U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

September 8, 2015

Exemption No. 12789
Regulatory Docket No. FAA–2015–1958

Mr. David Lyman
President & CEO
BetterView Marketplace, Inc.
1250 Jones Street, #1402
San Francisco, CA 94109

Dear Mr. Lyman:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

By letter dated May 14, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of BetterView Marketplace, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial data collection.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom 2, DJI Phantom 2 Vision+, DJI Inspire 1, and 3D Robotics Iris+.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[1]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, BetterView Marketplace, Inc. is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a)

[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, BetterView Marketplace, Inc. is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 2, DJI Phantom 2 Vision+, DJI Inspire 1, and 3D Robotics Iris+ when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of

exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal

government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The

exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be

reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on September 30, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/
John S. Duncan
Director, Flight Standards Service

Enclosures

David Lyman
President & CEO
BetterView Marketplace, Inc.
1250 Jones St., #1402
San Francisco, CA 94109
+1 (415) 967-3227
dlyman@better.vu

May 14, 2015

U.S. Department of Transportation
Docket Operations, M-30
1200 New Jersey Avenue, SE
Room Wl2-140, West Building Ground Floor
Washington, DC 20590-0001

Re: ***Petition of BetterView Marketplace, Inc. for an Exemption Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 to Operate Unmanned Aircraft Systems***

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the "Reform Act") and 14 C.F.R. Part 11, BetterView Marketplace, Inc. seeks an exemption from the Federal Aviation Regulations identified below to allow for the commercial operation of the DJI Phantom 2 ("Phantom 2"), DJI Phantom 2 Vision+ ("Phantom 2 Vision+"), DJI Inspire 1 ("Inspire 1"), and 3D Robotics Iris+ ("Iris+") (collectively, the "sUAS") unmanned aircraft systems for aerial data collection.

BetterView requests that the FAA review this petition pursuant to its "summary grant" process as the FAA has already granted exemptions similar in all material respects to this petition to use the Phantom 2, Phantom 2 Vision+, Inspire 1, and Iris+ for aerial data collection. See FAA Grant of Exemption Nos. 11204, 11318, 11419, 11452, 11466, 11469.

I. REGULATIONS FOR WHICH EXEMPTION IS REQUESTED

BetterView requests exemption from the following regulations:[1]

- 14 C.F.R Part 21, Subpart H;
- 14 C.F.R Part 27;

[1] As set forth in section IV.B.2, BetterView will operate under similar operating conditions as those required in the other grants of exemption, in which exemptions for certain FARs was deemed by the FAA as "not necessary." Accordingly, BetterView does not request FAA exemption from 14 C.F.R. 45.23(b), 91.103, and 91.109(a). Should the FAA determine that relief from these or any other regulation is required for the operations proposed herein, BetterView will be happy to submit an amendment to this request and include justifications for those necessary additional exemptions.

- 14 C.F.R § 61.113;
- 14 C.F.R § 91.7;
- 14 C.F.R § 91.9(b)(2);
- 14 C.F.R § 91.119;
- 14 C.F.R § 91.121;
- 14 C.F.R § 91.151(a) & (b)
- 14 C.F.R § 91.203 (a) & (b);
- 14 C.F.R § 91.405(a);
- 14 C.F.R § 91.407(a)(1);
- 14 C.F.R § 91.409(a)(2);
- 14 C.F.R § 91.417 (a) & (b).

This petition incorporates the material contained in the BetterView UAS Operations and Maintenance Manual, Phantom 2 User Manual, Phantom 2 Quick Start Guide, Phantom 2 Vision+ User Manual, Phantom 2 Vision+ Quick Start Guide, Smart Flight Battery Safety Guidelines, Phantom Pilot Training Guide, Inspire 1 User Manual, Inspire 1 Quick Start Guide, Iris+ Operation Manual, and Iris+ Flight Checklist (collectively, the "Manuals").

