

PUBLIC SAFETY DRONES, 3rd EDITION

DAN GETTINGER

MARCH 2020

We have tallied 1,578 state and local police, sheriff, fire, and emergency services agencies in the U.S. that are believed to have acquired drones. Since the last update in our ongoing project to track public safety drones, published in May 2018, over 500 disclosed public safety agencies have acquired drones.

This database is the only comprehensive open-access tally of publicly disclosed public safety agencies that are reported to own at least one drone. Because it does not include agencies with undisclosed drone programs or federal agencies, it does not reflect the total number of public safety agencies with drones in the U.S. Moreover, because this project only counts agencies that own drones and leaves out agencies that have made use of drones owned by other entities or private citizens, it does not reflect the total number of public safety agencies *using* drones. As such, this study should be taken as a barometer of the growing adoption of drones in this sector rather than as a definitive guide to every public safety agency in the country with drones.

These data are sourced primarily from local media reports, publicly-available U.S. Federal Aviation Administration records such as Part 107 Waivers, and state and local government records such as annual reports, contracts, and meeting minutes. Approximately 40 individual public safety agencies were contacted directly for additional details and clarifications. More information regarding the methodology can be found in our past editions of this project or by emailing csd@bard.edu.



Credit: Los Angeles Fire Department

KEY TAKEAWAYS

- At least 1,578 state and local public safety agencies in the U.S. have acquired drones;
- 70 percent of disclosed public safety agencies with drones work in law enforcement;
- California, Texas, Illinois, Wisconsin, and Florida have the greatest number of public safety agencies with drones;
- The majority of drones operated by public safety agencies are consumer or prosumer models.

1. Public Safety Agency Type

1.1 Public Safety Agency by Type

Jurisdiction	Agency Type	Agency Count
Municipal	Police	559
	Fire and Rescue	294
	City (Emergency Management)	23
	Public University Police	9
County	Sheriff and County Police	470
	County (Emergency Management)	111
	Fire and Rescue	32
	County (Other Law Enforcement)	16
State	State (Law Enforcement)	49
	State (Emergency Management)	15

1.2 Public Safety Agency by Jurisdiction

Jurisdiction	Agency Count	Percent of Total*
Municipal	885	56%
County	629	40%
State	64	4%

1.3 Public Safety Agency by Mission

Mission	Agency Count	Percent of Total*
Law Enforcement	1,103	70%
Fire and Rescue	326	20%
Emergency Management	149	10%

*Reflects the percentage of the total number of agencies *in the database*, not the total number of agencies in the country.

2. Agency Location

2.1 Public Safety Agency by State

State	Agency Count	Percent of Total
Alabama	47	3.0%
Alaska	4	0.3%
Arizona	25	1.6%
Arkansas	19	1.2%
California	140	8.9%
Colorado	51	3.2%
Connecticut	27	1.7%
Delaware	10	0.6%
Florida	71	4.5%
Georgia	46	2.9%
Hawaii	3	0.2%
Idaho	17	1.1%
Illinois	76	4.8%
Indiana	48	3.0%
Iowa	39	2.5%
Kansas	28	1.8%
Kentucky	16	1.0%
Louisiana	18	1.1%
Maine	6	0.4%
Maryland	13	0.8%
Massachusetts	32	2.0%
Michigan	34	2.2%
Minnesota	47	3.0%
Mississippi	16	1.0%
Missouri	40	2.5%
Montana	6	0.4%
Nebraska	14	0.9%

