

How to choose an Aerial Photography Supplier

By Andy Crowhurst

Managing Director, Pulse Corporation Ltd

www.Pulsecorp.co.uk

www.Overshoot-Photos.co.uk

Choose an Aerial Photography Supplier

© Pulse Corporation Ltd. All Rights Reserved by the original author.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the author.

All trademarks and copyrights acknowledged. This book is provided as information only. Although every precaution has been taken in its preparation, the publisher and author assume no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

Choose an Aerial Photography Supplier

Contents

How to choose an Aerial Photography Supplier based upon your needs	1
Contents	3
Introduction – why this Guide has been written	5
Why should I use Elevated or Aerial Photography	6
What types of Elevated or Aerial Photography are there?	7
What should I consider when looking for an Aerial Photography supplier?	8
Other points to consider	9
What information will the Photographer need?	11
What questions should I ask when assessing prospective Aerial Photographers?	12
Positioning	12
Safety	12
Aerial Platforms	13
General	13
What platforms are available to me and what are their Pros and Cons?	14
Ground based platforms	14
Masts	14
Scaffolding	14
Cherry Pickers	15
Platforms (MEWPs – Mobile Elevating Work Platforms including Cherry Pickers)	15
Air based (flying) Platforms	15
Full Size Helicopters	15
Full Size Aeroplanes	16
Model Helicopters	16
Model Aeroplanes	17
Kites	17

Choose an Aerial Photography Supplier

Blimps	17
Rockets	18
Unmanned Aerial Vehicles (UAV)	18
Summary of Platforms and their Pros and Cons	19
Conclusion	20
Glossary	21

Introduction – why this Guide has been written

As a supplier of Aerial Photography, I run through the same questions from prospective Clients time and time again and, whilst every Client gets a personal, tailored reply, based upon their questions, I thought that it would be useful to produce a Guide that anyone can use. It should help you determine what you need, the appropriate platforms that can be used and the questions that you should ask your prospective Supplier.

This Guide has been written primarily for the UK Market where Aerial Photography is legal (Subject to obtaining a License if a flying platform is used). If you are looking for an Aerial Photographer supplier to work in a different Country then different Laws will apply and, in fact may not be Legal. However, the same principles still apply and other platforms (as described here) may be appropriate.

Although every precaution has been taken in the preparation of this Guide, neither the Publisher nor the Author assume any responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of this information contained herein.

Do read through this and, if you still have any unanswered questions or would like further information or a Quotation then please do not hesitate to contact me directly at Overshoot Photos – +44(0)1628 56 99 22 or andy@overshoot-photos.co.uk.

If you would like to add to or amend anything in this Document, then please let me know.

Why should I use Elevated or Aerial Photography

A better angle

Generally, wherever you can take a photograph, elevating it will give a much better look to it. Think of those BBC Documentaries tracking herds of Wildebeest through Africa. Think how less impressive it would have been if taken from ground level rather than a 'plane.

Otherwise unobtainable

Church Steeple inspections, roof inspections from above, photographs from over a river, a flowerbed, a derelict building. All impossible from the ground, but all easily achievable from the air

Stand out from the run-of-the-mill

Look at any Estate Agent's window. Row upon row of flat images of houses or apartments for sale. Do any **really** appeal or do some just look a bit better than others? If you were a dynamic Estate Agent or a Homeowner trying to get the best impact and the quickest sale, wouldn't you try and stand out? An Elevated picture of the House and Grounds would shout out "Look at me!! I'm different!!".

Necessity

I take a lot of photos for Property Developers. They want shots of the views from the windows of the flats for Marketing, even though the flats do not yet exist. I can fly up a virtual column taking 360° shots at each floor level. This is impossible or extremely impractical to manage with a ground-based camera, especially when some of my shoots exceed 100 metres high!

What types of Elevated or Aerial Photography are there?

Generally speaking, any photograph taken above normal 'ground' level is called 'Elevated Photography'. A subset of this is where the camera (with or without the photographer) is on a platform that is in the air. This is 'Aerial Photography'. The difference boils down to the platform used. To save time, I will be referring to "Aerial Photography" throughout this document as that is more natural and it is also clearer what I am talking about. Wherever I mention "Aerial Photography", it really means "Aerial or Elevated Photography".

As for the different platforms, you will find a list of them in the section marked **"What platforms are available to me and what are their Pros and Cons?"**

What should I consider when looking for an Aerial Photography supplier?

