Unmanned Aerial Systems (UAS) Plan for New Hampshire DOT

From Concept to Implementation

Unmanned aircraft systems (UAS) technologies offer opportunities for time savings, improved data accuracy, and versatility in data collection and data verification. NHDOT has undertaken or teamed on several research projects to evaluate the use of UAS at DOTs in terms of data needs and staff skillsets ultimately resulting in an implementation plan specific to NHDOT providing a step-by-step plan to integrate UAS technologies into everyday processes.

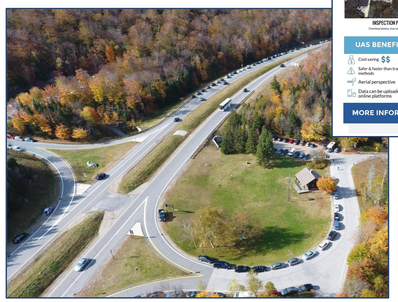
Initial Evaluation

Final Report - 2019

This initial effort used **SPR2** grant funds to focus on evaluating UAS technology for a range of case studies relating to the specific needs of the NHDOT. In partnership with University of Vermont's (UVM) UAS Team, eight case studies were generated to evaluate the applicability of UAS for NHDOT, compare UAS to existing methods and analyze barriers to implementation.

- Automobile Accident Investigation
- Aeronautics Inspection
- Bridge Inspection
- Construction Monitoring
- Dam Inspection
- Traffic Monitoring
- Rail Mapping & Bridge Inspection
- Rock Slope Inspection

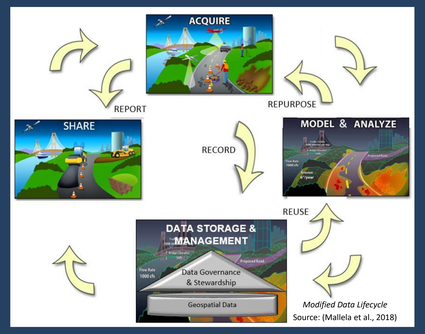
Link: Case Studies



Sponsor: New Hampshire DOT
Researcher: University of Vermont
Report: NHDOT Project 26962J

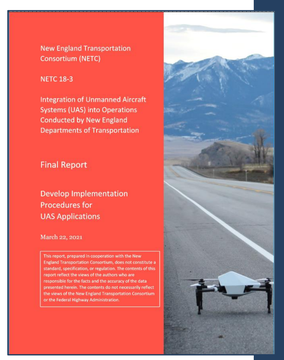
Regional Study

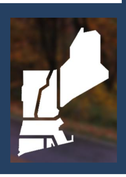
Final Report - 2021



SPR2 grants funds were used by the New England Transportation Consortium (NETC) sponsored research for New England DOTs regarding best practices for effectively incorporating UAS into daily DOT operations. Guided by the regional DOTs, WSP performed research that focused on UAS technologies, support systems, implementation needs, identified challenges to be mitigated, and benefits to accrue to the regional DOTs.

Implementation procedures for six use cases for the region were developed that included defining a system and staffing plan, performing a risk assessments, and obtaining required permits and waivers.





Sponsor: New England Transportation Consortium (NETC)
Researcher: WSP USA, Inc.
Project Link: NETC Project 18-3

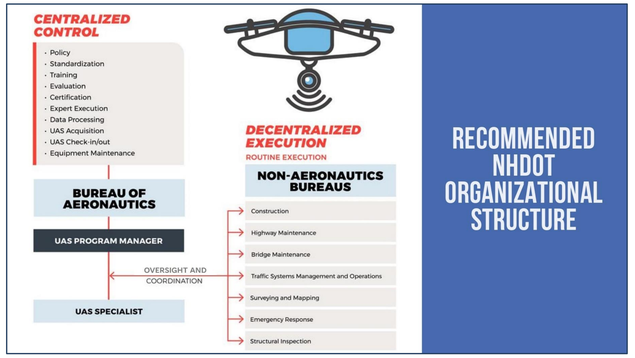
Development & Implementation of a UAS Plan

Final Report – 2023

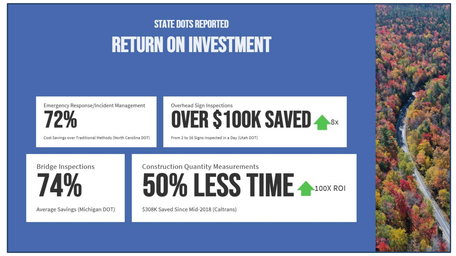
Two **STIC** grants were utilized by NHDOT to acquire UAS platforms, software, and associated equipment to support hands-on testing and eventual use in real-life applications on NHDOT projects.

An **SPR2** grant was used to provide for a roadmap for UAS integration at NHDOT. A UAS program implementation plan that outlines the organizational structure and program requirements to support implementation of UAS technology has been developed for NHDOT. Geared toward facilitating deployment of UAS in the day-to-day operations at NHDOT, the plan includes recommendations for:

- an internal policy for NHDOT UAS use
- an assessment of return on investments and budgetary needs
- program organizational structure
- program milestones
- resources and assets to meet projected missions



Sponsor: New Hampshire DOT
Researcher: WSP USA, Inc.
Report: NHDOT Project 42372B



Future Research
Underwater and Tethered Drones

NHDOT is pursuing the purchase of an underwater remotely operated vehicle (ROV) through an **SPR2** grant and tethered UAS through a **SMART** grant in support of FHWA's EDC-7 program for Next-Generation Traffic Incident Management. Research will be performed on these vehicles to define opportunities associated with NHDOT operations that may be able to collect data not otherwise easily obtained by traditional methods. Case studies will be prepared that will explore the types of data needed along with an evaluation of the equipment's capabilities while identifying pros and cons for the safe, efficient, and cost-effective applications to augment NHDOT's operational processes.

Abstract: NHDOT Project 42372N

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