



# West Virginia Statewide Imagery Contract

Prepared by Kurt Donaldson 6/26/2023

## INFORMATION SHEET

### West Virginia Statewide Imagery Program

A statewide contract through the WV GIS Technical Center at West Virginia University is available for the acquisition of digital orthoimagery in West Virginia. As part of the Statewide Imagery Program (WVSIP), the imagery is unit priced so that participants can budget for imagery years in advance as well as pay over multiple budget cycles. To meet the needs of the largest number of potential participants, a variety of product options are available through the WVSIP program to include countywide unit pricing for 12-inch, 6-inch, 4-inch, and 3-inch spatial resolutions. This contract allows for municipalities, counties, state agencies, and the federal government to tap into an existing contract to acquire imagery at a known unit price that is usable until December 31, 2023.

Pixel Resolution (Detail Level)	3-inch	4-inch	6-inch	12-inch
Cost per square mile	<b>\$103</b>	<b>\$75</b>	<b>\$60</b>	<b>\$41</b>
Map Scale	1" = 50'	1" = 67'	1" = 100'	1" = 200'
Horizontal Accuracy (ASPRS 1)	0.5 feet	0.66 feet	1.0 feet	2.0 feet

Note: 4-band stacked imagery that includes color infrared can be added at 25% of the acquisition cost

A target spatial resolution of 6 inches is recommended for counties that can afford this level of detail. The horizontal accuracy standard is ASPRS Class 1. The original state contract was awarded to Blue Mountain Inc. which is now part of The Thrasher Group, Inc. The state contact and county unit prices can be viewed at the following links: [2023 Contract Amendment 1 \(current price list\)](#) | [2019 Contract](#)

### Performance Period

The total contracting period of this contract is from January to December 31, 2023 and includes the spring 2023 leaf-off season.

### How can you participate?

Any organization can participate in the Statewide Imagery Program. A [signed MOU](#) that states the specifications and costs is all that is needed to participate in the program. The MOU must be signed by **March 15** of the flight season. For more information, contact one of the following program representatives:

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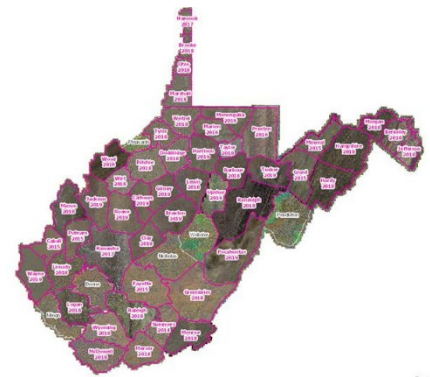
**Craig Fry**, CP  
The Thrasher Group, Inc.  
724.485.7060  
CFry@thethrashergroup.com



### View Aerial Imagery Examples

You can review the [aerial imagery](#) acquired via the State Contract by linking to the statewide aerial imagery web service below. Refer to counties of the [vendor acquisition map](#) by The Thrasher Group, Inc.

- [County Aerial Imagery Year Acquired](#)
- [County Aerial Imagery Resolution](#)
- [County Aerial Imagery Vendor](#)
- [Resolution Comparison – Baseball Fence](#)
- [Resolution Comparison – WVU Coliseum](#)
- [Statewide Leaf-Off imagery web map service](#)
- [Download County Aerial Imagery](#)



### Detailed Imagery Resolution

The [four-inch resolution imagery](#) is high enough resolution to count cows on the imagery.

# New 2019 Leaf-Off Aerial Imagery

<http://www.mapwv.gov/flood/map/?wkid=102100&x=-9176624&y=4583558&l=13&v=1>

**4-inch Resolution Leaf-Off Aerial Imagery**

- Braxton
- Calhoun
- Clay
- Gilmer
- Harrison
- Jackson
- Monongalia
- Pocahontas
- Roane
- Monongalia
- Wayne

More 2019 county aerial imagery to be added

Choose **WV Best Leaves Off** Base Map

Bing Hybrid

WV Best Leaves Off

Bing Imagery

**Cows in the Floodway**  
West Fork Twelvepole Creek, Wayne County



## State Contract Aerial Imagery Pricing

### AERIAL IMAGERY PRICING

Pixel Resolution (Detail Level)	3-inch	4-inch	6-inch	12-inch
Cost per square mile	<b>\$103</b>	<b>\$75</b>	<b>\$60</b>	<b>\$41</b>
Map Scale	1" = 50'	1" = 67'	1" = 100'	1" = 200'
Horizontal Accuracy (ASPRS 1)	0.5 feet	0.66 feet	1.0 feet	2.0 feet

**Notes:**

4-band stacked imagery that includes color infrared can be added at 25% of the acquisition cost.