What, where, when – and how much – need to be considered. By working through these, you can eliminate one or more methods quite easily. After these considerations, there are others that can also be looked at. At the end of the Platforms Section is a Table summarising the platforms and their relative Pros and Cons. This allows you to refine your list of Companies to approach.

What

What needs to be shot?

A **Wedding or Party** will need several angles, over a low-level range (say 0 to 30 metres) and be discreet. Straight away, you can eliminate full-size craft, fixed platforms and fixed masts. Kites and blimps will probably be unusable for close-range shots, leaving a lightweight mast or a **UAV**

A **proposed property build** with shots from different stories would eliminate full-size craft again (cannot descend below 500 feet). Kites and blimps probably could not maintain the positional accuracy for compliance with the Property Misdescription Act. Ground based Masts (up to 90 feet) and **UAV** (up to 400 feet) would be best, provided that they can feedback their exact position.

A **Land survey** or Photographic set for Marketing / Sale would need a UAV or (for larger plots) full size craft to be economic and practical.

Where

Where will the Shoot take place?

CAA Regulations mean that over busy areas (crowds and roads for instance) will eliminate smaller flying craft such as **UAV** unless it can be shot at an angle so that the craft is not directly overhead. Consider a mast or platform-based System instead.

If the terrain is inaccessible to vehicles (closed off, undriveable, carefully manicured lawns etc) then ground based devices are eliminated and Remote controlled or full-size craft will be needed.

Choose an Aerial Photography Supplier

If the shoot is indoors, then – obviously - full size craft and also kites/blimps cannot be used. You will need to use a platform, a mast or a **UAV**.

When

If you want a specific event on a specific day photographed, you will have to consider the weather. Even bearing in mind that a lousy day will produce dull, uninteresting photographs, anyway, anything that flies will be affected by the weather. A bit of rain or a small breeze is one thing. Any worse and **UAV**, kites and blimps will not be able to fly so you might be restricted to fixed platforms or call off the shoot. If you do go with a **UAV** or other flying object, ask them if they offer a money-back guarantee if they cannot fly due to bad weather.

If you want a set of photos taken and you have a time window, then there is more flexibility as, in addition to platforms, the **UAVs** can wait for appropriate weather. And, of course, all platforms can wait for good weather to get good photographs.

How much

Mast hire can start from as little as £50, UAV from £100 and full-size craft from £2-300 per hour depending upon what is required.

If you are selling a house and want some basic elevated shots to beef up the listing, then a cheap and cheerful mast will suffice. Better angles and more coverage will require a pricier **UAV** and, at the top end of the Market, no less than a full size craft will do it justice. Advertising budgets will probably decide the route to take, but with so few properties yet using aerial photography, it definitely pays to splash out on some shots at some elevated level to ensure that you stand out.

Other points to consider

- ❑ More than one position. If you need shots from more than one position (on the ground), then a **UAV** will be more efficient at moving from place to place than a ground-based platform or mast. Also, it may well be more capable of getting the angles needed, compared to a mast that may be limited to (for instance) staying on a solid road surface.
- ❑ What are you shooting? Modern Systems have some way of the user on the ground seeing what the camera is seeing in order to frame the shot. Without this feedback, you are

Choose an Aerial Photography Supplier

effectively shooting blind and may need several retakes / multiple shots to obtain the required picture(s).

- ❑ Where are you? ~~The Property Misdescription Act~~ (now superseded to the catchier “the Consumer Protection from Unfair Trading Regulations 2008 (CPRs) and the Business Protection from Misleading Marketing Regulations 2008 (BPRs)”) ensures that if a picture says ‘This is a view from the Penthouse’ then it should be as close to that as possible. You therefore need a system that you can place exactly in 3-D space (x,y, height). Full-size craft have this facility and modern UAVs also have Ground Stations that feedback exact co-ordinates in Real Time.
- ❑ Emissions – sound and exhaust. Sometimes noise and exhaust emissions are not a problem. A lot of times this will be unacceptable, so look for Masts (Zero emissions), kites and blimps (ditto) and UAVs - usually battery powered so no exhaust and inaudible from a few tens of metres away
- ❑ Camera resolution. UAVs have lower payload capabilities so are limited to about 14Megapixel non-DSLRs in capacity. Masts and full size craft can take much bigger DSLRs

What information will the Photographer need?