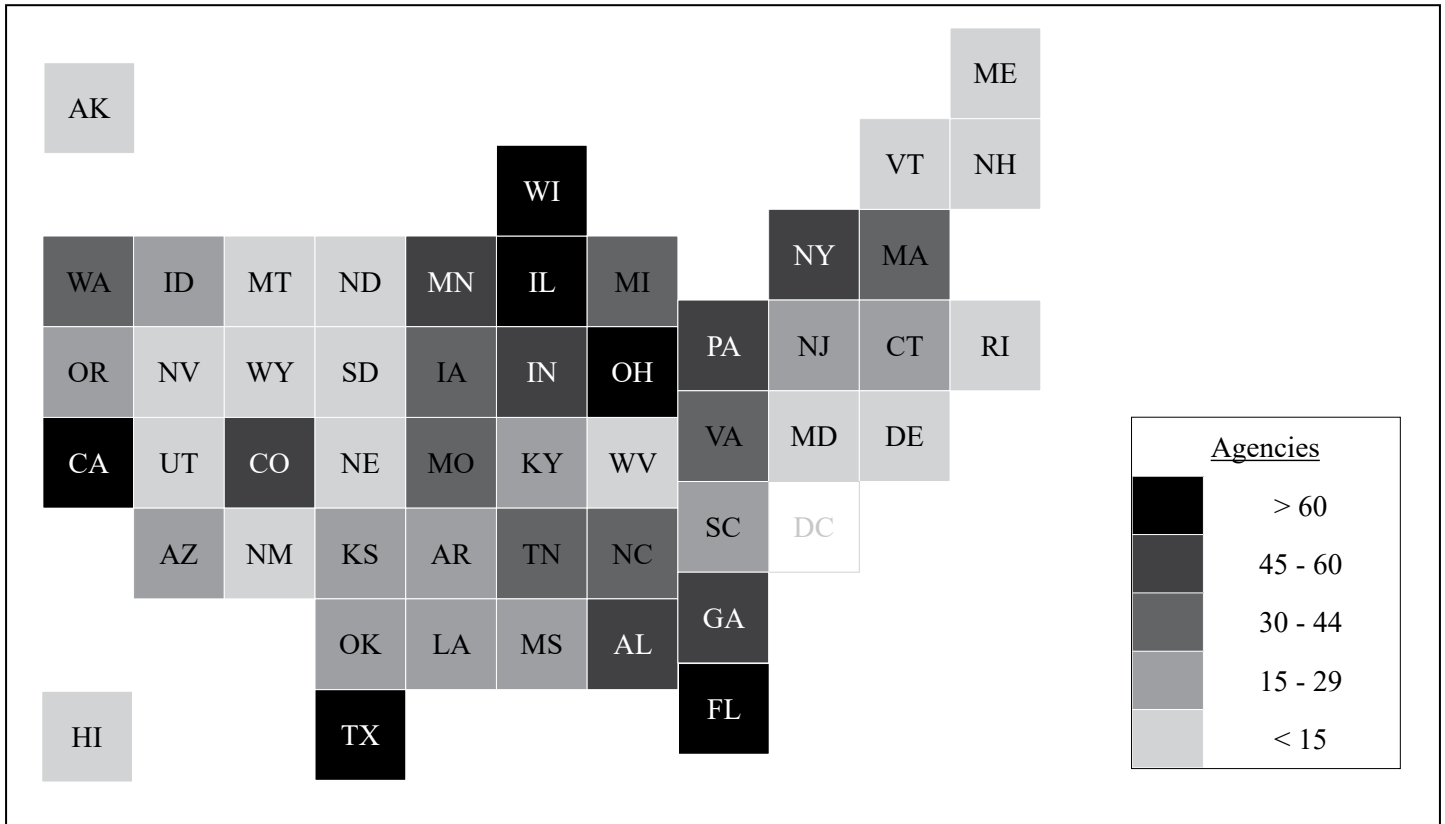
(Public Safety Agency by State continued)

Nevada	13	0.8%
New Hampshire	13	0.8%
New Jersey	29	1.8%
New Mexico	6	0.4%
New York	47	3.0%
North Carolina	43	2.7%
North Dakota	10	0.6%
Ohio	69	4.4%
Oklahoma	21	1.3%
Oregon	28	1.8%
Pennsylvania	51	3.2%
Rhode Island	2	0.1%
South Carolina	26	1.6%
South Dakota	9	0.6%
Tennessee	30	1.9%
Texas	115	7.3%
Utah	13	0.8%
Vermont	2	0.1%
Virginia	41	2.6%
Washington	33	2.1%
West Virginia	7	0.4%
Wisconsin	72	4.6%
Wyoming	5	0.3%

2.2 Public Safety Agency by County Summary

Total number of counties with at least one agency with drones	899
<i>Change since the 2018 edition of this study</i>	<i>282 (45%)</i>
Counties with two or more agencies with drones	289
<i>Change since the 2018 edition of this study</i>	<i>137 (90%)</i>

