



Using Drones for Synchronization of Situational Awareness Between Critical Infrastructures and the Public Sector

The Pacific Northwest Economic Region (PNWER) and its Center for Regional Disaster Resilience (CRDR) have been awarded a 2018 National Infrastructure Protection Plan (NIPP) Security and Resilience Challenge project for critical infrastructure. The project seeks to develop methodologies to allow for the rapid inspection of critical infrastructure in post-disasters using drones (also called Unmanned Aerial Systems (UAS)). This information can then be shared with state level emergency management agencies to establish better situational awareness and a common operating picture.



The Gap

86% of the nation's critical infrastructure is owned and operated by the private sector. There is a need for rapid damage assessment of these critical infrastructures immediately following a disaster. Emerging drone technology is allowing for an expedited and detailed damage assessment of infrastructures by owners and operators. To accomplish this work requires that the private sector have access to disaster zones to conduct damage assessments and then be able to share information rapidly with state emergency management agencies so that a common operating picture can be established.

Project Scope

This project scope includes the development of plans, procedures, processes, and mechanisms for the collection and exchange of damage information. This information will assist both infrastructure owners and the public sector to obtain faster situational awareness on the status of their infrastructures, and other interdependent infrastructures that may impact their ability to provide services, and products to their customers. This information will be transmitted to state EOCs and used to create a common operational map that can be shared with the federal government, lower level jurisdictional organizations and the private sector.

The intent is to work with four states in the Pacific Northwest: Idaho; Montana; Oregon, and Washington. These states will be invited to participate in the project. The first goal will be to establish a working group of interested public and private sector infrastructure owners and operators within each state. Then there will be a public-private stakeholder led workshop for each of the four states. These will be sessions that invite public and private CI owners and operators to be briefed on and consider their needs and concerns about partnering with the government sector and their respective state. The outcome of the workshop will ideally be the initial formation of operational concepts that will be incorporated into a CONOPS for that state.

A CONOPS for access into disaster zones and the sharing of information will be prepared for each state. As part of this CONOPS, the process for private sector CI owners to gain access into disaster zones will be formulated for each state. This element of the CONOPS will use the existing state access control methodologies that they have in place or develop a simplified process for access so that drones can be used to gather damage assessment information. The CONOPS will also specify the communications channels and data file type for transmission.

A demonstration drill will be conducted in one state, with one infrastructure owner and operator that implements the CONOPS. This drill will use the established process for a private CI owner to obtain access to a disaster zone, fly a simulated damaged area with a UAS, and transmit simulated disaster damage information to the state Emergency Operations Center (EOC).

The above drill will be open to observers from other infrastructures and state emergency management officials.

Lastly, the longer-term goal is to demonstrate this UAS to EOC situational awareness feed at scale in real-time during the Cascadia Rising II exercise planned for 2022.

Project Team

The Pacific Northwest Economic Region (PNWER) will be working in cooperation with other public and private stakeholders. This will include personnel from ports, rail roads, energy providers, pipelines, water systems, ferry systems, state and local transportation agencies and state level emergency managers, and other public and private sector organizations who own and operate critical infrastructures, or upon whom these infrastructures are dependent.

Project Deliverables

The project steps are as follows:

- Step 1: Invite participation by each of the four Pacific Northwest States - Idaho, Montana, Oregon, and Washington, followed by the formation of a user's group within each of the four states, that will work to address UAS information sharing.
- Step 2: Conduct a workshop in each of the aforementioned states to enlist the support of participating infrastructures and garner information particular to that state.
- Step 3: Write a CONOPS, one for each participating state, that provides the framework for the sharing of information and for access into disaster zones by critical infrastructures.
- Step 4: Conduct a drill in one state to provide a "proof of concept" for the CONOPS.
- Step 5: Submit a final report summarizing the results of the project.

Stakeholder Commitment

Stakeholders are invited to commit to providing time and resources to assist in this effort. We expect it will require a minimal obligation of time for planning, attending a workshop, reviewing draft documents, and providing feedback for the duration of the contract.

Project Timeline

Work will begin in December 2018. All contract deliverables must be accomplished by September 30, 2019.

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