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TESTIMONY OF

CHRIS POLYCHRON
2015 PRESIDENT
NATIONAL ASSOCIATION OF REALTORS®

BEFORE THE

HOUSE JUDICIARY COMMITTEE
SUBCOMMITTEE ON COURTS, INTELLECTUAL PROPERTY AND
THE INTERNET

HEARING TITLED

UNMANNED AERIAL VEHICLES:
COMMERCIAL APPLICATIONS AND PUBLIC POLICY
IMPLICATIONS

SEPTEMBER 10, 2015

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INTRODUCTION

Thank you for the opportunity to testify today. My name is Chris Polychron. I am the 2015 President of the National Association of REALTORS® (NAR). A REALTOR® for 27 years, I am an executive broker with 1st Choice Realty in Hot Springs, specializing in residential and commercial brokerage.

NAR is America's largest trade association. REALTORS® are involved in all aspects of the residential and commercial real estate industries and belong to one or more of some 1,400 local associations or boards, and 54 state and territory associations of REALTORS®. REALTORS® practicing commercial and residential real estate across the country are excited about the prospect of using unmanned aircraft systems (UAS) in their businesses, including by using UAS for aerial photography, videography, and property inspection.

REALTORS® are often early adopters of new technology. In fact, a REALTOR® from Arizona was one of the first people to successfully apply for and receive a "Section 333" waiver, currently the only avenue available to fly a UAS for commercial purposes. A 2015 study by AUVSI determined that of the first 500 Section 333 waivers granted by the FAA, real estate was the leading industry, mentioned in 153 of the waivers.¹

APPLICATIONS OF UAS TECHNOLOGY IN REAL ESTATE

NAR was pleased when the FAA released its proposed rulemaking on integrating small UAS for commercial use into the National Air Space (NAS) in February 2015, "Operation and Certification of Small Unmanned Aircraft Systems," which proposes requirements governing the use of small UAS which weigh less than 55 pounds.² This is the first step toward a regulatory environment where commercial drone use is legal and has prescribed federal guidelines.

Commercial use of UAS technology has the potential to boost the U.S. economy, bringing research and manufacturing jobs to our country along with a new crop of businesses specializing in their uses. NAR is excited about these possibilities, but also understands the need to balance them with protecting the privacy and safety of citizens and other users of the NAS. As end-users of this technology, REALTORS® want clear regulation that permits the commercial application of UAS in a way that is affordable to users and safe for their communities, both on the ground and in the NAS.

The potential applications for UAS technology in the real estate industry are plentiful and growing. They provide the opportunity for real estate practitioners to take unique and informative photographs and videos of properties that in many cases would require many time-consuming trips, or even using a helicopter or small plane to obtain. Using UAS technology to do the same thing is less expensive, less time consuming, and less dangerous to everyone involved.

Residential real estate practitioners can provide potential buyers with dynamic and robust web-based listings and marketing materials for properties through UAS photography and videography. UAS technology can allow photographs to be taken from above a house to present a "bird's eye view" of the property, or from unique angles that are otherwise too difficult or expensive to access. The aerial imagery made possible through UAS technology will bring a new level of sophistication and accessibility to images and information,

¹ "Snapshot of the First 500 Commercial UAS Exemptions," *AUVSI*, accessed September 4, 2015.
<http://auvsilink.org/advocacy/Section333.html>.

² Pub. L. No. 112-95, sec. 331(6).

allowing the real estate professional to present a detailed portfolio to potential buyers, and thereby creating a more informed consumer before they even set foot on a property. Just as digital photography made it easier to create high-quality, affordable images, real estate practitioners look forward to using UAS technology to take their listings into the next level in technical creativity and quality.

Many structures are not well-suited for conventional photography due to their size, height, or unconventional shape or location. UAS technology will be an important tool especially for commercial real estate practitioners who work with these types of properties, such as shopping centers, office parks, parking structures or large tracts of land which can't easily be captured in a single image. UAS technology will allow the real estate practitioner to safely, quickly, and affordably obtain images that would otherwise be dangerous, difficult, and/or expensive to capture. From these images, potential buyers or tenants will then be able to examine such structures as a large office building, including exterior walls, parking structures, its roof, and other fixtures from the safety and comfort of his or her office or home.

