



Department of Public Works

MEMO

To: Board of Public Safety

From: Rick Brown, Director of Public Works / City Engineer

Date: July 6, 2016

Re: Letter of Recommendation - Unmanned Aerial Systems (UAS) or Drones

As you may recall, at our May meeting you were presented with an information report on the use of small Unmanned Aerial Systems (UAS) or Drones for your review and comment. This report has been revised by the Department based on comments received at our last meeting, but also to reflect the fact that the FAA has now issued formal rules regarding UAS or Drones.

Therefore, for the July meeting, I am re-submitting the report, along with a formal Letter of Recommendation from the Board of Public Safety for your approval (see attached). Assuming your approval, the Letter of Recommendation will be forwarded back to the Planning and Zoning Commission for their further action.

I will be available for discussion of this item at the July 7, 2016, Board of Public Safety meeting.

RCB

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July 7, 2016

The Planning and Zoning Commission
City of Wildwood, Missouri
16860 Main Street
Wildwood, Missouri 63040

The Board of Public Safety has completed its review of the requested changes to the City's code of Ordinances by adding new requirements to Section 415.380 Miscellaneous Regulations to address the use of drones, and prepared the following recommendation report in that regard. This recommendation report reflects the Board of Public Safety's vote on this matter, which is now being forwarded to the Planning and Zoning Commission for its consideration. This recommendation and action are as follows:

Petition Nos.: P.Z. 15-15
Petitioner: City of Wildwood Planning and Zoning Commission, , c/o Department of Planning, 16860 Main Street, Wildwood, Missouri 63040
Request: A request to amend Chapter 415 of the City of Wildwood's Code of Ordinances by adding new requirements to Section 415.380 Miscellaneous Regulations to ensure the use of small Unmanned Aerial Systems (UAS), or drones, in all zoning district designations complies with air space rights associated with public and privately-owned properties in the City of Wildwood.
Location: Citywide
Date and Vote on Information Report: May 5, 2016
Date and Vote on Letter of Recommendation: July 7, 2016 - TBD
Ward: All
Report: Attachment A
Police: St. Louis County Police Department - Wildwood Precinct
School: Rockwood
Fire Districts: Eureka, Metro West, and Monarch
Recommendation: The Board of Public Safety recommends amending Chapter 415 of the City of Wildwood's Code of Ordinances by adding new requirements to Section 415.380 Miscellaneous Regulations. These regulations would ensure the use of drones or small Unmanned Aerial Systems (UAS), in all zoning district designations complies with air space rights associated with public and privately-owned properties in the City of Wildwood. In this report, the Board of Public Safety has determined that amendments to the Code of Ordinances are necessary and needed to ensure the public's general health, safety and welfare, as well as ensure the public's expectation of privacy in light of the anticipated increase in commercial and recreational drone usage within Wildwood.

Respectfully submitted,
CITY OF WILDWOOD BOARD OF PUBLIC SAFETY

Bill Garrett, Marshall

ATTEST:

Rick Brown, PE, PTOE, Director
Department of Public Works

Cc: The Honorable James R. Bowlin, Mayor
Joe Vujnich, Director of Parks and Planning
Ryan S. Thomas, P.E. City Administrator
John A. Young, City Attorney

ATTACHMENT A - REPORT



INFORMATION REPORT

Prepared by the Department of Public Works

July 7, 2016 Meeting

BACKGROUND

The use of Unmanned Aerial Systems (UAS), or as they are more commonly known, drones, in airspace across the world is not a new phenomenon, but has surprisingly changed from defense-related activities and governmental services to commercial applications and now personal use much more quickly than many had anticipated. The use of drones for commercial purposes is being addressed by the federal government, albeit somewhat slowly, which has led to the individual States and local governments creating legislative initiatives to better protect private properties from a number of potential privacy issues. This approach on the part of the federal government mirrors to a degree its response to the telecommunications industry and the development of its network of towers and other facilities in the mid-1980, within St. Louis County.

UAS's come in a variety of shapes and sizes and serve diverse purposes. It should be noted that there are three different types of UAS's:

- Public (Government)
- Civil Operations (Commercial)
- Model Aircraft

CURRENT REGULATIONS

In 2012, under Public Law 112-95, the FAA Modernization and Reform Act (FMRA), the FAA is required to develop a comprehensive plan to safely accelerate the integration of civil, unmanned aircraft systems into the national airspace system. After many months of work, the Federal regulations for small UAS's have been formally released to the public.