The county border buffer is 1000 feet unless otherwise noted.

County	Square Miles	12" @ \$41 per square mile	6" @ \$60 per square mile	4" @ \$75 per square mile	3" @ \$103 per square mile
BARBOUR COUNTY	343	\$14,063	\$20,580	\$25,725	\$35,329
BERKELEY COUNTY	322	\$13,202	\$19,320	\$24,150	\$33,166
BOONE COUNTY	503	\$20,623	\$30,180	\$37,725	\$51,809
BRAXTON COUNTY	516	\$21,156	\$30,960	\$38,700	\$53,148
BROOKE COUNTY	93	\$3,813	\$5,580	\$6,975	\$9,579
CABELL COUNTY	288	\$11,808	\$17,280	\$21,600	\$29,664
CALHOUN COUNTY	280	\$11,480	\$16,800	\$21,000	\$28,840
CLAY COUNTY	344	\$14,104	\$20,640	\$25,800	\$35,432
DODDRIDGE COUNTY	320	\$13,120	\$19,200	\$24,000	\$32,960
FAYETTE COUNTY	668	\$27,388	\$40,080	\$50,100	\$68,804
GILMER COUNTY	339	\$13,899	\$20,340	\$25,425	\$34,917
GRANT COUNTY	480	\$19,680	\$28,800	\$36,000	\$49,440
GREENBRIER COUNTY	1024	\$41,984	\$61,440	\$76,800	\$105,472
HAMPSHIRE COUNTY	645	\$26,445	\$38,700	\$48,375	\$66,435
HANCOCK COUNTY	88	\$3,608	\$5,280	\$6,600	\$9,064
HARDY COUNTY	584	\$23,944	\$35,040	\$43,800	\$60,152
HARRISON COUNTY	416	\$17,056	\$24,960	\$31,200	\$42,848
JACKSON COUNTY	471	\$19,311	\$28,260	\$35,325	\$48,513
JEFFERSON COUNTY	212	\$8,692	\$12,720	\$15,900	\$21,836
KANAWHA COUNTY	910	\$37,310	\$54,600	\$68,250	\$93,730
LEWIS COUNTY	389	\$15,949	\$23,340	\$29,175	\$40,067
LINCOLN COUNTY	439	\$17,999	\$26,340	\$32,925	\$45,217
LOGAN COUNTY	455	\$18,655	\$27,300	\$34,125	\$46,865
MARION COUNTY	311	\$12,751	\$18,660	\$23,325	\$32,033



