Data Source and Methods

This study uses an online survey approach to assess public attitudes about drone use for domestic surveillance. The survey was conducted over a 2-day period in mid-June of 2014 and it was restricted to U.S. residents over 18 years of age. The national sample frame was generated through the *Mechanical Turk* survey platform. A total of 524 surveys were completed within this time frame. Compared to the U.S. national population, sample respondents were overrepresented by males and younger adults.

Post-stratification weighting by gender and age was used to adjust this sample to its known population distribution. Although imposing these weights had little impact on the observed results, this type of sample adjustment is a widely accepted practice within the field of survey research (see Loosveldt & Sonck, 2008). Accordingly, post-stratification weighting is used in this report without a loss of generality of the obtained results.

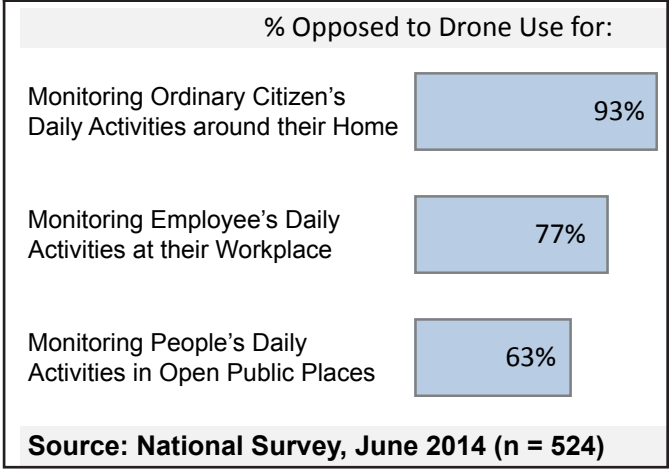
Views about Domestic Surveillance by Aerial Drones in Particular Places

Survey participants were asked several questions about their views regarding drone use and domestic surveillance in three different places or contexts: (1) in open public places, (2) at the workplace, and (3) around their homes. The specific wording of the questions asked about drone use in each location include the following:

- *In general, do you support or oppose the use of aerial drones in the U.S. for monitoring people's daily activities in open public places?*
- *In general, do you support or oppose the use of aerial drones in the U.S. for monitoring employee's daily activities at their workplace?*
- *In general, do you support or oppose the use of aerial drones in the U.S. for monitoring citizen's daily activities around their homes?*

As shown in Table 1, a clear majority of survey respondents were opposed to using drones for domestic surveillance activities, but this general level of opposition varied across contexts. In particular, almost all (9%) of thes e adults oppose drone surveillance around their homes and over three-fourths of them oppose drone use for workplace surveillance. They were most supportive of drone use for monitoring people in open public places, but about two-thirds of adults were opposed to drone surveillance even in this context.

Table 1: Opposition to Drone Use for Domestic Surveillance by Particular Locations



Source: National Survey, June 2014 (n = 524)

Group differences in these public attitudes about drone use and domestic surveillance were also found in some cases. For example, across each type of location, people with lower incomes, residents of Western states, and those who hold more individualistic views about government's protection of citizen's rights were more opposed to drone surveillance than their counterparts. In contrast, there are no major differences in public attitudes about drone surveillance based on the individual's gender, age, educational level, marital status, or political party affiliation.

Perceived Costs and Benefits of Drone Use for Domestic Surveillance

To explore the possible reasons underlying these public attitudes about drones and domestic surveillance, we asked survey participants whether they agreed or disagreed with a series of statements. These statements represent some of the potential costs, benefits, and issues associated with using drones for monitoring people's behavior in different locations.

As shown in Table 2, the proportion of adults who agree with each statement about drones varies

Table 2: Attitudes about Drones and Domestic Surveillance Conducted by Particular Groups

Percent Agreeing with Statement:	Governmental Use of Drones in Open Public Places …	Business Use of Drones at the Workplace …	Private Citizen Use of Drones around their Homes …
is excessive surveillance?	73%	84%	92%
violates personal privacy?	70%	79%	88%
is an effective monitor of people?	60%	48%	42%
is an injury threat from user error?	42%	45%	53%
is an injury threat from "hackers"?	39%	44%	48%
increases public safety?	39%	13%	16%
increases your personal safety?	33%	14%	17%
is a necessary form of surveillance?	10%	17%	9%

Source: National Survey, June 2014 (n = 524)

across contexts and location of the surveillance. Overall, survey respondents strongly indicated agreement that drone use for monitoring people's activities is "excessive surveillance" and "violates personal privacy." The frequency of agreement with these two statements is greatest when it involves citizens monitoring other people around their homes, followed by workplace surveillance and the governmental use of drones to observe people in public places. In contrast, only a small minority of survey respondents viewed aerial drone usage as a "necessary form of surveillance" and this was true across all three contexts for domestic surveillance.