2.3 Map of Public Safety Agencies by State



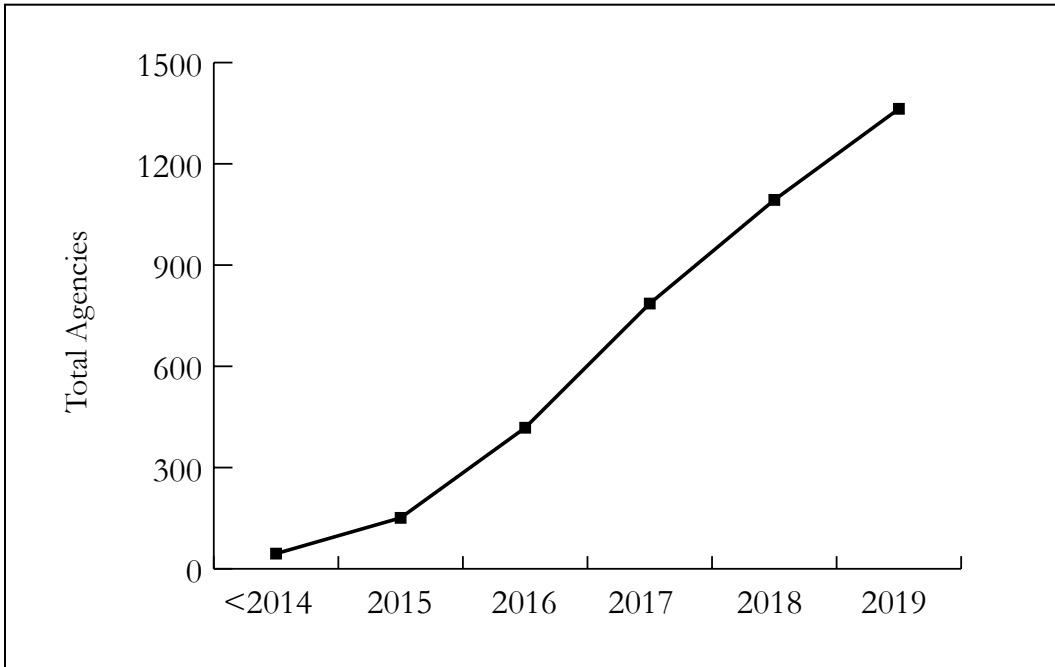
2.4 Public Safety Agency by Region and Division

Region	Division	Agency Count
1. Northeast	(sum)	209
	1 - 1 New England	82
	1 - 2 Mid-Atlantic	127
2. Midwest	(sum)	486
	2 - 3 East North Central	299
	2 - 4 West North Central	187
3. South	(sum)	539
	3 - 5 South Atlantic	257
	3 - 6 East South Central	109
	3 - 7 West South Central	173
4. Pacific	(sum)	344
	4 - 8 Mountain	136
	4 - 9 Pacific	208