Obviously this will vary according to what you are trying to achieve, but following is some information that, if relevant, will help your Photographer.

- ❑ Where is the shoot? Give us a Postcode and we can check it out on Google Maps. That way, we can see if there are any immediate safety issues that might prevent flying. “Oh, **that** Motorway / Pylon / Airport”.
- ❑ Heights & Latitudes / Longitudes or Northings / Eastings will be needed if you want precise positioning (Make sure that your Aerial Photographer has a way of measuring these – such as a built-in GPS otherwise it will be guesswork)
- ❑ Timescales. Fixed day or is there a window where we can pick our day to get the best set of shots? Specific time of day – sun low, high, East, West?
- ❑ Number of shots. e.g. for a floor by floor shoot, how many floors, how many buildings, how many angles? That way, we can better estimate the time needed
- ❑ Permissions to shoot, Property and Model releases etc. Not necessarily your responsibility, but if needed, then we can advise ahead of time.
- ❑ Weather. Does it need to be as good as possible for PR or will a clear (but cloudy) day suffice to get the concept shots?

What questions should I ask when assessing prospective Aerial Photographers?

Here is a list of questions that you should ask. Obviously not all will be relevant to you but this list will allow you to refine your requirements & narrow down the options as well as help you to consider issues that you may not have considered.

Positioning

- Can you achieve the height that I need
- How do I know that you are at the required height?
- Can you achieve the resolution that I need
- Are you able to easily shoot from different X-Y locations or is there a time lag for you to move from place to place
- Can you get the right angle for the sun position and the time of day
- Can you take off / land from my land or do we need to get permission from adjacent landowners
- My ground is rubble/water/boggy/derelect/inaccessible to motor vehicles etc. Can you get above it to take the required photographs?

Safety

- Platform Operators - Do you need to comply with the **HSE** “Working at Heights” Directive?
- Can I see your Risk Assessment and Method Statements (RAMS)?
- What level of insurance cover do you carry?
- Can I see your Insurance Certificate?

Choose an Aerial Photography Supplier

Aerial Platforms

- Are you licensed by the **CAA**? (All aerial platforms – kites, blimps, helicopters, 'planes and **UAVs** – **have** to be licensed by the **CAA** as of 1st January 2010.
- What area of land do you need to take off and land?
- Can you operate where I need?

General

- Are your Operators **CRB** checked / ECS / CSCS cardholders etc. etc. Are they fully trained to operate the Equipment safely?

What platforms are available to me and what are their Pros and Cons?

Ground based platforms

Masts

Masts are extendible poles that can be ground based (perhaps mounted on a trailer to be towed into place) or attached to a vehicle that drives into location. They are extended automatically or, for smaller ones, by hand.

A camera attached at the top can be operated from the ground and can be linked via a cable to monitor what the camera is seeing. Full **PTZ** is usually available.

Pros of using Masts

Rapidly Deployable – Circa. 15 minutes
Can be used in moderate winds
Cheap – from £50

Cons of using Masts

- ❑ Limited to 90 feet
- ❑ Can only be used on solid terrain
- ❑ If vehicle-based, can only be used on level ground

Scaffolding

Scaffolding is used for medium to long-term projects and is not appropriate specifically for Elevated Photography. It could be used to examine high-up locations such as Church Spires with a view to then use it to undertake repairs. However, inspection can still be made without scaffolding and scaffolding can then be deployed if required.

Scaffolding will therefore be excluded from this discussion.

Choose an Aerial Photography Supplier

Cherry Pickers

Cherry Pickers are platforms - extensible booms with zero, one or more joints that can reach up (and down). A box at the far end can house a photographer and his/her equipment. Generally they are limited to about 50 feet (15 metres).

Platforms (MEWPs – Mobile Elevating Work Platforms including Cherry Pickers)

Cherry pickers, scissor lifts and extensible booms. All are MEWPs and can be used to reach an elevated height, albeit not especially high. They allow a user to reach working height quickly and safely and can be used indoors and out. The **HSE** Working At heights Directive needs to be complied with, the Operator needs to be certified to use the equipment.

