

BOARD OF SUPERVISORS AGENDA ITEM REPORT CONTRACTS / AWARDS / GRANTS

○ Award	ct	Requested Board Meeting Date: 08/17/2020
* = Mandatory, information must be provided		or Procurement Director Award \Box
*C =	Name/Cranter (DBA)	

*Contractor/Vendor Name/Grantor (DBA):

Pictometry International Corp

*Project Title/Description:

Aerial Photography Services

*Purpose:

Amendment of Award: Master Agreement No. MA-PO-16-266, Amendment No. 04. This Amendment is for a one-time increase in the amount of \$145,210.50 for a cumulative not-to-exceed contract amount of \$1,848,811.99. This increase is for high resolution imagery of the Bighorn Fire burn scar, assisting Regional Flood Control in the construction of terrain models. Administering Department: Information Technology.

*Procurement Method:

Pursuant to Pima County Procurement Code 11.24.010, Cooperative procurement authorized, on April 05, 2016, the Board of Supervisors approved an award of contract effective 04/06/2016 to 04/05/2022 and an award amount of \$1,570,209.00.

On June 07, 2016, the Board of Supervisors approved Amendment No. 01, which increased the contract not-to-exceed amount by \$81,070.00 for a revised contract not-to-exceed amount of \$1,651,279.00. This increase was to cover the additional aerial photography of the Altar Valley Watershed to develop a watershed restoration plan.

On April 03, 2018, the Board of Supervisors approved Amendment No. 02, which increased the contract not-to-exceed amount by \$24,200.00 for a revised contract not-to-exceed amount of \$1,675,479.00. This increase was for an additional 79 sq. miles of high resolution imagery.

On May 19, 2020, the Board of Supervisors approved Amendment No. 03, which increased the contract not-to-exceed amount by \$28,122.49 for a revised contract not-to-exceed amount of \$1,703,601.49. This increase was for an additional 32 sq. miles of high resolution imagery.

PRCUID: 199994

Attachment: Contract Amendment No. 04 and Award Amendment Ratification Request Memo/Department Memo.

*Program Goals/Predicted Outcomes:

To obtain additional aerial photography images and historical images of Pima County. Pima County department utlize the Geo-referenced aerial photographs to provide optimum service to Pima County residents.

*Public Benefit:

This imagery is currently used by multiple County departments in a variety of ways which include generating revenue for the County, inventorying and managing County assets, enhancing Public safety efforts and supporting the County's economic development planning.

*Metrics Available to Measure Performance:

Department will review accuracy and quality of the images provided by the contractor.

*Retroactive:

No. Contract was executed by Chair on 08/03/2020 for Board ratification on 08/17/2020.

To: COB 08.04.2020 (1)

vers: 10 pgs: 10

Document Type: Department Code:	Contract Number (i.e.,15-123):
Commencement Date: Termination Date:	Prior Contract Number (Synergen/CMS):
Expense Amount: \$*	Revenue Amount: \$
*Funding Source(s) required:	
Funding from General Fund? OYes ONo If Yes \$	%
Contract is fully or partially funded with Federal Funds? If Yes, is the Contract to a vendor or subrecipient?] Yes □ No
Were insurance or indemnity clauses modified?] Yes □ No
Vendor is using a Social Security Number?	Yes ☐ No
If Yes, attach the required form per Administrative Procedure 22-	10.
Amendment / Revised Award Information	
Document Type: MA Department Code: PO	Contract Number (i.e.,15-123): 16-266
	ow Termination Date:
	rior Contract No. (Synergen/CMS):
	mount This Amendment: \$ 145,210.50
Is there revenue included?	
*Funding Source(s) required: General Fund	
Funding from General Fund? Yes No If Yes	\$ % <u>100</u>
Grant/Amendment Information (for grants acceptance and awa	ards)
Document Type: Department Code:	Grant Number (i.e.,15-123):
Commencement Date: Termination Date:	Amendment Number:
☐ Match Amount: \$	Revenue Amount: \$
*All Funding Source(s) required:	
*Match funding from General Fund? OYes ONo If Yes	\$ %
*Match funding from other sources? OYes ONo If Yes	\$ %
*Funding Source:	
*If Federal funds are received, is funding coming directly fro Federal government or passed through other organization(s	
Contact: Troy McMaster, Procurement Officer McMaster	The three designation of the control
Department: Procurement Mary Jo Furphy State Control of the Contro	Telephone: 520.724.8728
Department Director Signature/Date: Daniel C. Hunt	ury pa-departure Tamining Non-end
Deputy County Administrator Signature/Date:	18/4/2020.
County Administrator Signature/Date: (Required for Board Agenda/Addendum Items)	erecour 0/4/2010

