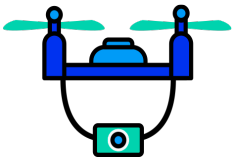
SMART

GRANTS PROGRAM



ARROW (Alaska Rural Remote Operate Work Plan)

Alaksa DOT&PF

PROJECT PARTNERS

Association of Village Council Presidents University of Alaska Fairbanks
State of Alaska
City and Borough of Juneau
Anchorage Police Department,
Skydio
Alaska AFL-CIO
IBEW
ESRI
Raytheon
Armada AI
Alaska Department of Public Safety
Alaska Municipal League
ACUASI
Alcan Electric
Denali Borough
City of Homer
Valdez Police Department

PROJECT CHALLENGE

The ARROW (Alaska Rural Remote Operations Work Plan) project addresses the issue of delivering essential services in remote Alaskan communities, particularly in response to natural and man-made disasters. These areas, often underserved and facing infrastructural challenges, require robust support in transportation and infrastructure maintenance. ARROW proposes a solution using uncrewed aircraft systems (UAS) and remote sensing technologies to enhance safety and efficiency in traffic monitoring and infrastructure inspections. This initiative includes setting up standardized data workflows and a GIS database statewide, allowing for effective data sharing and decision-making across diverse community and governmental stakeholders.

IMPACT

The ARROW project is being deployed in 11 remote Alaskan communities, including Bethel, to enhance transportation safety and infrastructure management. It primarily impacts local residents, many in underserved areas, by providing advanced drone technology for monitoring and emergency response. Long term, ARROW aims to empower these communities with sustainable tech skills and improved data management, significantly increasing local capacities in disaster response and infrastructure maintenance.

CURRENT STATE OF THE ISSUE

The ARROW project has faced significant challenges, particularly in the availability of drone technology and the coordination of FAA exam centers for rural testing: Drone Technology Availability: There have been delays in the deployment of Unmanned Aircraft System (UAS) components, which has pushed back deployment dates. These delays necessitate recalibration of project timelines and resource allocations, affecting overall project momentum. FAA Exam Center Coordination: Securing permission to administer the FAA examination concurrently across multiple locations has proven to be a logistical challenge. This is especially pertinent in rural areas where access to testing facilities is limited, impacting the timeline for training and certification of local personnel in drone operations.

POLICY QUESTIONS

1. How can integration of UAS technology in rural infrastructure management be optimized to enhance emergency response and regular maintenance? 2. What training frameworks are most effective at empowering local communities to independently manage and utilize advanced remote sensing technologies? 3. How can data governance policies be tailored to maximize the benefits of GIS and remote sensing data while ensuring privacy and security in rural settings?

STAGE 1 OUTCOMES

Enhanced Remote Monitoring: UAS technology has been successfully deployed for real-time monitoring of infrastructure and traffic, improving rapid response and maintenance in remote Alaskan communities. Local Workforce Development: Training and certification programs boost technological skills and create lasting employment in UAS operation and maintenance. Robust Data Management System: A GIS-based data management system streamlines data sharing and analysis, supporting informed decision-making and local disaster response.

STAGE 2 VISION

For Stage 2, the ARROW project envisions broader UAS deployment to enhance infrastructure resilience and emergency response across more Alaskan communities. We aim to integrate advanced surveillance technologies to improve airspace safety, enable longer connectivity ranges, and support Beyond Visual Line of Sight (BVLOS) operations, fostering statewide economic development and enhanced public safety.