In terms of potential benefits of drone surveillance, the highest level of agreement was found in the public's view of its effectiveness and impact on public safety. This was especially true for the governmental use of drones in open public places. As shown in Table 2, a large proportion (60%) of respondents agreed that the government's use of drones in public places "is an effective way of monitoring people" and a substantial minority (39%) agreed that drone use in public places would also "increase public safety." However, only a small proportion (13-17%) of the sample believed that drone use at the workplace or at their home would increase either public safety or their own personal safety.

When asked to indicate why they would oppose drone surveillance in different locations, most respondents selected either that it is "excessive surveillance" or an "invasion of privacy" as their primary reasons (see Table 3). The concern about invading one's privacy was the predominant source of opposition to drone surveillance by private citizens around their homes. In contrast, the primary reasons mentioned for supporting drone surveillance include beliefs that this practice would "increase public safety" and, to a lesser extent, that drone use is a "reasonable method for monitoring people's activities."

Table 3: Reason for Opinions about Domestic Surveillance Conducted by Particular Groups

A. Major Reason for Supporting Drone Use for Domestic Surveillance by:

	Government	Business	Private Citizens
Increases Public Safety	79%	38%	39%
Reasonable Monitoring Method	13%	23%	36%
Effective Monitoring Method	4%	27%	12%
Innovative Technology	4%	12%	13%
	100%	**100%**	**100%**

B. Major Reason for Opposing Drone Use for Domestic Surveillance by:

	Government	Business	Private Citizens
Excessive Surveillance	50%	51%	23%
Invasion of Privacy	48%	45%	70%
Injury by Technical/Human Error	1%	1%	5%
Injury by "Hackers"	1%	2%	1%
Ineffective Monitoring Method	1%	2%	1%
	100%	**100%**	**100%**

Source: National Survey, June 2014 (n = 524)

Some group differences are found when examining beliefs about the potential benefits and costs associated with drone surveillance. The nature of these group differences include the following:

- Beliefs about drone surveillance *increasing public safety* are more prevalent among:
  - younger than older respondents (i.e., 18-30 years old vs. 50 and older).
  - persons of lower than higher educational attainment (i.e., high school vs. college educated).
  - Democrats than Republicans.
  - persons who prefer a government that emphasizes public safety rather than individual rights.
- Beliefs about the *effectiveness* of drones for monitoring people are more prevalent among:
  - older than younger respondents (i.e., 50 and older vs. 18-30 years old).
  - persons of higher than lower educational attainment (i.e., college vs. high school educated).
  - residents of larger than smaller cities (i.e., over vs. under 50,000 population).
  - Republicans than Democrats.
  - persons with higher than lower annual household income (i.e., income over and under $50,000).
- Beliefs about drone surveillance being an *invasion of personal privacy* are more prevalent among:
  - persons of higher than lower educational attainment (i.e., college vs. high school educated).
  - Democrats than Republicans.

- persons who prefer a government that emphasizes individual rights rather than public safety.
- persons with lower than higher annual household income (i.e., income under and over $50,000).

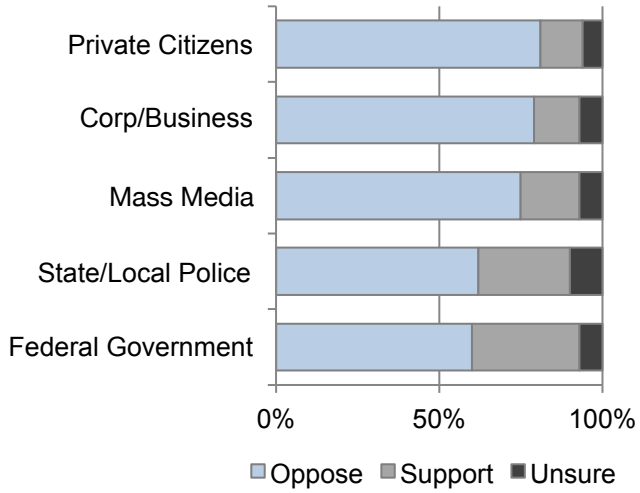
- Beliefs about drone being *excessive surveillance* are more prevalent among:
  - persons of higher than lower educational attainment (i.e., college vs. high school educated).
  - Democrats than Republicans for drone use in the workplace vs. around the home.
  - persons who prefer a government that emphasizes individual rights rather than public safety.
  - persons with lower than higher annual household income (i.e., income under vs. over $50,000).

Views about Drone Surveillance by Particular Groups

Most respondents in this survey are opposed to drone surveillance of people's activities across various contexts (see Table 1). This opposition is based primarily on beliefs about drone use being an invasion of privacy and an excessive form of surveillance (see Table 2 and 3). However, a remaining question about drone use for domestic surveillance involves whether public opposition or support for these practices depend on the characteristics of the user of this technology. Answers to this question are shown in Table 4.