County	Square Miles	12" @ \$41 per square mile	6" @ \$60 per square mile	4" @ \$75 per square mile	3" @ \$103 per square mile
MARSHALL COUNTY	312	\$12,792	\$18,720	\$23,400	\$32,136
MASON COUNTY	445	\$18,245	\$26,700	\$33,375	\$45,835
MCDOWELL COUNTY	535	\$21,935	\$32,100	\$40,125	\$55,105
MERCER COUNTY	420	\$17,220	\$25,200	\$31,500	\$43,260
MINERAL COUNTY	329	\$13,489	\$19,740	\$24,675	\$33,887
MINGO COUNTY	424	\$17,384	\$25,440	\$31,800	\$43,672
MONONGALIA COUNTY	366	\$15,006	\$21,960	\$27,450	\$37,698
MONROE COUNTY	473	\$19,393	\$28,380	\$35,475	\$48,719
MORGAN COUNTY	230	\$9,430	\$13,800	\$17,250	\$23,690
NICHOLAS COUNTY	654	\$26,814	\$39,240	\$49,050	\$67,362
OHIO COUNTY	109	\$4,469	\$6,540	\$8,175	\$11,227
PENDLETON COUNTY	698	\$28,618	\$41,880	\$52,350	\$71,894
PLEASANTS COUNTY	134	\$5,494	\$8,040	\$10,050	\$13,802
POCAHONTAS COUNTY	941	\$38,581	\$56,460	\$70,575	\$96,923
PRESTON COUNTY	651	\$26,691	\$39,060	\$48,825	\$67,053
PUTNAM COUNTY	350	\$14,350	\$21,000	\$26,250	\$36,050
RALEIGH COUNTY	609	\$24,969	\$36,540	\$45,675	\$62,727
RANDOLPH COUNTY	1039	\$42,599	\$62,340	\$77,925	\$107,017
RITCHIE COUNTY	454	\$18,614	\$27,240	\$34,050	\$46,762
ROANE COUNTY	483	\$19,803	\$28,980	\$36,225	\$49,749
SUMMERS COUNTY	367	\$15,047	\$22,020	\$27,525	\$37,801
TAYLOR COUNTY	176	\$7,216	\$10,560	\$13,200	\$18,128
TUCKER COUNTY	421	\$17,261	\$25,260	\$31,575	\$43,363
TYLER COUNTY	261	\$10,701	\$15,660	\$19,575	\$26,883
UPSHUR COUNTY	355	\$14,555	\$21,300	\$26,625	\$36,565
WAYNE COUNTY	512	\$20,992	\$30,720	\$38,400	\$52,736
WEBSTER COUNTY	556	\$22,796	\$33,360	\$41,700	\$57,268
WETZEL COUNTY	361	\$14,801	\$21,660	\$27,075	\$37,183
WIRT COUNTY	235	\$9,635	\$14,100	\$17,625	\$24,205
WOOD COUNTY	377	\$15,457	\$22,620	\$28,275	\$38,831
WYOMING COUNTY	502	\$20,582	\$30,120	\$37,650	\$51,706

Note: A countywide buffer of 1000 feet is flown beyond the county border.

Vendor agrees to not exceed the countywide unit rates or price schedule listed for the services rendered:



## FAQs

### FREQUENTLY ASKED QUESTIONS

#### **What is Aerial Imagery?**

Aerial imagery refers to digital pictures taken from the air. These pictures are normally taken from a vertical perspective looking straight down from the airplane onto the rooftops. Digital aerial imagery requires bright sunlight and cloud free conditions for good results. Digital orthoimagery is the foundation for GIS, forming the base layer from which many additional data layers are created. It combines the characteristics of an aerial image with the geometric qualities of a map. This allows GIS and CAD software to accurately measure all visible ground features in their true geographic position and lets users:

- Make accurate distance and area calculations across the entire image mosaic
- Measure the true position of any feature observed in the orthoimagery

#### **What is the best resolution for your needs?**

Your organization should capture aerial imagery at the smallest feature and highest positional accuracy that you require, while not to paying for more than you need if there is no benefit. Refer to the table below to choose the best resolution. Digital aerial imagery can vary greatly in accuracy and pixel resolution. Pixel resolution (a single point in a graphic image) refers to the actual distance on the ground each pixel represents in the orthoimagery. For example, one-foot pixel resolution means each pixel in the image covers one foot on the ground.