Pros of using MEWPs

- ❑ Fairly Rapid deployment

Cons of using MEWPs

Limited height
Can only be used on level ground
'Working at Heights' Directive Compliance needed

Air based (flying) Platforms

Full Size Helicopters

Useful where large tracts of land are to be covered and hovering is required

Pros of using Full Size Helicopters

Greater payload so high end (but heavy) camera equipment can be used
High end gyros can be used providing greater stability

Cons of using Full Size Helicopters

Cannot descend below 500 feet so higher spec zoom lenses are required
Cannot obtain shots below 500 feet – e.g. storeys of a proposed new build.
Expensive to hire
Restrictions on air movements

Choose an Aerial Photography Supplier

Full Size Aeroplanes

Useful where large tracts of land are to be covered and hovering is not required – more economical than helicopters.

Pros of using Full Size Aeroplanes

Greater payload so high end (but heavy) camera equipment can be used
High end gyros can be used providing greater stability

Cons of using Full Size Aeroplanes

Cannot hover
Cannot descend below 500 feet so higher spec zoom lenses are required
Cannot obtain shots below 500 feet – e.g. storeys of a proposed new build.
Expensive to hire
Restrictions on air movements

Model Helicopters

Petrol or battery-driven, these are a popular method of entry into the Aerial Photography market. A keen amateur helicopter enthusiast attaches a camera to a helicopter, snaps some images and it progresses from there.

Whilst there are very competent pilots out there, flying a helicopter takes 100% concentration so taking aerial photographs is a two man operation and safety regulations need to be tightly complied with as an out of control helicopter can be dangerous. Whilst electric (battery-powered) helicopters are 'clean', petrol driven ones produce exhaust gases and are noisy, something to consider depending upon your needs. Helicopters have the advantage of being able to hover compared to model aeroplanes.

Pros of using Model Helicopters

Low cost option
Can fly from zero to 400 feet
Can hover – ideal for shooting virtual 'columns'

Cons of using model Helicopters

Two man operation required as helicopter takes full concentration
Inherently unstable, so mechanical failure can have a more adverse impact

Choose an Aerial Photography Supplier

Can be quite noisy, especially with petrol-driven ones.

Generally speaking, helicopters have been superseded by UAVs

Model Aeroplanes

As with helicopters, an amateur pilot can take a 'plane and attach a camera. The flight will, all things being equal, be smoother than a helicopter and motion video will be better, however it lacks the ability to hover. Under adverse conditions – e.g. mechanical failure, it is less unsafe than a helicopter as, assuming that the wings are intact, it may be able to glide to a semi-controlled landing.

Both model helicopters and aeroplanes in their basic set-up lack more advanced features as GPS positioning and hold, video downlinks and remote shutter release, but these can all be added in as needed.

Pros of using Model Aeroplanes

Low cost option
Can fly from zero to 400 feet

Cons of using Model Aeroplanes

Cannot hover
Can get buffeted by winds

Kites

Bigger than your 1970's Peter Powell kites – big enough to take a camera payload. They are useful for activities such as photographing an open air concert for example, they are harder to control and very weather dependent. There are not many professional kite operators available and so will not be considered further.

Blimps

Blimps are similar to kites but use helium or hydrogen as the lifting mechanism and may have an on-board motor to point the camera in the right direction and to move from place to place. They can be tethered or free-flight but are still weather dependent. They are more often used at static points as advertising hoardings. They will not be considered further here.

Choose an Aerial Photography Supplier

Rockets

Launch. Set the camera to trigger. Land. Inspect pictures. Not practical for professional aerial photography as they cannot be controlled and certainly cannot hover in a fixed location. They will not be considered further here.

Unmanned Aerial Vehicles (UAV)

UAVs have really taken off (ho ho) over the last few years as carbon fibre technology evolves as battery power density improves. At the same time, Digital camera technology is constantly improving so that even the basic UAVs can manage 10-14 Megapixel cameras, with more robust ones working up to 24 Megapixels and above.

The modern ranges such as the DJI series are designed from scratch specifically to take Aerial Photography rather than adapting an existing craft (such as a model helicopter). With multiple rotors for stability, battery power and a multitude of gyros and bells and whistles, they are rapidly becoming the platform of choice for Aerial Photography below 400 feet (their CAA flight ceiling)

Like most flying platforms, UAVs need dry days with low wind speeds (and virtually calm days for video filming) but built-in gyro stabilizers provide a level platform to produce good quality images.

