Unmanned Aircraft Systems (UAS) are a new capability that has the potential to reduce costs dramatically and increase safety for transportation operations. Despite the considerable amount of existing research and case studies surrounding UAS, there appear to be few, if any, that have focused on analyzing the costs, benefits, and barriers associated with integrating UAS into a state department of transportation’s operations. The overall objective of this project focused on evaluating UAS technology for a broad range of case studies relating to the specific needs of the New Hampshire Department of Transportation (NH DOT).

This project was a partnership between NH DOT and the University of Vermont’s (UVM) UAS Team. UVM’s UAS Team conducted flight operations and generated products for eight case studies. These case studies served the purpose of evaluating the applicability of UAS for NH DOT, comparing UAS to existing methods and analyzing the barriers to UAS implementation.

**Case Studies Overview**

- **Accident** New Hampshire Motor Speedway
- **Aeronautics Inspection** Jaffrey Airport
- **Bridge Inspection** Lebanon, New Hampshire
- **Construction Monitoring** I-93
- **Emergency Management** Murphy Dam
- **Traffic Monitoring** I-95 & Franconia Notch State Park
- **Rail Mapping & Bridge Inspection** Lancaster, New Hampshire
- **Rock Slope Inspection** Crawford Notch State Park

**UAS Workflow**

Planning → Operations → Processing → Value Added → Products

**Benefits**

- Cost Saving
- Safer & Faster than other methods
- Ability to access difficult locations
- GIS/CAD ready data

**Limitations**

- Weather (no rain or high winds)
- Battery life
- Equipment malfunction
- Often cannot be used stand alone

**Considerations**

- Volume of data
- IT
- Expertise required
- Specialized equipment
- GIS/CAD expertise

**More Information**

For more information on the New Hampshire Department of Transportation case studies project view the final report.

View each case studies ESRI Story Map and Fact Sheet for more detailed information on each case study.