

TSMO Strategic Plan



By Alaska Department of Transportation
and Public Facilities

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Benefits Statement

The TSMO Strategic Plan by Alaska Department of Transportation and Public Facilities (Alaska DOT&PF) aims to enhance safety, reduce travel delays, and lower costs across the state's diverse transportation system. By addressing critical safety concerns, optimizing resource management, and improving real-time information for quicker emergency response, the plan aims to save lives. It reduces congestion and improves reliability, saving time for travelers. Cost-effective strategies, better resource use, and proactive maintenance help save money. Overall, the plan enhances the efficiency, safety, and reliability of Alaska's transportation network while adapting to changing needs.

In this case study you will learn:

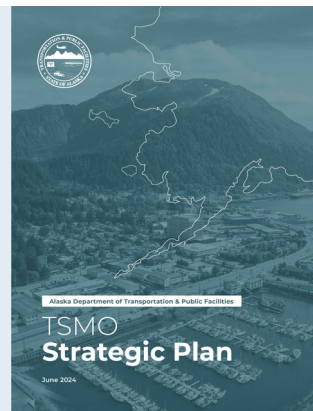
1. How ADOT&PF's TSMO plan enhances safety and reliability in Alaska's transportation network by addressing critical concerns like intersection safety and congestion.
2. How ADOT&PF utilizes extensive stakeholder engagement to foster collaboration and identify barriers for effective implementation.
3. How ADOT&PF's systematic approach evaluates TSMO strategies, ensuring adaptability and efficient resource management.

BACKGROUND

Alaska's transportation system supports diverse modes of transport, including roads, trails, rail, marine transportation, and air transportation. The extensive network managed by the Alaska Department of Transportation & Public Facilities (Alaska DOT&PF) comprises over 5,600 miles of paved and gravel highways, 237 airports, 839 bridges, 16 harbors, and a ferry system covering 3,500 nautical miles, serving 33 coastal communities.

Alaska DOT&PF's staff have successfully implemented Intelligent Transportation Systems (ITS) technologies and Transportation Systems Management and Operations (TSMO) strategies as a starting point, even without a formal TSMO program and strategic plan. Recognizing the agency's strong culture driven by values of integrity, excellence, respect, and safety, a strategic TSMO plan was developed to foster creative solutions beyond traditional practices to enhance the efficiency, reliability, and safety of the transportation system.

TSMO PLANNING, STRATEGIES AND DEPLOYMENT



The TSMO Strategic Plan was developed with the knowledge and expertise of internal stakeholders. Through surveys and group interviews, stakeholders were engaged, leading to the identification of roles, responsibilities, existing barriers, and silos. Stakeholders highlighted

challenges such as ongoing transitions, changing leadership priorities, and the erosion of institutional knowledge, which contribute to uneven implementation of multiple initiatives.

Clear evidence emerged from the Capability Maturity Model (CMM) assessment and stakeholder interviews regarding the potential of the Alaska DOT&PF. The CMM scores for each of the six dimensions ranged from Level 1 (performed) to Level 3 (integrated). Given the wide range of scores amongst the stakeholders it was decided to show the results as a range instead of an average to emphasize the importance of acknowledging ongoing challenges across the organization.

Vision: Proactively manage and operate the existing transportation system through collaboration, optimization of existing resources, and implementation of innovative, cost-effective solutions.

Goals:

- Improve safety
- Increase reliable travel
- Enhance user experience
- Improve resource management
- Integrate TSMO into Alaska DOT&PF

Existing conditions of safety, operation, and congestion were compiled, and staff was surveyed to rank the concerns that could be addressed by TSMO and align with the TSMO goals. Existing concerns included:

- **Safety concerns** – intersections, lane departures (around curves and straight roadways), school bus stops on high-speed highways
- **Operational concerns** – winter weather maintenance, work zones, emergency management, ferries, airports
- **Congestion concerns** – winter weather maintenance, multi-modal movements

The survey asked respondents to identify and rank what effects the safety, operational, and congestion concerns had on the public, emergency service providers and the agency.

TSMO strategies from national best practices were reviewed and an applicability assessment was provided to understand how certain strategies would be beneficial to the agency. Early feedback from stakeholders was clear that the implementation of TSMO strategies needed to be adaptable to changing priorities from leadership.

Understanding what strategies and activities would support multiple TSMO strategies and to be able to evaluate TSMO strategies led to the development of a “Rating Criteria” that focused on evaluating benefit/cost ratios and readiness factors for the agency.

The Rating Criteria provides a systematic approach to evaluate TSMO strategies by:

- Classifying TSMO strategies into nine categories based on the FHWA TSMO program areas.
- Evaluating a baseline condition of current TSMO strategies.
- Assessing TSMO strategies on their effectiveness across nine criteria including alignment with goals and objectives; cost and B/C ratio, statewide applicability, staff availability and staff readiness.
- Identifying institutional, technology, and infrastructure barriers for each strategy.



The implementation of the TSMO Strategic Plan is critical in growing and maintaining the momentum from the development of the plan itself. Learning from Washington State DOT’s tiered implementation approach to identifying actions that can be started within the first 12 months, Alaska DOT&PF developed a 3-tier approach of action items that will continue mainstreaming TSMO.

COMMUNICATIONS PLANNING AND EXECUTION

Internal Stakeholders:

Engagement throughout the plan development process involved a diverse group of stakeholders representing headquarters, all the geographic regions, and multiple program areas. Alaska has a unique transportation system to address challenging geography and weather.

The typical program areas involved include:

- Intelligent Transportation Systems (ITS)
- Traffic
- Safety
- Operations
- Maintenance
- Planning
- Engineering
- Emergency Management

The more unique program areas involved include:

- Data Modernization and Innovation
- Research, Development and Technology Transfer
- Avalanche & Artillery
- Unmanned Aerial Surveillance (UAS)

There were several workshops held to identify existing conditions, needs, assess capability and identify goals and objectives. Stakeholders provided input and feedback throughout the entire plan development process.

OUTCOME, BENEFITS AND LEARNINGS

The outcomes and recommendations from the TSMO Strategic Plan are:

- **TSMO guidebooks** – Develop a series of guidebooks to integrate into the Department
- **Experimental projects** – Incorporate new technologies as a testbed through experimental projects
- **Data Challenges** – Investigate, incorporate crowdsourced transportation data and real-time information for improved operations. Investigate costs and improvements to improve asset management.
- **Workforce and staffing** – Understand and identify gaps in staffing across the agency including planning, project development, maintenance and operations, IT support, data analysis, and TSMO program staff.
- **Organizational Structure** – Identify potential changes to Alaska DOT&PF’s organization structure that would support mainstreaming TSMO and improve TSMO effectiveness.

- **Training needs** – Statewide cross-training, district operations, TIM, TSMO/ITS, new technology, outreach.
- **Policy and procedures** – Develop, update and standardize policies and procedures:
 - Planning and project development
 - Standardized data
 - Standardized communication protocols
 - Standardized ITS equipment
 - Continuity of Operations

Benefits and Lessons Learned

The development of the TSMO Strategic Plan allowed for the discussions, collaborations, and relationships to be strengthened that have led to existing barriers starting to be removed while gaining critical support for TSMO throughout the state. Listening to all of the stakeholders and allowing their input to drive the creation of the plan enhanced the conversations throughout the process.

