



# NIST: Survey of Drone Usage by First Responders

OMB Control #0693-0033

Expiration: 06/30/2019

1. Have you worked (or do you currently work) in a public safety department that has a drones program?

Yes

No

2. What type of public safety organization are you currently with? (check all that apply)

Explosive Ordinance Disposal

Fire Fighting

Law Enforcement (Local or Federal)

Military

Emergency Medical Services (EMS)

Rescue Services

Other: \_\_\_\_\_

3. What is your jurisdiction? (check all that apply)

City

County

State

Federal

Other: \_\_\_\_\_

4. What type of geographic environments does your department typically operate in (check all that apply)?

Desert

Mountains

Rural

Suburban

Urban

Wildland

Other: \_\_\_\_\_

5. What is your position/title within your organization?

Your answer \_\_\_\_\_

6. Please describe your day-to-day job responsibilities.

Your answer

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7. How many years of experience do you have in your current line of work?

- Less than 1 year
- 1 to 3 years
- 3 to 5 years
- 5 to 10 years
- More than 10 years

8. Do you have other types of public safety experience?

- Yes
- No (skip to question 9)

If so, what type of public safety organization(s) did you work with prior to your current job (check all that apply)?

- Explosive Ordinance Disposal
- Fire Fighting
- Law Enforcement (Local or Federal)
- Military
- Emergency Medical Services (EMS)
- Rescue Services
- Other: \_\_\_\_\_

How many years of experience did you have with your prior public safety organization(s)?

- Less than 1 year
- 1 to 3 years
- 3 to 5 years
- More than 5 years

9. If you answered "no" in question #1 for participating in a public safety drones program, is your department actively developing or considering a drones program? Please explain (then skip to question 12)

Your answer

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## Drones Program Experience

10. How long has your department had (or did your department have) a drones program?

- Less than 1 year
- 1 to 3 years
- 3 to 5 years
- More than 5 years

Please list some of the drone models operating in your department (or write "I don't know" if unsure).

Your answer

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Do you have licensed drones pilots within your organization or does your organization hire or borrow pilots to fly department

drones?

- Yes
- No
- I don't know

comments

Your answer

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11. Do you have any experience flying drones?

- Yes
- No

If yes, how many years of drone flying experience do you have?

- Less than 1 year
- 1 to 3 years
- 3 to 5 years
- More than 5 years

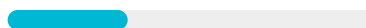
Additional comments

Your answer

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## Missions with no Broadband Communications

12. Have you been involved in any missions during which cellular broadband communications (voice and/or data) were not available (e.g. the wireless infrastructure was down or you were in a remote area where wireless infrastructure doesn't exist)?

Yes

No

If yes, briefly list the kind of mission (such as “searching for a missing person” or “forest fire-fighting”), the type of environment (such as “residential dwelling,” “high rise building,” “rural fields,” “rugged mountainous terrain”), and the reason why communications systems were not available.

Your answer

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Where cellular broadband communications were not available, was there a need for or would you have wanted wireless communications?

Yes

No

If yes, please describe what the added benefit to the mission would have been?

Your answer

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13. Would you consider continuous cellular communications a necessity in the types of missions that you are involved in?

Yes

No

Please explain your answer.

Your answer

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14. What size cellular broadband coverage area would you need surrounding a single mission area in order to support that mission?

Less than 1 mile radius

Between 1 mile and 5mile radius

Between 5 mile and 10 mile radius

More than 10 mile radius

If you prefer listing the coverage area in terms of acreage, list it



here.

Your answer

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If you answered "no" in question #1 for participating in a public safety drones program, feel free to skip to the final question #24.

Your answer

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## Drones Specifications

15. If drones could stay in the air indefinitely and a drone was able to provide continuous cellular broadband coverage for first responders in areas where coverage was not available, approximately how long would you anticipate needing the drone to stay in the air during such a mission?

30 to 60 minutes

60 to 90 minutes

90 to 120 minutes

More than 120 minutes

Other: \_\_\_\_\_

What would you consider a safe minimum flight elevation above ground level (AGL) for such a drone?

- 50 ft
- 100 ft
- 150 ft
- 200 ft
- 300 ft
- 400 ft
- Other: \_\_\_\_\_

16. If a drone (that can provide continuous cellular broadband coverage) could be either tethered to a ground control station with a cable (supplying continuous power to the drone and communications between the ground station and the drone), or untethered (i.e. completely wireless), which one would be more useful for your organization (or missions)?

- Tethered
- Untethered
- A mix of both

Please explain your choice for tethered, untethered, or both.

Your answer \_\_\_\_\_

17. If a drone (that can provide continuous cellular broadband coverage) could be either an untethered multi-rotor drone that can take-off and land vertically, an untethered fixed-wing drone that can take-off and land horizontally, or an untethered hybrid drone that can take-off and land vertically and then fly

horizontally, would you choose one type over another?

Yes

No

Please explain your answer and your drone preference.

Your answer

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What are your logistical and operational considerations for choosing one type over another?

Your answer

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18. What would be your preferred power source for drones that can provide continuous cellular broadband coverage (for example, all electric, liquid fuel, or a hybrid electric/fuel)?

Your answer

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19. Would you consider other power sources such as hydrogen fuel cells, etc.?

Yes

No

If yes, which power source would you consider and what advantages do you think that power source has over others?


Your answer

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## Other Considerations for Drone Use

20. If a drone that can provide continuous cellular broadband coverage were available, do you think that having a high-powered zoom camera or thermal camera on the drone would be needed or useful?

Yes

No

If yes, list the type of camera(s) and how it might be used [e.g. visible light camera, FLIR (thermal imaging) camera].

Your answer

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If yes, would you need to fly at a particular maximum altitude in order to obtain useful footage from the camera(s)? Please explain.

Your answer

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21. If a drone that can provide continuous cellular broadband coverage were available and weighed more than 55 lbs (which requires special waivers from the FAA to fly) would you consider using such a drone?

Yes

No

Why or why not?

Your answer

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22. As it relates to an LTE-carrying drone, how rugged does the drone need to be? For example, would you expect to operate in weather or environmental conditions such as heavy dew, light rain after a hurricane, dust or sand after a disaster, high humidity or smoke?

Your answer

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Do you have concerns with noise factors either for the drone communications, community or environment it's flying in?

Your answer


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# NIST: Survey of Drone Usage by First Responders

\* Required

## Budget and Final Comments

23. As it pertains to your agency's budget and the value to your agency of having this tool at your disposal, what would be a reasonable or affordable cost for your agency to spend on a drone used to deploy cellular broadband communications?

- Less than \$5,000
- \$5,000 to \$10,000
- \$10,000 to \$20,000
- \$20,000 to \$30,000
- \$30,000 to \$50,000
- Other: \_\_\_\_\_

24. Do you have additional comments that might help PSCR in their research efforts to advance wireless communications for America's first responders?

Your answer

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