

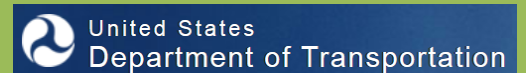
# Rapid Exploitation of Commercial Remotely Sensed Imagery for Disaster Response & Recovery

Principal Investigator: Austin Troy  
Program Manager: Caesar Singh

COOPERATIVE AGREEMENT  
No. RITARS-12-H-UVM

## Advisory Committee Meeting

March 19<sup>th</sup>, 2013



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## Glossary

3D	Three Dimensional
AASHTO	American Association of State Highway Transportation Officials
CAD	Computer-Aided Design
CNL	Cognition Network Language
COA	Certificate of Authorization
CRS	Commercial Remote Sensing
DOT	Department of Transportation
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GIS	Geographic Information Systems
HDSS	Hazard Data Distribution System
ICS	Incident Command System
LiDAR	Light Detection and Ranging
NAIP	National Agricultural Imagery Program
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
OBIA	Object-Based Image Analysis
OGC	Open Geospatial Consortium
PI	Principal Investigator
PM	Program Manager
RiP	Research in Progress database
RITA	Research and Innovative Technology Administration
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SAL	Spatial Analysis Lab
SI	Spatial Information
TAC	Technical Advisory Committee
TRC	Transportation Research Center
UAV	Unmanned Aerial Vehicles
USDOT	United States Department of Transportation
USGS	United States Geological Survey
UVM	University of Vermont
VAOT	Vermont Agency of Transportation (also known as Vtrans)
Vtrans	Vermont Agency of Transportation (also known as VAOT)
XML	eXtensible Markup Language

## Meeting Details

**Date:** March 19<sup>th</sup>, 2013

**Time:** 1:00pm, EST

## Attendance

### Project Team:

- ✓ Caesar Singh, Program Manager (PM), US DOT
- ✓ Austin Troy, PhD, Director of the UVM TRC
- ✓ Jarlath O'Neil-Dunne, Faculty Research Associate and Director of the UVM SAL
- ✓ Amanda Hanaway-Corrente, Professional Engineer (PE) at UVM
- ✓ James Sullivan, Research Analyst at UVM TRC
- ✓ Sean MacFaden, Research Specialist at UVM SAL
- ✓ Ernest Buford, Research Specialist at UVM SAL
- ✓ Jacob Leopold, UVM TRC Business Manager

### Technical Advisory Committee:

- ✓ Guy Rouelle, Aviation Program Administrator, VTrans
- ✓ Stephanie Magnan, Asset Management Specialist, VTrans
- ✓ Wayne Gammell, Maintenance Administrator, VTrans
- ✓ Johnathan Croft, GIS Database Administrator, VTrans
- ✓ Zach Borst, VEM Regional Outreach Coordinator
- ✓ Michele Boomhower, CCRPC Assistant/MPO Director
- ✓ Christopher Jolly, Planning & Programming Engineer, FHWA - VT Division
- ✓ Roger Thompson, ITS/Safety Engineer, FHWA - VT Division
- ✓ Charles Hebson, Manager of Surface Water Resources, Maine DOT

## Discussion Items

1. **Thank You.** Austin Troy thanked TAC Members for volunteering to advise this project.
2. **Project Overview.** Austin Troy provided a high level description of the project for the new TAC members. A detailed description of the project is provided on our website using the “Technical Proposal” link. (website: [http://www.uvm.edu/~transctr/?Page=research/projects/rapid\\_exploitation\\_of\\_CRS\\_SI\\_for\\_disaster\\_response\\_and\\_recovery.php](http://www.uvm.edu/~transctr/?Page=research/projects/rapid_exploitation_of_CRS_SI_for_disaster_response_and_recovery.php) )
3. **Brief Description of TAC.** Task 1 for the project was to create a TAC. Austin Troy described the requirements of this task, including who was invited to serve on the TAC and why. A detailed description of the tasks for this project is provided on our website using the “Task List” link.
4. **Brief Description of CSR Imagery.** Jarlath O’Neil-Dunne provided a high level description of the Commercial Remotely Sensed Imagery that would be needed for the project and it’s availability with respect to the International Charter. A detailed description of how to obtain CRS data is provided on our website using the “White Paper on Commercial Remotely Sensed (CRS) Data” link.
5. **Field Testing.** The TAC initiated the planning process for scheduling field testing by discussing upcoming construction projects in the Spring and Summer of 2013. The plan is as follows:
  - Scenario A:
    - Calibration over Franklin County Airport in June 2013
    - Phase I testing over Irene reconstruction projects in July and August of 2013
    - Phase II testing over select reconstruction projects in the summer of 2014, if need be.
  - Scenario B
    - Calibration and testing to occur in Spring and Summer of 2014

### Notes about the construction projects and field testing:

- Projects. Wayne Gammell, VTrans, explained that several projects are planned to re-construct Irene damaged roadways in 2013 and 2014.
- Holes. These projects will involve digging up banks and roadways to a depth that could range from 10-20 feet.
- Timing. The holes could be dug up for one day or for several days/weeks, depending on the project and the size of the hole. UVM will need to closely coordinate with VTrans to find areas which are dug up for multiple days of UAV testing.
- Advance Notice. Guy Rouelle said he may be able to obtain clearances with only 2 days’ notice. A general rule of thumb, however, is that he will need 1 weeks advanced notice for airport calibration flights and 2 weeks advanced notice for roadway testing flights. The more information we

could provide ahead of time, the better. We will need to submit a Mission Profile, including but not limited to:

- UAV departure point,
  - route of flight,
  - altitude,
  - duration of flight,
  - preprogrammed profile or remotely controlled
- Restricted Airspace. The general rule of thumb is that the road segments selected for testing should be 5 or more miles away from airports and Camp Johnson. However, different airports have different requirements, and some additional restricted airspace exists within Vermont.
  - Flight Altitude. If the UAV flies at 399ft. or below, no FAA clearance is needed.

**Action Items:** Stephanie Magnan, VTrans, to send UVM a list of projects planned for 2013 and 2014, with a brief description of the scope of work involved in the project.

- Once UVM has a list of planned projects, they will work with Guy Rouelle, VTrans, to identify the projects which are outside of restricted airspace. Once these projects are identified, UVM will create flight plans for Guy Rouelle's review and begin the approval process.

6. **Task Updates.** Below is a list of tasks that have been started and/or completed thus far:

- Task 1 - Creation of a Technical Advisory Committee. The TAC was created and approved by the Program Manager.
- Task 2A - Creation of a project website. The project website has been created and can be found at [http://www.uvm.edu/~transctr/?Page=research/projects/rapid\\_exploitation\\_of\\_CRSI\\_for\\_disaster\\_response\\_and\\_recovery.php](http://www.uvm.edu/~transctr/?Page=research/projects/rapid_exploitation_of_CRSI_for_disaster_response_and_recovery.php)
- Task 2B – Obtain Software and Equipment. Originally, UVM was looking to purchase UAVs through GeoEye. However, they required a Certificate of Authorization, which can only be granted to State Agencies. Since UVM is not a State Agency, other UAV vendors were researched. The team selected the senseFly eBee. Jarlath O'Neil-Dinne is flying to Washington, D.C. next week to evaluate the product. The following questions were brought up at this TAC meeting, and Jarlath will address these question during his visit to senseFly:
  - How does weather affect the flights and data collection?
  - Will the drastic elevation changes in Vermont be an issue?
  - What self-correction options are included?

## Next Meeting

**Date:** TBD. The next meeting will be scheduled for May/June, after the UAVs have been purchased and the project team has been trained on how to use it.

**Time:** TBD.