Based on this national survey, public attitudes about using drones for domestic surveillance are strongly influenced by the person or group that is using the technology. The level of opposition for drone surveillance is highest when it involves use by private citizens (81%), followed closely by corporate or business users (79%) and the mass media (75%).

Table 4: Attitudes Toward Particular Groups' Drone Use for Domestic Surveillance



Source: National Survey, June 2014 (n = 524)

The greatest support for using drone technology for domestic surveillance activities is found when the user is the federal government (33% support) or state/local law enforcement agencies (28%). Even among these groups with the highest support for drone usage, however, it is important to emphasize that the clear majority of respondents were opposed to drone surveillance of people's activities regardless of the source of that monitoring.

Implications for Public Policy on Using Aerial Drones for Domestic Surveillance

The growth of aerial drone technology and its application in various substantive fields has become a major issue for public policy. Currently, sites in six states (Alaska, New York, Nevada, North Dakota, Texas and Virginia) have been designated as locations for developing operational practices and policies about this technology. In addition, many states are now drafting legislation to regulate how, when, and where aerial drones may be used in both public and private places.

If public opinion is an important basis for developing public policy, the results of the current national survey raise serious questions about the public's willingness to support drone use in any context of domestic surveillance. In fact, opposition to drones was nearly unanimous when they are used to monitor people's daily activities around

their home. Public opposition is also substantial for watching people at their workplace and in more open public places.

Given this widespread opposition and the primary reasons for it (i.e., beliefs that aerial drone use is excessive surveillance and a violation of privacy), legislative efforts to regulate aerial drone usage in the areas of domestic surveillance face a major challenge. This challenge involves establishing public policy that achieves the delicate balance between (1) maximizing the benefits of this technology (e.g., increasing public safety through domestic surveillance activities) and (2) minimizing its costs on individuals' rights to privacy.

Legal efforts to balance these dual concerns may be less problematic when drones are used for very specific reasons (e.g., search/rescue operations, geological/climate mapping, land management). This could be true because drone monitoring in these contexts is generally less intrusive to people's sense of privacy. Also, the specific benefits of using drones in these domains (i.e., crisis, environmental sustainability) are more readily apparent. However, when applied specifically to domestic surveillance, the results of the current study suggest that the public's general opposition to using drones and their widespread concerns about violations of privacy are major issues that warrant serious attention in any formulation of public policy.

For developing empirically-based public policy, several additional questions about aerial drones and domestic surveillance require further study. These questions include the following:

- How are public attitudes about drone surveillance different from opinions about other types of visual surveillance (e.g., close-circuit television and remote video cameras)?
- Does the level of public opposition to drone use for domestic surveillance depend on the specific types of public places being monitored (e.g., school property, public arenas for concerts and sporting events, transportation stations and government buildings)? And, does it depend on the time of day that drones are used (e.g., day vs. night)?
- What are the major situational and contextual factors that influence public support and opposition to using aerial drones for domestic surveillance? For example, do these attitudes vary on the basis of (1) the frequency of monitoring (e.g., does it provide continuous or sporadic images, real time or delayed recording?), (2) the quality and details of the visual images, (3) the size and distance of the aerial drone from its target (e.g., can the drone be seen or heard?), and (4) the explicit purpose for its usage (e.g., monitoring protesters, street-level drug transactions and gang activity).

Limitations of this Study

The primary limitations of the current study involve its sampling design, time frame, and the wording of questions in the survey. Specifically, by using an internet sampling frame, our results may not be representative of all U.S. adult residents. Our results are also restricted to internet users over a two-day period in mid-June of 2014. To minimize threats to the measurement validity of our study, we used less affective and pejorative language in the survey (e.g., using the term "monitoring" rather than "surveillance"). Unfortunately, even words like "monitoring" may have negative connotations that also affect response patterns.

Due to these limitations of the current study, we recommend that some caution be exercised when interpreting the observed findings and making inferences about national trends.

References

Loosveldt, G. and N. Sonck (2008). "An evaluation of the weighting procedures for an online access panel survey." Survey Research Methods 2(2):93-105.

Miethe, T. D., J.D. Lieberman, M. Sakiyama, and E.I. Troshynski (2014). "Public Attitudes about Aerial Drone Activities: Results of a National Survey." *State Data Brief*. Center for Crime and Justice Policy: Las Vegas, NV. CCJP 2014-02.

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Questions or comments about the State Data Briefs, information contained in this current report, or other resources available related to this topic should be addressed to:

Terance D. Miethe, Ph.D.
State Data Brief Project Coordinator
Center for Crime and Justice Policy
University of Nevada, Las Vegas
4505 Maryland Parkway - Box 5009
Las Vegas, NV 89154-5009
Phone: 702-895-0236; Fax: 702-895-0252
Email: miethe@unlv.nevada.edu

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