The Manuals are submitted herewith as confidential under 14 C.F.R. § 11.35(b), because they contain commercial and proprietary information that BetterView has not and will not share with others, is not available to the public, and is protected from release under the Freedom of Information Act, 5 U.S.C. § 552 *et seq.*

II. STATUTORY AUTHORITY FOR REQUESTED EXEMPTIONS

This petition for exemption is submitted in accordance with Section 333 of the Reform Act. Congress has directed the FAA "to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system." Pursuant to Section 333 of the Reform Act, the FAA Administrator is to permit operation of an unmanned aircraft system ("UAS") where it does not create a hazard to users of the national airspace system ("NAS") or the public or pose a threat to national security based on the following considerations:

- The size, weight, speed and operational capability;
- Operation in proximity to airports and populated areas; and
- Operation within visual line of sight of the operator.

Furthermore, the Federal Aviation Act grants the FAA Administrator general authority to grant exemptions from the agency's safety regulations and minimum standards when the Administrator decides a requested exemption is in the public interest. *See* 49 U.S.C. §§ 106(f), 44701-44716, *et seq.* A party requesting an exemption must explain the reasons why the exemption: (1) would benefit the public as a whole, and (2) would not adversely affect

safety or how it would provide a level of safety at least equal to the existing rules. 14 C.F.R. § 11.81.

III. DESCRIPTION OF BETTERVIEW AND ITS SERVICES

BetterView operates in the insurance and construction industries and is focused on facilitating building and infrastructure inspections through aerial photography, videography and data collection. BetterView plans to use the sUAS for inspection and data collection services that it currently provides to its existing clients in the construction and insurance industries. The information collected by the sUAS will aid BetterView inspect, monitor and oversee projects for its clients across the country. The introduction of the sUAS into BetterView's operations will make the inspection process safer and more efficient. Importantly, use of the sUAS for inspections avoids the involvement of lifts, ladders, scaffolds and other equipment at a height above the surface. Injuries and fatalities of individuals performing inspections under such conditions are well-documented.

BetterView will use only qualified pilots and will operate under the FAA 333 Exemption requirements and limitations. By combining the latest technology and automation with with a long track record of safe and successful structural inspections, BetterView seeks regulatory exemptions that will allow it to employ the sUAS in the aerial inspections of properties.

Applicant Information

The name of the applicant is:

BetterView Marketplace, Inc.

The primary contact for this applicant is:

David D. Lyman
President & CEO of BetterView Marketplace, Inc.
1250 Jones St., #1402, San Francisco, CA 94109
Phone: (415) 967-3227
E-mail: dlyman@better.vu

IV. DESCRIPTION OF PROPOSED OPERATIONS

BetterView is requesting exemptions from applicable Federal Aviation Regulations (FARs) pursuant to Section 333 of the Reform Act to perform aerial imagery and data collection for aerial roof inspections.

This type of imagery and data collection is currently performed for BetterView by human inspectors using ladders and other hi-lift devices. Use of the sUAS will reduce safety risks because the sUAS will not expose inspectors to high, slippery, steep, or weather exposed roofs. In addition, sUAS operations can be performed at considerable cost savings. The sUAS will allow for better and safer imagery of facilities than can be produced by using an inspector climbing on the exterior of buildings.

The sUAS operations proposed in this petition are similar in all material respects to relief previously granted by the FAA in Grant of Exemption Nos. 11204, 11318, 11419, 11452, 11466, 11469. The reasons stated by the FAA in granting the exemptions listed above also apply to this petition, and the grant of this petition is in the public interest.

A. Aircraft to be Operated

1. DJI Phantom 2

BetterView will operate the DJI Phantom 2 for aerial imaging and data collection operations. The FAA has already approved the Phantom 2 for commercial use in FAA Exemption No. 11318 (FAA Docket No. FAA–2014–1057) and FAA Exemption No. 11466 (FAA Docket No. FAA–2015–0262). The Phantom 2 is a battery powered quadcopter with a maximum weight of 2.9 pounds. Maximum flight time is approximately 25 minutes.

2. DJI Phantom 2 Vision+

BetterView will operate the DJI Phantom 2 Vision+ for aerial imaging and data collection operations. The FAA has already approved the Phantom 2 Vision+ for commercial use in FAA Exemption No. 11452 (FAA Docket No. FAA–2015–0233) and FAA Exemption No. 11469 (FAA Docket No. FAA–2015–0236). The Phantom 2 Vision+ is a battery powered quadcopter with a maximum weight of less than 2.8 pounds. Maximum flight time is approximately 25 minutes.