Pros of using UAVs

Specifically designed for the role

Can fly from zero to 400 feet

Can be locked into position, freeing the operator up to concentrate on the photography

Can hover

Multiple fail-safe mechanisms reduce risk

Cons of using UAVs

Weather dependent. - usually sub 10mph winds for stills and sub 5mph/calm for video

Can be restricted in where it can fly – not over crowds, roads or built-up areas for instance.

Payload limited to sub-DSLR weights

Choose an Aerial Photography Supplier

Summary of Platforms and their Pros and Cons

Method						
	Full Size Helicopter	Full size Aeroplane	Remote-Controlled Helicopter	Remote-Controlled Aeroplane	Platforms	UAV
Rough Cost (ex VAT)	£500 per hour	£300 per hour	£150 per hour	£150-200 per hour	£100-200 per day	£1-200 per hour
Pros	Can carry High End equipment Large scale surveying Can fly over any terrain	Can carry High End equipment Large scale surveying Can fly over any terrain	Budget Photography Fixed Location work Multiple shoots Can fly over any terrain	Budget Photography Fixed Location work Multiple shoots Smoother flight Can fly over any terrain	Rapid Deployment	Rapid Deployment 0 – 400 feet range Can fly over any terrain Stable flight – smoother pictures
Cons	Expensive, noisy Cannot descend below 500 feet	Expensive, noisy Cannot descend below 500 feet Hovering	Noisy Some flight restrictions Buffeted in winds	Some flight restrictions Buffeted in winds	Low level only Even ground needed	Some flight restrictions Buffeted in winds
Good for	Large Scale work	Large Scale work	Mixed terrain Economy shoots	Mixed terrain (if airstrip available) Economy shoots	Low level inspections	Mixed terrain Precise positioning Rapid deployment Unobtrusiveness Multiple Shoots
Bad for	Built-up areas Intimate (low level) work	Built-up areas Intimate (low level) work Fixed location work	Windy & rainy days Heavy cameras	Windy & rainy days Heavy cameras Fixed location work	High level photography Heavy cameras Multiple Shoots	Windy & rainy days Heavy cameras

Fixed Location – hovering over one specific place. Multiple shoots – photos taken from more than one place on site, easier (faster and thus cheaper) with flying platforms than, say a mast.

Conclusion

Aerial Photography can give you an edge over your competitors simply because it stands out from the crowd. In the morass of Marketing that we are all subject to nowadays, it gets harder to get your voice heard.

It's not rocket science, but it is a mixture of Science and of Art.

There are plenty of Aerial Photographers to choose from but only a subset of platforms will be suitable for your particular requirement and you need to make sure that the photographer is capable of achieving your needs – safely and legally.

If you want to know more, have further questions or comments or just want a quick chat about anything that you have read here, do drop me a line at Overshoot Photos andy@overshoot-photos.co.uk or call me directly on +44(0)1628 56 99 22 – 7 days a week.

Bye,



Andy Crowhurst

Glossary

CAA The Civil Aviation Authority. It licenses anything that flies (even if it is tethered) in the UK and, as of 1st January 2010, anyone that wants to take aerial photography as a business **has** to be licensed by it. If it is not, it is acting illegally and its insurance (if carried) will not be valid. See <http://www.caa.co.uk> for further information.

CRB Criminal Records Bureau. Many places now require staff to be CRB checked. This will also apply to Contractors. THE CRB undertakes (for a fee) this checking

ECS / CSCS Electrotechnical Certification Scheme / Construction Skills Certification Scheme. Bodies that organise the assessment of workers to ensure that they have a basic grounding in safety. Nowadays, a building Site (for instance) will not allow a worker to be inducted for work unless they already hold this card. If you are looking for photography on a Building Site, ensure that your Aerial Photographer carries a card

HSE The Health and Safety Executive. Overseeing body for all aspects of Health and Safety in the Workplace

PTZ Pan, Tilt and Zoom. Movement of a camera to bring the subject of the shot into the frame. Ideally, this should all be achieved remotely from the ground using a **Video Downlink** as feedback

UAV Unmanned Aerial Vehicle. A craft that flies but only takes cameras as payloads, not humans. This category includes Remote controlled Helicopters and 'planes, kites and blimps as well as the newer custom UAV devices such as the Draganflyer that are now available. In this document I sometimes distinguish between them. if I do not, then I am describing them all collectively.

Video Downlink. A method whereby the user on the ground can see exactly what is being framed by the camera before the shot is taken. For ground based systems, this can be via a radio link or cable link. For flying platforms this is achieved via a radio link.