Table 1. Comparison of Aerial Imagery Resolution

<b>Resolution</b>	<b>3-inch</b>	<b>4-inch</b>	<b>6-inch</b>	<b>12-inch</b>
<b>Cost per square mile</b>	\$62	\$45	\$36	\$25
<b>Mapping of:</b>	Utilities and public works	Utilities and public works	Urban and more developed areas	Rural and less developed areas
<b>Mapping Scale</b>	1:600 Map Scale 1" = 50'	1:800 Map Scale 1" = 67'	1:1200 Map Scale 1" = 100'	1:2400 Map Scale 1" = 200' or 1" = 400'
<b>Positional Accuracy</b>	Very High	Higher than 6" Lower than 3"	Higher than 12" Lower than 4"	Lowest
<b>Key Features Visible</b>	<i>Very Small Infrastructure</i> <ul style="list-style-type: none"> <li>▪ Fire Hydrants</li> <li>▪ Manhole Covers</li> <li>▪ Individual people and animals</li> <li>▪ Finer details on roads including markings and skid marks</li> </ul>	<i>Smaller Infrastructure</i> <ul style="list-style-type: none"> <li>▪ Clearer Road Markings</li> <li>▪ Power Lines</li> </ul>	<i>Infrastructure</i> <ul style="list-style-type: none"> <li>▪ Property line fences</li> <li>▪ Utility Poles</li> <li>▪ Individual Trees</li> <li>▪ Vehicle Types</li> <li>▪ Road markings</li> </ul>	<i>Large Infrastructure</i> <ul style="list-style-type: none"> <li>▪ Buildings</li> <li>▪ Paved Roads</li> <li>▪ Railroads</li> <li>▪ Vehicles</li> <li>▪ Tree/shrub line</li> </ul>
<b>Tax Parcel Conversion Projects or Re-mapping</b>	Identifiability of small features somewhat improved over 4". Lower cost-to-benefit ratio	Ideal for mapping fences and other survey features at a higher positional accuracy than 6"	Ideal for mapping fences, survey features, and land divisions (e.g., fences, walls, tree lines, roads)	Satisfactory for conversion projects
<b>Other Notes</b>	More building lean may be noticeable at 3" resolution for taller structures	2-foot contours for engineering grade maps generated at this resolution		



### **What is Uncorrected versus Corrected (Ortho) Aerial Imagery?**

If you are planning to measure ground features or to create maps from your aerial images, then orthorectified imagery is necessary. Orthorectification corrects for tip or tilt of the aircraft and displacement in the photograph caused by changes in the ground elevation.

### **How often should aerial imagery be purchased by your organization?**

We would like to see all counties flown once every five years at a minimum resolution of 12 inches. Rapidly growing counties or developing areas may choose to fly every year.

### **How is a client billed for the imagery?**

Clients are billed upon the complete delivery of the imagery products. Organizations may be able to pay the aerial imagery company over more than one budget cycle.

### **When is leaf-off aerial imagery flown in West Virginia?**

Leaf-off aerial imagery is flown during late February to early April when there is neither no snow on the ground nor flooding. Leaf-on conditions occur about April 10 of every year, depending on the location in the state.

### **When will the aerial imagery be delivered?**

For spring flights, all ensuing deliverables must be completed before the end of the calendar year, and preferably before October 1.

### **What is color-infrared imagery?**

Color-infrared imagery is a false-color image that includes the near-infrared spectral band. Color infrared imagery is good at penetrating atmospheric haze and for determining the health of vegetation.

### **What is oblique imagery?**

Oblique imagery is aerial photography that is captured at approximately a 45-degree angle with the ground and thus allows viewers to see and measure not only the top of objects but the sides as well. Typically, oblique imagery requires proprietary software to view.

### **What are Benefits of a Statewide Imagery Program?**

A coordinated statewide imagery program employs a collective approach where partners share imagery acquisition costs in an equitable manner and based on the available funding of organizations.

- Excellent value through:
  - economy of scale
  - partner funding
  - efficiency in implementation
- Data-sharing among members
- Specifications and QA/QC support
- RFP and contract administrative support



**Business Case for Aerial Imagery. What is it used for?**

- Aerial imagery is used throughout West Virginia to meet daily business needs. Imagery has many uses, including providing a common operating picture and accurately mapping the locations of natural and man-made features.
- Access to current imagery improves business efficiency and informs decision making.

**What is the MrSID compression ratio?**

MrSID (Multi-resolution Seamless Image Database) is a highly compressed format used to store images of photographs. The MrSIDs by default are compressed to a 20 to 1 ratio generation 4.

**What is the defaults county border buffer?**

The county border buffer is 1000 feet unless otherwise noted. The county can expand the buffer by adding the additional specifications in the Memorandum of Understanding.

**What does The Thrasher Group offer a 4-inch resolution product?**

The 4-inch resolution allows for two-foot contour accuracy, provides a spatial resolution that is slightly better than Google Earth, and captures slightly more detail than the 6-inch resolution product.