3. DJI Inspire 1

BetterView will operate the DJI Inspire 1 for aerial imaging and data collection operations. The FAA has already approved the Inspire 1 for commercial use in FAA Exemption No. 11204 (FAA Docket No. FAA–2014–0886), FAA Exemption No. 11318 (FAA Docket No. FAA–2014–1057), and FAA Exemption No. 11452 (FAA Docket No. FAA–2015–0233). The Inspire 1 is a battery powered quadcopter with a maximum weight of less than 6.5 pounds. Maximum flight time is approximately 18 minutes.

4. 3D Robotics Iris+

BetterView will operate the 3D Robotics Iris+ for aerial imaging and data collection operations. The FAA has already approved the 3D Robotics Iris+ for commercial use in FAA Exemption No. 11204 (FAA Docket No. FAA–2014–0886) and FAA Exemption No. 11419 (FAA Docket No. FAA–2015–0185). The 3D Robotics Iris+ is a battery powered quadcopter with a maximum weight of less than 3.7 pounds. Maximum flight time is approximately 22 minutes.

B. BetterView's Proposed Operations Demonstrate an Equivalent Level of Safety

1. General Description of Proposed Flight Operations

BetterView proposes to operate within the limitations and performance specifications listed in the Phantom 2, Phantom 2 Vision+, Inspire 1, and Iris+ Manuals. These limitations provide for at least an equivalent, or higher, level of safety for operations under the current regulatory structure because the proposed operations are safer than conventional operations using helicopters or fixed wing aircraft which carry an operator and flammable fuel. The proposed flight operations are similar in all material respects to operations already approved by the FAA and are therefore subject to the FAA's "summary grant" process.

The proposed operations do not create any hazard to users of the national airspace system or pose a threat to national security. The aircraft are battery operated with a maximum flight time of less than 25 minutes. The vehicles weigh less than 10 pounds. The vehicles will be operated at or below 400 feet AGL within the visual line of sight of the pilot in command. BetterView's operations will be over private or controlled access property with the permission of the owner/controller or authorized agent.

Manned aircraft are at risk of fuel spillage and fire in the event of an incident or accident. The proposed sUAS carry no fuel, and therefore the risk of fire following an incident or accident due to fuel spillage is eliminated. Compared to manned aircraft, the proposed sUAS operations will reduce the risk to participating persons in close proximity to the aircraft due to the limited size, weight, operating conditions, and design safety features.

The FAA has determined that the risk of not having an electronic means to monitor and communicate with other aircraft, such as transponders or sense and avoid technology, is mitigated by placing limits on altitude, requiring stand-off distance from clouds, permitting daytime operations only, and requiring that the aircraft be operated within visual line of sight and yield right of way to all other manned operations.

The sUAS have the capability to operate safely after experiencing certain in-flight failures, as specified in the Manuals. In addition, the aircraft respond to a lost-link event with a pre-coordinated, predictable, automated flight maneuver.

2. Specific Limitations on Proposed Flight Operations

Given the small size involved, the restricted environment within which they will operate, the procedures listed below, and pilot certification requirements, BetterView's proposed operations using the Phantom 2, Phantom 2 Vision+, Inspire 1, and Iris+ would "not create a hazard to users of the national airspace system or the public or pose a threat to national security." Reform Act Section 333(b)(1).

1. Operations authorized by this grant of exemption are limited to the DJI Phantom 2, Phantom 2 Vision+, the DJI Inspire 1, and the 3D Robotics Iris+ (collectively, the “sUAS”). Proposed operations of any other aircraft will require a new petition to amend this grant.

2. The sUAS weigh less than 10 pounds.

3. Each aircraft will be identified by serial number, registered with the FAA, and have identification (N-Number) markings as large as practicable.

4. Flights will be operated within visual line of sight of the pilot in command (PIC).

5. Prior to each flight, a zero altitude initiation point will be established and confirmed for accuracy by PIC.

6. The PIC will ensure that before each flight, there is enough available power for the UAS to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

7. The sUAS will be operated only during daylight hours and in VFR conditions.

8. Flights will not exceed 400 feet AGL.

9. Flights will be operated at a lateral distance of at least 500 feet from any persons or property not associated with the operation who have not given prior permission.