Small UAS Rules

Since the Congress ordered the Department of Transportation's Federal Aviation Administration in 2012 to develop rules governing how drones would share the sky with passenger planes, the FAA has worked diligently to propose a framework of regulations that would allow routine use of certain small unmanned aircraft systems (UAS) in today's aviation system, while maintaining flexibility to accommodate future technological innovations. In that regard, the FAA posted proposed rules last winter for comment by the public and industry. The initial 60-day comment period closed on April 24, 2015, after which the final FAA rules were made official on June 23, 2016. It should be noted that the final rules still have a 60-day comment period and details remain to be worked out, such as the written test for commercial operators.

The FAA's 624-page rulebook allows commercial drones weighing up to 55 pounds to fly during daylight hours and lower than 400 feet in the air, or higher if within 400 feet of a taller building or tower. The

aircraft must remain within sight of the operator or an observer who is in communication with the operator. The operators must be at least 16 years old and pass an aeronautics test every 24 months for a certificate and a background check by the Transportation Security Administration. Evening flight is allowed if the aircraft carries lights visible for three (3) miles. Drone operators who want to conduct night flights, flights beyond what the operator can see, or flights over people not associated with the operation, would need to demonstrate specific safety measures and seek a waiver through the FAA.

The rules govern commercial flights, such as for aerial photography or utilities inspection. The new rules do not apply to model aircraft. However, model aircraft operators must continue to satisfy all of the criteria specified in Sec. 336 of Public Law 112-95, including the stipulation that they be operated only for hobby or recreational purposes.

Model Aircraft Operations

Model aircraft operations are for hobby or recreational purposes only. As noted above, the statutory parameters of a model aircraft operation are outlined in Section 336 of Public Law 112-95 (the FAA Modernization and Reform Act of 2012). Individuals who fly within the scope of these parameters do not require permission to operate their UAS; however, any flight outside these parameters (including any non-hobby, non-recreational operation) requires FAA authorization. For example, using a UAS to take photos for your personal use is recreational; using the same device to take photographs or videos for compensation or sale to another individual would be considered a non-recreational operation.

Organizations have partnered with the Federal Aviation Administration (FAA) to promulgate supplemental rules under a combined campaign named “Know Before You Fly”, and these components include the following:

- a. Follow community-based safety guidelines, as developed by organizations such as the [Academy of Model Aeronautics](#) (AMA).
- b. Fly no higher than 400 feet and remain below any surrounding obstacles when possible.
- c. Keep UAS in eyesight at all times, and use an observer to assist if needed.
- d. Remain well clear of and do not interfere with manned aircraft operations, and you must see and avoid other aircraft and obstacles at all times.
- e. Do not intentionally fly over unprotected persons or moving vehicles, and remain at least 25 feet away from individuals and vulnerable property.
- f. Contact the airport and control tower before flying within five miles of an airport or heliport.
- g. Do not fly in adverse weather conditions such as in high winds or reduced visibility.
- h. Do not fly under the influence of alcohol or drugs.
- i. Ensure the operating environment is safe and that the operator is competent and proficient in the operation of the UAS.
- j. Do not fly near or over sensitive infrastructure or property such as power stations, water treatment facilities, correctional facilities, heavily traveled roadways, government facilities, etc.
- k. Check and follow all local laws and ordinances before flying over private property.
- l. Do not conduct surveillance or photograph persons in areas where there is an expectation of privacy without the individual’s permission).

While, these guidelines have been applauded by the hobby industry for their relative reasonableness, there may be concerns about the extent of flexibility that might exist therein and enforcement effectiveness. Several federal legislators expressed concerns about how the privacy issues were not addressed. Some of these guidelines reflect the regulations and rules of the federal government, but all of them, regardless of origins, define a hobby or enterprise that needs to be appropriately regulated to protect the public's health, safety, and general welfare.

Summary of the FAA's Small UAS Rules (6/23/16)

Operational Limitations

- Unmanned aircraft must weigh less than 55 lbs. (25 kg).
- Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the remote pilot in command and the person manipulating the flight controls of the small UAS. Alternatively, the unmanned aircraft must remain within VLOS of the visual observer.
- At all times the small unmanned aircraft must remain close enough to the remote pilot in command and the person manipulating the flight controls of the small UAS for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.
- Small unmanned aircraft may not operate over any persons not directly participating in the operation, not under a covered structure, and not inside a covered stationary vehicle.
- Daylight-only operations, or civil twilight (30 minutes before official sunrise to 30 minutes after official sunset, local time) with appropriate anti-collision lighting.
- Must yield right of way to other aircraft.
- May use visual observer (VO) but not required.
- First-person view camera cannot satisfy "see-and-avoid" requirement but can be used as long as requirement is satisfied in other ways.
- Maximum groundspeed of 100 mph (87 knots).
- Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 feet of a structure.
- Minimum weather visibility of 3 miles from control station.
- Operations in Class B, C, D and E airspace are allowed with the required ATC permission.
- Operations in Class G airspace are allowed without ATC permission.
- No person may act as a remote pilot in command or VO for more than one unmanned aircraft operation at one time.
- No operations from a moving aircraft.
- No operations from a moving vehicle unless the operation is over a sparsely populated area.
- No careless or reckless operations.
- No carriage of hazardous materials.