Similarly, building owners and managers can use UAS technology to inspect and maintain properties. Sending a UAS to the roof of a building to examine its condition regularly or after a storm to assess damage is faster and safer than having a person go up to do so. Owners and managers can get information about hard-to-access parts of their buildings faster, cheaper, and more safely by using a UAS instead of a person or a team of people doing what is often dangerous and time-consuming work. This is not only a useful tool for routine maintenance, but an indispensable asset after a vandalism incident, storm, or other natural disaster. Using UAS to conduct inspections in these scenarios will allow owners and managers to get better information about the damage done to the property and communicate it more quickly and efficiently to their insurance providers. Ideally they will be able to get their properties back to normal after a destructive event using the information and images they gather from just one or a few short UAS flights.

The same benefits apply to land sales. Real estate practitioners often work on deals with properties that are hundreds or thousands of acres of farmland, timber, ranches or undeveloped land. Potential buyers can see the topography, geography, and hydrogeology features, as well as examine what plants are growing and what animals live on the property. Reviewing the images collected from a UAS device is more efficient and safer than spending hours or days driving around a property or even flying above it in a chartered plane or helicopter.

Any consumer making a real estate purchase or entering into a lease can benefit from the images obtained by using a UAS. The images are another tool for a real estate professional to help a consumer make an informed decision about the property he or she is considering purchasing. UAS-obtained images are a cost-effective, efficient, and safe way to get more information to the consumer, when compared with current methods for aerial photography.

As UAS technology progresses, the number and types of applications for it will grow as well. Real estate practitioners are already excited about the potential to use this technology to learn more about a property's heat signature and energy efficiency. Just like online listings and 360 degree "virtual tours" changed the way real estate practitioners do business and serve their clients, UAS-obtained imagery is a new advancement that will allow consumers to make better-informed decisions.

SAFETY AND PRIVACY CONCERNS

Citizen safety and privacy are a primary concern of REALTORS®, and we appreciate the steps that the FAA, as well as the National Telecommunications and Information Administration (NTIA), have taken to ensure that these values are protected. This requires clear regulations and strong education efforts for operators and their clients. REALTORS® are committed to being safe and responsible end-users of UAS technology in their businesses.

NAR is and will continue educating its members about the importance of safety in UAS operations. REALTORS® want to use these services and work with responsible operators or become responsible operators themselves. NAR supports the FAA's efforts to create a safety-focused community of UAS users and service providers. So far, NAR has focused its conversation on UAS use in real estate on safety for all involved. Our participation in the *Know Before You Fly* safety campaign is merely part of our efforts to talk about UAS with safety as a key priority. Through education sessions, materials, and web site content, NAR has informed its members about the safety precautions necessary when using this technology.

Along with protecting the physical safety of citizens on the ground and other users of the NAS, NAR understands the need for regulations that address privacy concerns. Real estate professionals understand, perhaps more than most, the importance to a homeowner of having privacy in his or her home and backyard, or to be able to guard against trespassers on private property. NAR is a participant in the NTIA's Multistakeholder Process to Develop Best Practices for Privacy, Transparency, and Accountability Regarding Commercial and Private Use of Unmanned Aircraft Systems. This group is working toward creating industry best practices for privacy policies regarding commercial UAS use. There are a variety of industries represented in the group and NAR looks forward to the group's final work product.

NAR has been a leader in data privacy and security issues for several years. The NAR Board of Directors adopted data security and privacy policy principles that guide Association activity and member standards. Based on these principles, NAR has been active in both legislative and regulatory activities concerning data privacy and security. In January 2015, NAR updated its *Data Security and Privacy Toolkit*, aimed at educating real estate associations, brokers, agents, and Multiple Listing Services about the need for data security and privacy and assist them in complying with legal responsibilities. The *Toolkit* was created in 2011 to address industry challenges with data privacy and security.