10. Flights will be limited to a ground speed of 100 mph (87 knots).

11. Minimum crew for each flight will consist of a PIC and a Visual Observer (“VO”). The VO may be used to satisfy the visual line-of-sight requirement as long as the PIC maintains visual line-of-sight capability. The VO and PIC must be able to communicate at all times. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight.

12. The PIC will hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC will also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state or the Federal Government. The PIC will also meet the flight review requirements specified in 14 CFR § 61.56.

13. Prior to the flight, a Mission Plan will be created setting forth the limitations for the flight as well as contact information for the PIC.

14. The flight operations will yield the right of way to other manned aircraft operations.

15. All persons who are not involved with BetterView's operations will be required to be at least 500 feet from flight operations.

16. The aircraft will only operate over private or controlled access property with the permission of the owner/controller or authorized representative.

17. The sUAS will not operate within 5 nautical miles of an airport unless a letter of agreement is obtained.

18. All required permissions and permits will be obtained from territory, state, county or city jurisdictions prior to flight.

19. The PIC will obtain an Air Traffic Organization (ATO) issued Certificate of Waiver or Authorization (COA) prior to conducting any operations under this grant of exemption. This COA will also require the operator to request issuance of a Notice to Airman (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to the operation.

20. If the aircraft loses communications, it will have the capability to return to a pre-determined location within the operational area and land.

21. If the aircraft loses its GPS signal it will have the capability of being flown manually to a predetermined location within the operational area and land.

22. The flight will be aborted in case of unpredicted obstacles or emergencies.

23. sUAS operations will be conducted within the parameters of the Manuals.

3. Flight Recovery, Lost Communications, and Lost GPS Procedures

The flight recovery, lost communications, and lost GPS procedures are more fully documented in the attached UAS Manuals.

V. SPECIFIC FAR EXEMPTIONS REQUESTED

BetterView seeks an exemption from several interrelated provisions of 14 C.F.R. Parts 21, 45, 61, and 91 for purposes of conducting the requested operations using the Phantom 2, Phantom 2 Vision+, Inspire 1, and Iris+. Listed below are (1) the specific FAR sections for which exemption is sought, and (2) the operating procedures and safeguards that BetterView has established which will ensure a level of safety better than or equal to the rules from which exemption is sought. See 14 C.F.R. § 11.81 (e).

A. 14 C.F.R. Part 21, Subpart H - Airworthiness Certificates and 14 C.F.R. § 91.203(a)(1)

The FAA has stated that no exemption is needed from this section if a finding is made under the Reform Act that the UAS selected provides an equivalent level of safety when compared to aircraft normally used for the same application. These criteria are met with this petition, and therefore no exemption is needed. *See* Grant of Exemption No. 11062, Docket No. FAA 2014-0352 at 13-14, 22. If, however, the FAA determines that there are some characteristics of the Phantom 2, Phantom 2 Vision+, Inspire 1, or Iris+ that fail to meet the requirements of the Reform Act, an exemption is requested.

Equivalent Level of Safety: The Phantom 2, Phantom 2 Vision+, Inspire 1, and Iris+ are safe when taking into account their size, weight, speed, and operational capability. They weigh less than 10 pounds and will be flown at speeds less than 100 miles per hour, and in visual line of sight of the operator. The UASs do not carry pilots, passengers, explosive materials, or flammable liquid fuels. The UASs will be operated within the parameters of their respective Manuals.

The proposed operations will be at least as safe as, or safer than, conventional rotorcraft or fixed wing aircraft operating with an airworthiness certificate without the restrictions and conditions proposed here.

B. 14 C.F.R. Part 27 Airworthiness Standards: Normal Category Rotorcraft

14 C.F.R. Part 27 sets forth the procedural requirements for airworthiness certification of normal category rotorcraft. To the extent the Phantom 2, Phantom 2 Vision+, Inspire 1, or Iris+ would otherwise require certification under Part 27, BetterView seeks an exemption from Part 27's airworthiness standards for the same reasons identified in the request for exemption from 14 C.F.R. Part 21, Subpart H.

C. 14 C.F.R. § 61.113: Private Pilot Privileges and Limitations

BetterView seeks exemption from 14 CFR § 61.113, which restricts private pilots from flying aircraft for compensation or hire and would also require a second class medical certificate. The purpose of Part 61 is to ensure that the skill and competency of any PIC matches the airspace in which the PIC will be operating, as well as requiring certifications if the pilot is carrying passengers or cargo for hire.