- Requires preflight inspection by the remote pilot in command.
- A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS.
- Foreign-registered small unmanned aircraft are allowed to operate under part 107 if they satisfy the requirements of part 375.
- External load operations are allowed if the object being carried by the unmanned aircraft is securely attached and does not adversely affect the flight characteristics or controllability of the aircraft.
- Transportation of property for compensation or hire allowed provided that -
 - The aircraft, including its attached systems, payload and cargo weigh less than 55 pounds total;
 - The flight is conducted within visual line of sight and not from a moving vehicle or aircraft; and
 - The flight occurs wholly within the bounds of a State and does not involve transport between (1) Hawaii and another place in Hawaii through airspace outside Hawaii; (2) the District of Columbia and another place in the District of Columbia; or (3) a territory or possession of the United States and another place in the same territory or possession.
- Most of the restrictions discussed above are waivable if the applicant demonstrates that his or her operation can safely be conducted under the terms of a certificate of waiver.

Remote Pilot in Command Certification and Responsibilities

- Establishes a remote pilot in command position.
- A person operating a small UAS must either hold a remote pilot airman certificate with a small UAS rating or be under the direct supervision of a person who does hold a remote pilot certificate (remote pilot in command).
- To qualify for a remote pilot certificate, a person must:
- Demonstrate aeronautical knowledge by either:
- Passing an initial aeronautical knowledge test at an FAA-approved knowledge testing center; or
- Hold a part 61 pilot certificate other than student pilot, complete a flight review within the previous 24 months, and complete a small UAS online training course provided by the FAA.
- Be vetted by the Transportation Security Administration.
- Be at least 16 years old.
- Part 61 pilot certificate holders may obtain a temporary remote pilot certificate immediately upon submission of their application for a permanent certificate. Other applicants will obtain a temporary remote pilot certificate upon successful completion of TSA security vetting. The FAA anticipates that it will be able to issue a temporary remote pilot certificate within 10 business days after receiving a completed remote pilot certificate application.

- Until international standards are developed, foreign-certificated UAS pilots will be required to obtain an FAA issued remote pilot certificate with a small UAS rating.

A remote pilot in command must:

- Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the rule.
- Report to the FAA within 10 days of any operation that results in at least serious injury, loss of consciousness, or property damage of at least \$500.
- Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is in a condition for safe operation.
- Ensure that the small unmanned aircraft complies with the existing registration requirements specified in § 91.203(a)(2).

A remote pilot in command may deviate from the requirements of this rule in response to an in-flight emergency.

Aircraft Requirements

- FAA airworthiness certification is not required. However, the remote pilot in command must conduct a preflight check of the small UAS to ensure that it is in a condition for safe operation.

Model Aircraft

- Part 107 does not apply to model aircraft that satisfy all of the criteria specified in section 336 of Public Law 112-95.
- The rule codifies the FAA's enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the National Airspace System (NAS).

FAA Requirements for UAS Registration

Anyone who owns a small unmanned aircraft that weighs more than 0.55 lbs. (250g) and less than 55 lbs. (25kg) must register with the Federal Aviation Administration's UAS registry before they fly outdoors. People who do not register could face civil and criminal penalties.

Who must register a UAS?

- The owner must be:
 - 13 years of age or older. (If the owner is less than 13 years of age, a person 13 years of age or older must register the small unmanned aircraft.)
 - A U.S. citizen or legal permanent resident.

Which unmanned aircraft do I have to register?

- Owners must register their UAS online if it meets the following guidelines:
 - Weighs more than 0.55 lbs. (250 g) and less than 55 lbs. (25 kg). Unmanned Aircraft weighing more than 55 lbs. cannot use this registration process and must register using the Aircraft Registry process.
- Owners must register their UAS by paper if it meets the following guidelines:
 - Your Aircraft weighs more than 55 lbs
 - You intend to operate your aircraft outside of the United States

- Your aircraft is owned by a trustee
- The aircraft owner uses a voting trust to meet U.S. Citizenship requirements

CURRENT REQUEST

The Planning and Zoning Commission is seeking the direction of the Board of Public Safety on whether Wildwood should memorialize the appropriate regulations and rules, as part of its Zoning Ordinance, and, thereby, add a local enforcement component to their application for the public's health, safety, and general welfare. Principal among the issues of discussion on this matter are individuals' right to privacy and security from trespass. These rights, although not viewed by hobbyists as being effected by the use of small drones, remain one (1) of the major focus points of discussion across the country.