In addition to these efforts, REALTORS® rely on the REALTOR® Code of Ethics to self-govern the membership. This document, first presented in 1913, has been the cornerstone of the REALTOR® brand for millions of professionals, consumers, and the business community. The Code is a living document that is frequently updated to represent the changing needs of the REALTOR®. There are several entries in the Code that address consumer privacy, reflecting REALTORS® longtime sensitivity to the issue.

NAR has three primary focuses relating to protecting citizen privacy and safety in the context of UAS use: operations guidelines and accountability for operators; protecting the safety of bystanders during a UAS flight; and finally the FAA's proposal to create a visual observer position to assist the operator during flights.

Operations and Accountability

NAR believes that transparency and accountability of UAS operations are essential to the successful integration of this new technology into the NAS. Just as cars, boats, airplanes and other movable machines have registration requirements, so too should UASs. To know the identity of the owner and operator of the machine is to create a culture of accountability within the UAS user community. NAR supports the FAA's proposed rulemaking registration and marking requirements and believe this is a logical step in furthering the FAA's safety objectives.

Bystanders

NAR appreciates the common-sense approach that the FAA has taken in addressing the safety of bystanders to the UAS operation. Prohibiting flight over non-participants, except in the case of people standing under protective structures, is a solid starting point for a discussion on bystander safety. But more guidance is needed in terms of the operator's obligations for communicating with bystanders that a UAS flight will occur in the area. NAR believes that one of the first steps of a safe UAS flight is providing adequate notice to people nearby the operation who are not directly participating in the operation of the UAS. Developing a proper protocol that will acknowledge safety and privacy concerns for both the operator and bystanders is essential for successful integration of UAS into the NAS.

Many real estate applications of UAS technology could take place in populated areas. There is currently no standardized protocol for notice to bystanders before or during a UAS flight. NAR asks the FAA to provide greater detail regarding what is expected of UAS operators when providing notice to, communicating with, and protecting the safety of individuals who are at or near the location of the UAS operation. For example, how much notice is required to clear an area of bystanders before the flight takes place? How should the notice be given? Given that the battery life of many UAS is limited to 30 minutes or less, for how long should an area be required to be cleared of bystanders? Since the UAS has the capability to fly over neighboring structures that are not the dedicated subject of the UAS flight, within what distance should bystanders be provided notice?

The safety of UAS flight over bystanders is a critical element of the safe operation of UAS technology. Until a standardized protocol for notice is developed, notice procedures will vary from operator to operator. As Section 333 waivers become more widely available and until the FAA rules for small UASs are finalized, this will result in a patchwork of practices. Citizens and consumers should be able to have a single set of standards so that notice protocols are predictable across the country. Predictability in the market will lend itself to the accountability and best practices discussed above.

REALTORS® are committed to creating a culture of safety around the use of this technology, and effective communication with non-participants will be very important to the success of this technology. NAR is committed to working with the FAA to identify common fact patterns in these situations and to help create solutions that will work for bystanders and UAS operators alike.

NAR supports policies that lead to predictable uniformity when it comes to safety and privacy of citizens. Consistent application of notice policies for UAS operation is a critical aspect of the safe integration of UAS into the NAS.

Operator and Visual Observer

The FAA has proposed creating two new crewmember positions for UAS operators. The operator is the person who manipulates the flight controls of a small UAS. The visual observer is a person who assists the small unmanned aircraft UAS operator in seeing and avoiding other air traffic or objects aloft in flight or on the ground. NAR supports this proposition, as it reflects the unique nature of the UAS operation and the machine itself.

In this regime, the operator would bear the brunt of the regulatory burden via education, certification, and safety compliance. This makes sense, as it would be the operator who has control of the machine. The visual observer is an option the operator can choose, depending on the circumstance of the operation. NAR supports this flexibility, as not all flights will require an observer. NAR also supports the flexibility built into the rule by not requiring the operator to get an airman certificate. Keeping a low regulatory burden for this as-needed position is a reasonable decision.