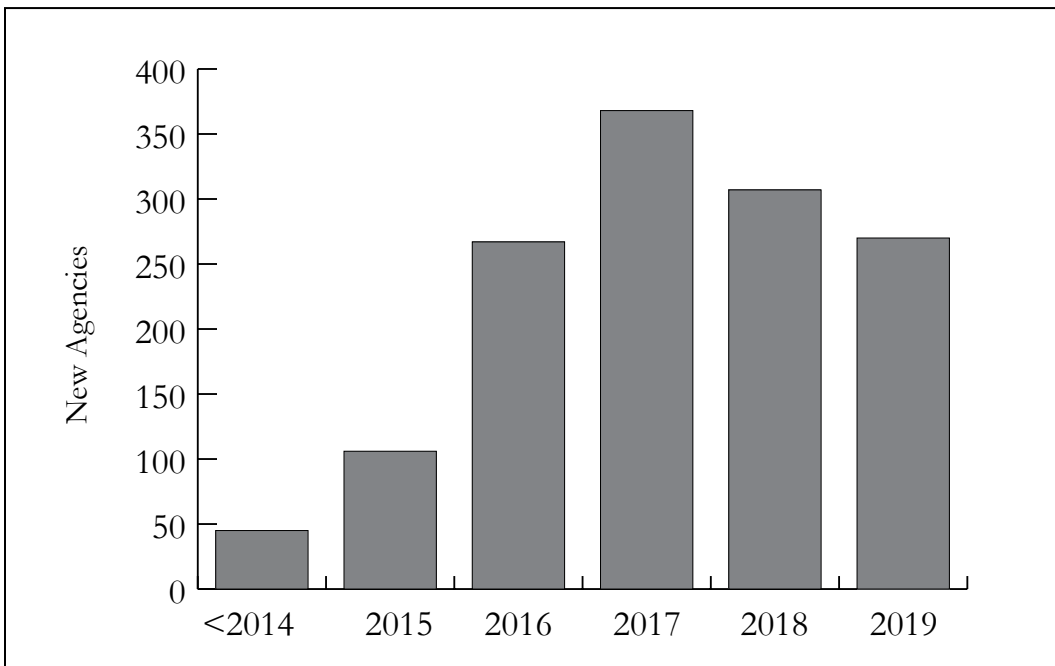
3. Acquisition Year

We have determined the approximate year that each disclosed public safety department acquired a drone for 91 percent of the agencies in our database. Due to the nature of the source material, it is not uncommon for us to discover new agencies months or years after they have acquired a drone. As a result, these figures may change somewhat in future editions.

3.1 Total Number of Public Safety Agencies with Drones by Year



3.2 New Public Safety Agencies with Drones by Year



4. Drone Make and Model

We have determined the model and manufacturer of drones used by two-thirds of the disclosed agencies. Numbered variants of the same model are classified in this database as the same system; for example, drones such as the DJI Phantom 3 and Phantom 4 are listed only as “DJI Phantom.” In all, we identified 55 drone models made by 39 companies in service with public safety agencies.

4.1 Popular Drones Among Public Safety Agencies by Drone Model

Manufacturer	Model	Agency Count*
DJI	Phantom	336
DJI	Inspire	291
DJI	Mavic	246
DJI	Matrice	226
Yuneec	Typhoon	34
Physical Sciences	InstantEye	17
Autel	X-Star Premium	12
Yuneec	H520	12
Draganfly Innovations	Draganflyer	11
Autel	Evo	9

4.2 Popular Drones Among Public Safety Agencies by Drone Manufacturer

Manufacturer	Agency Count*
DJI	924
Yuneec	46
Autel Robotics	21
Physical Sciences	17
Parrot	11
Draganfly Innovations	11

*Reflects the number of *agencies* with at least one drone of this make or model, not the total number of drones in service with public safety agencies. Some agencies have multiple types of drones from more than one manufacturer.

ADDITIONAL DATA POINTS

Information for the following data categories is only available for a selection of agencies. As a result, these findings are likely to change in future editions.

5. Drone Quantity

We have identified 431 agencies, 27 percent of all, that have acquired more than one drone. The true number of agencies in our database with multiple drones is likely higher.

5.1 Drone Quantity Summary

Total number of drones	2,826
Average number of drones per agency*	3.9
Number of agencies with 10 or more drones	20

*Reflects only those agencies with more than one drone recorded.

5.2 Average Number of Drones Per Agency by Agency Type (Selection)

Jurisdiction	Agency Type	Average per Agency*
State	State (Law Enforcement)	10.6
County	Sheriff	4
Municipal	Police	3.2
Municipal	Fire and Rescue	3

*Reflects only those agencies with more than one drone recorded.

6. Cost and Acquisition Method

We have identified the acquisition method and cost of acquisition for 283 agencies, 18 percent of all. The cost data typically only reflects the up-front equipment costs and do not include lifecycle costs such as training and maintenance.

6.1 Drone Equipment Cost Summary*

Total	\$8,457,618
Average	\$28,964
Median	\$12,000

*Reflects only those agencies for which information is available.

6.2 Acquisition Method*

Method	Agency Count
Donation	118
Grants	80
Seized, Forfeited, and Other Funds	53
Budgeted	32

*Reflects only those agencies for which information is available.

7. Trained Officers

We have determined the number of officers trained to operate drones for 120 agencies, 7.6 percent of all.

7.1 Trained Officers Summary*

Average number of trained officers per agency	9
Number of trained officers per drone in inventory	2
Number of agencies with more than 15 trained officers	13

*Reflects only those agencies with at least one trained officer recorded.

Edited by Arthur Holland Michel.

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