ANALYSIS

The general public, a wide variety of organizations, including private sector (e.g., commercial companies), non-governmental (e.g., volunteer organizations), and governmental entities (e.g., local agencies) continue to demonstrate significant interest in UAS. The benefits offered by this type of aircraft are substantial and the FAA is committed to integrating UAS into the NAS. This introduction, however, appears focused primarily on safety and security considerations with regard to the NAS by commercial UAS operators, and less so the everyday use of UAS by the hobbyist, and without any concern for privacy issues.

There is evidence of a considerable increase in the unauthorized use of small, inexpensive Unmanned Aircraft Systems (UAS) by individuals and organizations, including companies. It is important to note that the FAA retains the responsibility for enforcing Federal Aviation Regulations, including those applicable to the use of UAS. The FAA recognizes though that State and local Law Enforcement Agencies (LEA) are often in the best position to deter, detect, immediately investigate, and, as appropriate, pursue enforcement actions to stop unauthorized or unsafe UAS operations.

Model Aircraft Operations

An important distinction to be aware of is whether the UAS is being operated for hobby or recreational purposes or for some other purpose. This distinction is important because there are specific requirements in the FAA Modernization and Reform Act of 2012, Public Law 112-95, (the Act) that pertain to "Model Aircraft" operations, which are conducted solely for hobby or recreational purposes. While flying model aircraft for hobby or recreational purposes does not require FAA approval, all model aircraft operators must operate safely and in accordance with the law. The FAA provides guidance and information to individual UAS operators (for hobby or recreational purpose) about how they can operate safely under current regulations and laws.

Model Aircraft that Operate in a Careless or Reckless Manner

Section 336(b) of the Act, however, makes it clear that the FAA has the authority under its existing regulations to pursue legal enforcement action against persons operating Model Aircraft when the operations endanger the safety of the NAS, even if they are operating in accordance with section 336(a) and 336(c). So, for example, a Model Aircraft operation conducted in accordance with section 336(a) and (c) may be subject to an enforcement action for violation of 14 C.F.R. § 91.13, if the operation is conducted in a careless or reckless manner so as to endanger the life or property of another.

Safety

The use of drones continues to be in the news with frequently cited reports of unauthorized UAS operations in close proximity to airports, encroaching into commercial airlines' flight paths, trespassing onto individuals' properties, or crashing into buildings. Collectively, the instances appear to be limited, but the discussion of needed regulations and rules in this regard should be considered sooner rather than later, so as to prevent, not react to, potential issues in the City of Wildwood, if such is determined to be appropriate by the Planning and Zoning Commission and the City Council.

In the identified list of regulations and rules regarding the hobbyists' use of drones, the important factor is controlling the aircraft and ensuring the operator maintains line of sight with it at all times. Observers, in cooperation with the operator, can be used for this purpose as well. Additionally, a consensus seems to exist that drones should not be flown over people/crowds, unless participating in the event and aware of it as well. Also creating concerns is the distraction a drone can create to the unsuspecting and unaware public. For example, a driver on a busy roadway, not expecting to encounter a UAS may react in an unsafe manner when distracted by a drone.

Right to Privacy / Nuisance Concerns

An additional concern is the reasonable presumption of individual of privacy on private property. This can easily be violated when an UAS is flying overhead potentially with photographic or video capabilities. At the same time, a significant concern also exists with regard to the nuisance created by the operation of UAS's over both private and public property. It seems likely that both complaints will become common as the use of UAS is expected to increase significantly in the future.

SUMMARY AND RECOMMENDATION

The numerous benefits and potential applications of drones easily justify their popularity; however, the management of them does appear to be an appropriate topic for discussion by the Planning and Zoning Commission.

Because a significant concern exists with regard to the use of imaging technology for aerial surveillance with radio control model aircraft having the capability of obtaining high-resolution photographs and/or video, or using any types of sensors, for the collection, retention, or dissemination of surveillance data information on individuals, homes, businesses, or property at locations where there is a reasonable expectation of privacy, the Board recommends that this be strictly prohibited unless written expressed permission is obtained from the individual property owners or managers.

Therefore the Board of Public Safety is supportive of PZ15-15, which proposes to amend Chapter 415 of the City of Wildwood's Code of Ordinances by adding new requirements to Section 415.380, Miscellaneous Regulations, to ensure the use of drones in all zoning district designations complies with air space rights associated with public and privately-owned properties in the City of Wildwood.