NAR has submitted comments to the FAA asking the agency to be more specific in what is required for the methods of communication between the operator and visual observer. Operators should have some degree of choice in how they work with a visual observer, who is ostensibly a partner in the operation, but some guidance would be helpful. NAR does not believe that it is necessary that the observer should be required to stand close enough to the operator to allow for unassisted verbal communication, as communication-assisting devices are available, reliable and efficient at enabling communication between the operator and visual observer. Further, the FAA acknowledges that the visual observer could be used to extend the flexibility of the UAS operation, so any requirement to mandate the observer to stand within a certain physical proximity to the operator would defeat that stated purpose.

THE FAA'S PROPOSED RULEMAKING

NAR is pleased that the FAA is moving forward with its integration of UAS into the NAS. A one-size-fits-all approach will not effectively integrate technology as diverse as UAS into a complex air space. NAR supports FAA's approach to address the varying needs of the UAS community and the NAS.

Creating a regulatory regime in which commercial UAS operations can be safely integrated into the NAS is the first step toward realizing the potential of this technology. The industry best practices that spring up around the rules will be the real proof of success in this arena. These best practices could include operator education, insurance programs and an ongoing dialogue among UAS users, FAA headquarters, and the FAA's regional offices.

The FAA's proposed rulemaking is a good beginning to the process of creating a regulatory regime supporting integration of UAS technology into the NAS. The rule's risk- and safety-based approach comports with what NAR believes is a common sense, reasonable approach to this technology. NAR supports the FAA's attempt to address different levels of risk posed by different sizes and uses of UAS technology. The risk present in a scenario where an operator is using a small, lightweight UAS in a limited flight path to take pictures of a home or commercial building is much different than in situations where bigger, heavier devices are being used.

In the FAA's proposal, there are three areas that will have particular relevance to real estate professionals and how they will be using UAS technology. These areas are the training required for operators, the prohibition on beyond visual line of sight flights, and the creation of a "micro UAS" category to govern the type of smaller and lighter UAS that real estate professionals are likely to be working with.

Training of Operator

NAR supports the FAA's proposal to create a separate class of airman certificate for UAS operations, and to establish testing standards within this operator class. This action balances the need for industry standards and regulations with the realities of operating a UAS within the NAS. NAR understands the FAA's role in regulating access to the NAS, both through the machines and technology used, and the people who are operating them. NAR understands that the FAA works cooperatively with other agencies to ensure the safety of the NAS through sharing information such as pilot background checks and operator safety records. We also understand the national security implications of devices and people within the NAS. For these reasons, we support the FAA's efforts to create operational standards and official records for users of UAS technology.

The education, testing, re-testing, reporting, and drug and alcohol screenings contained within the proposal represent a well-structured regulatory regime governing the use of UAS within the NAS. Integrating UAS safety into the successful FAA framework for pilot safety, education and testing is a reasonable and logical step and addresses the national security concerns inherent in operating a UAS in the NAS. NAR believes that industry-wide educational, performance, and accountability standards will make for a safe integration of UAS into the NAS, and will create a well-disciplined industry from the start.

The FAA's proposed testing regime is a practical solution to creating industry safety and knowledge standards while making entrance into the UAS industry a possibility for many. The FAA understands that some operators come to the UAS space with extensive piloting experience, while others may have minimal or no piloting experience. However, the UAS operations contemplated under this rule have very different requirements and challenges than flying a manned vehicle.

Because the FAA already has a testing regime set up for pilots of manned aircraft, it follows that the UAS operators would receive the same treatment. The Initial Knowledge Test, as proposed, covers many of the essential basics required to properly and safely operate UAS. Administering the test at testing centers throughout the United States will ensure uniform test administration, content and standards. Requiring all users of the UAS to demonstrate aeronautical knowledge is a basic effort toward safety that will protect individuals on the ground and UAS operators.

The Recurrent Knowledge Test every 24 months fits in with current FAA safety requirements. The same standard should be extended to UAS operators.