While the UAS will be operated as part of a commercial operation, they carry neither passengers nor cargo. In the Grant of Exemption in FAA Docket No. FAA-2014-0352, the FAA determined that the unique characteristics of UAS operation outside of controlled airspace did not warrant the additional cost and restrictions attendant with requiring the PIC to have a commercial pilot certificate and a class II medical certificate. The FAA has also determined that the required knowledge for a commercial pilot covers the same fundamental principles as a private pilot.

The FAA has also granted exemptions allowing operations by people who hold an airline transport, commercial, private, recreational, or sport pilot certificate with a current FAA airman medical certificate or a valid U.S. driver's license issued by a state or the Federal Government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56. See FAA Exemption No. 11374.

BetterView will ensure the PIC will meet the requirements listed in the above paragraph. BetterView will also ensure the PIC will have completed the manufacturers' training guidelines outlined in the Manuals.

The FAA stated in its grant of an exception to Astraeus Aerial the "the FAA considers the overriding safety factor for the limited operations proposed by the petitioner to be the airmanship skills acquired through VAS-specific flight cycles, flight time, and specific make and model experience, culminating in verification through testing." See Exemption No. 11062, Docket No. FAA 2014-0352, at p. 18. The proposed operations can achieve an equivalent level of safety by requiring the knowledge and experience in Phantom 2, Phantom 2 Vision+, Inspire 1, and Iris+ operations described above.

The restrictions BetterView has placed on its UAS operations meet or exceed the restrictions similarly imposed on Astraeus Aerial in FAA Docket No. FAA-2014-0352 and those listed in the FAA's "summary grant" process.

D. 14 C.F.R. § 91.7(a)-(b): Civil Aircraft Airworthiness

BetterView seeks an exemption from 14 C.F.R. § 91.7(a), which requires that a civil aircraft be in airworthy condition to be operated. The FAA has stated that no exemption is required to the extent that the requirements of Part 21 are waived or found inapplicable. Accordingly, BetterView requests that the requirements for Section 91.7 be treated in accordance with FAR Part 21 Subpart H. See Grant of Exemption No. 11062, p. 19.

The agency similarly found that relief from section 91.7(b) is not warranted, which places responsibility on the PIC to ensure an aircraft is in a condition safe for flight. See Grant of Exemption to Astraeus Aerial, Docket No. FAA-2014-0352, Exemption No. 11062, p. 19. To the extent, an exemption is required under section 91.7(a) or (b), BetterView respectfully requests that the FAA find compliance with the manufacturer's manuals, the BetterView UAS Operations and Maintenance Manual, and requirements of the grant of exemption, a sufficient means for ensuring the sUAS are and remain in an airworthy condition.

E. 14 C.F.R. § 91.9(b)(2): Civil Aircraft Flight Manual in the Aircraft; 14 C.F.R. §§ 91.203(a) and (b): Carrying Civil Aircraft Certification and Registration

Pursuant to 14 C.F.R. § 91.9(b)(2):

> (b) No person may operate a U.S.-registered civil aircraft-
> ...
>
> (2) For which an Airplane or Rotorcraft Flight Manual is required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

Pursuant to 14 C.F.R. § 91.203(a) and (b):

> (a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:
>
> (1) An appropriate and current airworthiness certificate…
>
> (b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued

under § 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

BetterView does not request an exemption from this section but instead notifies the FAA that, in accordance with FAA Office of Chief Counsel's Opinion dated August 8, 2014, the UAS flight manual, registration certificate and other documentation will be kept at the control station with the PIC during flight. The Chief Counsel's Office has held that for all UAS operations, this alternate method constitutes full compliance with the regulations. See also Grant of Exemption No. 11062, pp. 19-20, and Grant of Exemption No. 8607.

F. 14 C.F.R. § 91.119(c): Minimum Safe Altitudes in Uncongested Areas

BetterView requests an exemption from the minimum safe altitude requirements of 14 C.F.R. § 91.119(c). Section 91.119(c) prescribes that an aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure. The Manuals provide for BetterView operations at least 500 feet from persons and structures not involved in the operations. The FAA has already determined that relief from Section 91.119(c) is warranted for UAS operations in uncongested areas with similar flight restrictions as those imposed by BetterView. See Grant of Exemption No. 11062, p. 20-21.

