

### **Drones in Minnesota**

Craig Gustafson | Chief Counsel July 18, 2018



#### Drone Statistics in the US

- 1.1 million drones are now registered with the FAA
  - 918,000 are used by hobbyists;
  - 194,000 are commercial drones.
- AASHTO March 2018 survey found:
  - 20 state departments of transportation are now using aerial drones in daily operations;
  - 15 additional states are researching ways to use drones;
  - 27 states are adding full-time staff to operate and maintain their drone fleet.

### Regulation of Drones/UAS in MN

- Hobbyist/recreational drone use is governed by the FAA
  - See 14 CFR Part 101, Subpart E.
- Commercial drone use (also known as UAS or Unmanned Aircraft Systems) requires:
  - a commercial operator's license;
  - a Remote Pilot Certificate;
  - registration with the MnDOT Office of Aeronautics;
  - payment of an annual registration fee of \$100, proof of insurance, and proof of sales tax payment.
  - See 14 CFR Part 107 and Minnesota Statutes, Section 360.531.

### How Does MnDOT Use Drones?

- 1. Bridge inspections.
- 2. Land survey work and 3D data mapping.
- 3. Site condition inspections.
- 4. Public relations (videos for new projects).
- 5. Other potential uses—structural inspections, disaster/emergency response, crash data collection, snow mapping, traffic congestion monitoring, etc.

## **Bridge Inspections**





## **Bridge Inspections**



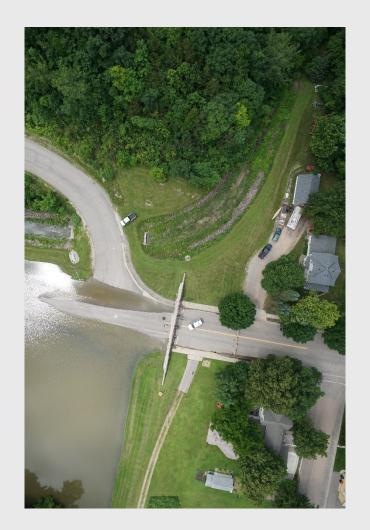


## Highways



### Disaster Response





### MnDOT's Drone Policy

- Unmanned Aircraft System (UAS), Policy OP006
- 23 state DOT's now have a drone policy
- Why have a policy?
  - Ensure compliance with FAA requirements and other laws
  - Identify roles and responsibilities
  - Ensure safety for staff, contractors, and the public
  - Ensure data quality
  - Track all agency usage and identify best practices

### **Policy Highlights**

- MnDOT's UAS Policy (effective March 2018) requires:
  - 1. Aeronautics office approval of usage by employees or third parties hired by MnDOT;
  - A safety and operations plan that outlines all aspects of the intended mission;
  - 3. Compliance with all FAA requirements;
  - 4. The drone to be licensed by the Aero Office;
  - 5. A completed and approved application; and
  - 6. Operators/pilots meet a set of training and certification requirements.

### Benefits to State DOT's

#### Safety Benefits

- Keeps workers on the ground or away from hazards
- Reduces need to detour traffic and set up work zones

#### Fast

- You can quickly collect data and take high resolution photographs, even in confined spaces like culverts
- A 2017 NCDOT study showed that by using drones to complete an accident reconstruction investigation time spent was reduced from 111 minutes using traditional methods to 25 minutes with drones

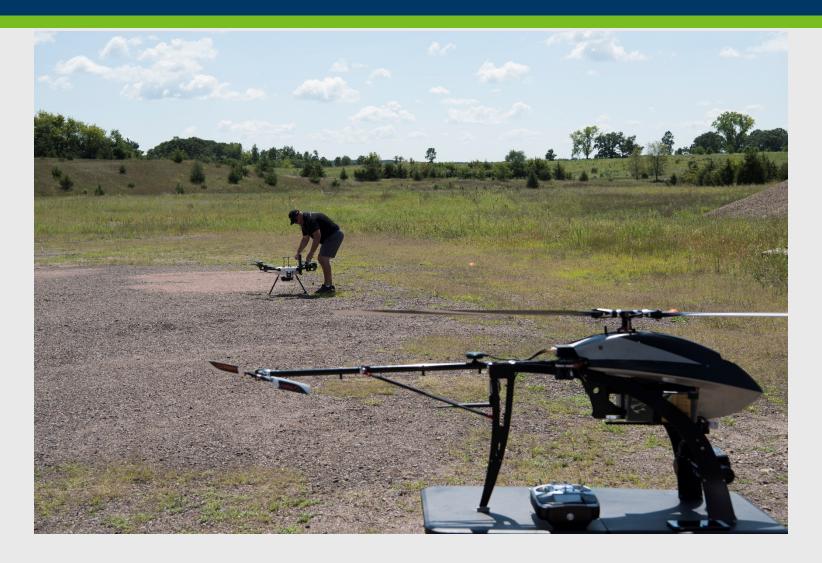
#### Save Money

• The drones MnDOT uses cost about \$40,000 each—substantially less than heavy equipment that is used for similar purposes

### What Drones Do We Currently Use?



### **Drones MnDOT Uses**



### **Future Challenges**

- Future widespread usage of drones for package delivery.
- Safety concerns.
- Privacy concerns.
- Complying with new USDOT/FAA regulations.
- Enforcement of state laws and regulations.





# Questions?

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