Visual Line of Sight/Beyond Visual Line of Sight

NAR recognizes the obstacles in addressing beyond visual line of sight (BVLOS) safety operations. NAR has been working through some of these issues through its participation in the FAA's BVLOS Working Group. Maintaining visual contact with the aircraft is the essential element to the safety precautions built into the observer/operator partnership, especially as most UAS lack sense-and-avoid technology. However, many

applications for UAS use in real estate could be in BVLOS situations, such as filming or photographing a farm, ranch or office building. NAR encourages the FAA to consider alternate solutions.

First, NAR suggests that the FAA consider a tiered system for BVLOS operations depending on the location of the flight path, the population within the flight path, and any other infrastructure or other hazards within the flight path. It's not hard to imagine the hazards of a UAS that has strayed from the operator's sight within a more populous area such as a suburban community or a downtown area. But for many real estate professionals who work in more rural settings and deal with properties such as farmland, ranches or woodlands, the risk is much less. Creating some sort of regulatory framework for situations where a BVLOS flight would be acceptable would solve many challenges for real estate professionals and UAS operators in these situations.

Second, while the FAA has specifically prohibited a 'daisy-chain' of observers working with a single operator of a UAS, NAR suggests that the FAA consider a relay system of operators rather than observers in a BVLOS flight situation. The main difference between the observer and the operator in the schema that the FAA has presented is that the operator actually has control of the machine and visual contact, where the observer has only visual contact with the machine. Since maintaining control of the machine is the key challenge here, it is worth considering the possibility of multiple operators who could relay control of the machine to one another as the circumstance dictates. Many of the larger parcels of land, taller structures and unique structures that real estate professionals work with would be well-suited to UAS imagery, but only if the BVLOS conditions can be addressed. In a relay situation, the multiple operators could together observe and control the machine, rather than merely observe. The real-time corrections necessary to perfect a UAS flight could be made instantaneously, rather than the observer communicating with the operator and there being a lag in the time the correction is orally given and then made within the operation.

The safety challenges surrounding BVLOS operations are complex, and NAR supports the FAA's efforts to work through them. NAR looks to the FAA for leadership to create rules within this rulemaking context that would support the safe use of UAS in a BVLOS setting.

Micro UAS Category

NAR is pleased to see that the FAA recognizes the unique nature of micro UAS³. Many consumer UAS currently fit into this category and the numbers will only expand as the technology becomes more affordable and easier to use. As many other countries have established this same structure in their UAS regulations, it is only natural that the United States follows suit. Even though the U.S. airspace is distinctive in terms of its complexity and variety, there are regulatory models from other countries already integrating UAS in their airspace and from which the FAA could and does take inspiration. NAR appreciates the FAA's creativity in looking to other, successful regulatory models.

The micro UAS are smaller, lighter, and have shorter battery lives than the UAS contemplated in the NPRM. These are the type of UAS that it is likely most real estate professionals will be using for their operations; in fact, in AUVSI's 2015 study, their data showed that of the first 500 "Section 333" waivers granted, more than half of the approved platforms would fall into the FAA's proposed micro-UAS category.⁴ Because the risk

³ A micro UAS as proposed in the NPRM is a UAS that weighs no more than 4.4 lbs.

⁴ "Snapshot of the First 500 Commercial UAS Exemptions," *AUVSI*, accessed September 4, 2015. <http://auvsilink.org/advocacy/Section333.html>.

presented by these micro UAS is lesser than the risk presented by small UAS, NAR supports the FAA's attempts to create a regulatory schema that acknowledges and accommodates the different risk factors.

CONCLUSION

NAR is committed to working with the FAA to create a culture of safety surrounding the use of UAS, while still enabling users to employ the technology with ease and efficiency. NAR's participation in the *Know Before You Fly* campaign, the NTIA Multistakeholder Process to Develop Best Practices for Privacy, Transparency, and Accountability Regarding Commercial and Private Use of Unmanned Aircraft Systems, and the FAA BVLOS Working Group are examples of its efforts to raise NAR members' awareness of safety and privacy issues surrounding UAS operations, and we will continue to pursue the conversation on UAS safety in the years ahead. NAR believes that the FAA's proposed rule goes a long way toward successfully integrating UAS into the NAS. Thank you for allowing me to share the views of the National Association of REALTORS®, and we look forward to working with you as well.