Equivalent Level of Safety: Compared to flight operations with rotorcraft or fixed wing aircraft weighing far more than the maximum weights proposed herein, and given the lack of flammable fuel, any risk associated with these operations is far less than those that presently exist with conventional aircraft. An equivalent level of safety will be achieved given the size, weight, and speed of the UAS, as well as the locations where it is operated. In order to avoid any risk to aircraft, flight operations will be restricted to 400 feet AGL or below. Other aircraft are already prohibited from operating closer than 500 from structures where BetterView operates. This is airspace where other aircraft do not normally operate. As set forth in the Manuals and herein, the UAS will be operated in the remote sites, away from persons or structures not involved in the operation. All persons who are not involved with BetterView's operations will be required to be at least 500 feet from flight operations. This will pose no risk to the public because other aircraft are not operating in these areas.

G. 14 C.F.R. § 91.121: Altimeter Settings

This petition seeks an exemption from 14 C.F.R. § 91.121, which requires a person operating an aircraft to maintain cruising altitude or flight level by reference to an altimeter that is set to the elevation of the departure airport. The UASs proposed here use both barometric pressure sensors and GPS to determine altitude but do not have the ability to set in a current altimeter setting. An exemption is required to the extent that the UAS does not have a barometric altimeter setting. The altitude of the UAS is monitored by the PIC on the ground control station and by the visual observer.

Equivalent Level of Safety: The FAA has stated that an equivalent level of safety can be achieved if the aircraft will be operated at or below 400 feet AGL and within visual line-of-sight in addition to GPS based altitude information relayed in real time to the operator. See Grant of Exemption No. 11062, p. 20-21. As the attached Manuals indicate, the UAS will be operated at or below 400 feet AGL and otherwise comply with the limitations in the Grant of Exemption No. 11062.

H. 14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions

BetterView requests an exemption from 14 C.F.R. § 91.151(a)'s fuel requirements for flight in VFR conditions. Section 91.151 states:

> (a) No person may begin a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed -
>
> (1) During the day, to fly after that for at least 30 minutes; or
>
> (2) At night, to fly after that for at least 45 minutes.

Here, the technological limitations on the UAS battery power means that no meaningful flight operations can be conducted while maintaining a 30 minute reserve. The aircraft are battery powered with a maximum flight time of approximately 25 minutes for the Phantom 2, 25 minutes for the Phantom 2 Vision+, 18 minutes for the Inspire 1, and 22 minutes for the Iris+. The PIC will ensure that before each flight, there is enough available power for the UAS to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

Equivalent Level of Safety: The FAA has stated that an equivalent level of safety is provided if the UAS flight is conducted under daytime VFR flight conditions using VLOS, and terminated with at least 25% reserve battery power still available. *See* Grant of Exemption No. 11062, p. 21-22. The FAA's "summary grant" process provides that the PIC is prohibited from beginning a flight unless there is enough available power to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater. *See* FAA Exemption No. 11374 (FAA Docket No. 2015-0091 at p. 5). The Manuals here provide that the PIC will ensure that before each flight, there is enough available power for the UAS to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

I. 14 C.F.R. §§ 91.405(a), 91.407(a)(1), 91.409(a)(2); 91.417(a) and (b): Maintenance Inspections

BetterView seeks an exemption from the maintenance inspection requirements contained in 14 C.F.R. § 91.405(a), 91.407(a)(1), 91.409(a)(2); 91.417(a) and (b). These regulations specify maintenance and inspection standards in reference to 14 C.F.R. Part 43. *See, e.g.,* 14 C.F.R. § 91.405(a) (stating that each owner or operator of an aircraft "[s]hall have the aircraft inspected as prescribed in subpart E of this part and shall between required inspections … have discrepancies repaired as prescribed in part 43 of this chapter"). An exemption from these regulations is needed because Part 43 and these sections only apply to aircraft with an airworthiness certificate, which the UAS proposed here will not have.

Equivalent Level of Safety: An equivalent level of safety will be achieved because maintenance and inspections will be performed in accordance with the Manuals. This includes maintenance, overhaul, replacement, and preflight inspection requirements. *See* Exemption No. 11062 (FAA Docket No. 2014-0352, at p. 14-15) and Exemption No. 11374 (FAA Docket No. 2015-0091, at p. 4).

