "Right Turn on Red" or "red light running" data collection, analysis and reporting	Data collected would provide a comprehensive analysis of regulatory signing and devices. This would assist designers and safety practitioners on real-world compliance to inform decision makers on investments in enforcement, education and engineering treatments.	
Safety	work zones	Intrusion and near-miss data collection, analysis and reporting	Temporary work zones along high speed corridors are assumed safe if installed per the MUTCD, however each work zone design must take into account location-specific constraints. Technology to alert staff of safety concerns and risk of intrusion would be helpful to improve motorist conformity of speeds and worker safety.	
Safety	wildlife intrusions	Public notification/warning when moose are near shoulder of roadway in a controlled access corridor	Glenn Highway Corridor is a controlled access route that has moose collisions, despite fencing and one-way gates. Technologies to collect moose travel along and across the freeway is needed to better understand the risk exposure to the traveling public. Warning systems to alert the public of intrusion are also desired.	
Safety	Rural	Ice Condition: Ice thickness measuring and analysis from on-shore stations throughout season.	Ice roads along river channels require constant safety analysis. Any technologies that can assist/support with monitoring from the shoreline would be beneficial.	

Safety	Rural	Trip generation data collection along the Kuskokwim River in Summer and Winter months.	The Kuskokwim River connects dozens of remote Alaska Native Villages to the City of Bethel, a regional hub community. In the summer, the river is traveled by private boaters, commercial vessels and tourists. and in winter it is traveled by private cars, commercial trucking, snow machines and dog sled teams. Cell coverage is not complete along the river. Search and Rescue continue to be concern year-around. Data collection regarding transportation volumes and connection points to docks, harbors, landings is needed for safety funding and transportation planning.
Safety	Rural	Illuminated navigational aides for river channels in remote locations using solar power.	A bouy network exists for large vessels but nothing currently exists to assist smaller vessels that are unfamiliar with traveling along the Kuskokwim river channel.