BetterView will follow the UAS manufacturer's maintenance requirements. As provided in the Manuals, flights will not be conducted unless a flight operations checklist is performed that includes all of the aircraft's components.

VI. PUBLIC INTEREST

Granting BetterView's petition for exemption furthers the public interest. National policy set by Congress favors early integration of UAS into the NAS in controlled, safe working environments such as proposed in this petition. By granting this petition, the FAA will fulfill Congress's intent of allowing UAS to operate safely in the NAS before completion of the rulemaking required under Section 332 of the Reform Act.

The enhanced safety achieved by replacing people with ladders on steep, high, slippery or unfamiliar roofs with small UAS carrying no passengers or crew and operated under the specific guidelines and procedures proposed by Petitioner gives the FAA good cause to find that the UAS operations enabled by the instant Petition are in the public interest.

VII. PRIVACY

All flights will occur over private property either owned by BetterView or with the owner's consent. All flights will be conducted in accordance with any federal, state or local laws regarding privacy.

VIII. SUMMARY FOR FEDERAL REGISTER

Pursuant to 14 C.F.R. Part 11, the following summary is provided for publication in the Federal Register, should it be determined that publication is needed:

BetterView Marketplace, Inc. seeks an exemption from the following rules for the commercial operation of a small unmanned aerial system to inspect buildings.: 14 C.F.R Part 21, Subpart H; 14 C.F.R Part 27; 14 C.F.R § 61.113; 14 C.F.R § 91.7; 14 C.F.R § 91.9(b)(2); 14 C.F.R § 91.119; 14 C.F.R § 91.121; 14 C.F.R § 91.151(a) & (b) 14 C.F.R § 91.203 (a) & (b); 14 C.F.R § 91.405(a); 14 C.F.R § 91.407(a)(1); 14 C.F.R § 91.409(a)(2); 14 C.F.R § 91.417 (a) & (b).

The exemption will enhance safety by reducing risk to the operator, the general public and property owners from the substantial hazards associated with performing equivalent work using traditional conventional aircraft and rotorcraft.

BetterView requests that the FAA grant this petition using the "summary grant" process such that publication in the Federal Register is not required. This petition would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

IX. ATTACHMENTS

Attachment 1:	BetterView UAS Operations and Maintenance Manual
Attachment 2:	Phantom 2 User Manual
Attachment 3:	Phantom 2 Quick Start Guide
Attachment 4:	Phantom 2 Vision+ User Manual
Attachment 5:	Phantom 2 Vision+ Quick Start Guide
Attachment 6:	Smart Flight Battery Safety Guidelines
Attachment 7:	Phantom Pilot Training Guide
Attachment 8:	Inspire 1 User Manual
Attachment 9:	Inspire 1 Quick Start Guide
Attachment 10:	Iris+ Operation Manual
Attachment 11:	Iris+ Flight Checklist

Attachments are confidential documents submitted under 14 C.F.R. § 11.35(b) and are exempt from disclosure under the Freedom of Information Act, 5 U.S.C. § 552 et seq., and any other requirements established by the FAA pursuant to Section 333 of the Reform Act). If you have any questions or require any additional information, please do not hesitate to contact the undersigned representative of BetterView Marketplace, Inc..

X. CONCLUSION

Satisfaction of the criteria provided in Section 333 of the Reform Act - size, weight, speed, operating capabilities, proximity to airports and populated areas, operation within visual line of sight, and national security considerations - provides more than adequate justification for the grant of the requested exemptions to permit BetterView to operate the UASs proposed here. Furthermore, this petition warrants review by the FAA under the "summary grant" process for immediate approval.

Granting the requested exemption will benefit the public interest as a whole in many ways, including (1) significantly improving safety and reducing risk by alleviating human exposure to danger; (2) improving the quality of services BetterView can provide to its customers; and (3) decreasing operating costs compared with traditional aerial imaging.

Respectfully submitted,
BetterView Marketplace, Inc.

By 

David D. Lyman
President & CEO
1250 Jones St., #1402
San Francisco, CA 94109
Telephone: (415) 967-3227
dlyman@better.vu