Page 2 of 2



MEMORANDUM

Date:

August 03, 2020

To:

Honorable Chair Valadez, Pima County Board of Supervisors

From: Mary Jo Furphy, Procurement Director

Re:

Master Agreement No. MA-PO-16-266,

Award Amendment Ratification Request

Master Agreement No. MA-PO-16-266 was awarded by the Board of Supervisors on April 5, 2016 for Aerial Photography Services. The award was for a period of six (6) years (April 6, 2016 to April 5, 2022) in the award amount of \$1,570,209.00. Areas of interest are re-evaluated before each established two-year imagery capture. Several amendments have been processed to add additional funds for those defined projects.

Due to the Bighorn Fire, there is an urgent need to amend the contract to add an unplanned project for high-resolution imagery of the Bighorn Fire burn scar, which Regional Flood Control requires to construct terrain models, and increase the contract amount by \$145,210.50.

ITD is requesting that this amendment be immediately approved to add \$145,210.50. under the authority of the Chair with ratification to follow at the Board of Supervisors' Meeting on August 17, 2020.

Your approval is requested

Ramon Valadez, Chair, Pima County Board of Supervisors

AUG 0 3 2020

Date

Pima County Department of Information Technology

Project: Aerial Photography Services

Contractor: Pictometry International Corp

25 Methodist Hill Drive Rochester, NY 14623

Contract No.: MA-PO-16-266

Contract Amendment No.: 04

Orig. Contract Term: Oria. Amount: 04/06/2016 - 04/05/2022 \$1,570,209.00 Termination Date Prior Amendment: **Prior Amendments Amount:** \$ 133,392.49 04/05/2022 Termination Date This Amendment: 04/05/2022 This Amendment Amount: \$ 145,210.50 **Revised Total Amount:** \$1,848,811.99

CONTRACT AMENDMENT

The parties agree to amend the above-referenced contract as follows:

1. Background and Purpose.

- 1.1. Background. On August 6, 2016, County and Contractor entered into the above referenced agreement to provide Aerial Photography Services. Contract has previously been amended to provide expanded land coverage of Aerial Photography Services.
- **1.2.** Purpose. County requires additional high resolution Aerial Photography Services to cover the Bighorn Fire burned area.
- 2. Maximum Payment Amount. The maximum amount the County will spend under this Contract is increased by \$145,210.50. County's total payments to Contractor under this contract, including any sales taxes, will not exceed \$1,848,811.99.
- 3. Scope of Services. The parties have revised the Scope of Services as follows:
 - **3.1.** The Scope of Work attached to this Amendment as Exhibit A-4 (5 pages) is incorporated into this agreement.
 - 3.2. The Site Map attached to this Amendment as Exhibit B-4 (2 pages) is incorporated into this agreement.
- 4. Israel Boycott Certification. Pursuant to A.R.S. § 35-393.01, if Contractor engages in forprofit activity and has 10 or more employees, and if this Contract has a value of \$100,000.00 or more. Contractor certifies it is not currently engaged in, and agrees for the duration of this Contract to not engage in, a boycott of goods or services from Israel. The certification does not apply to a boycott prohibited by 50 U.S.C. § 4842 or a regulation issued pursuant to 50 U.S.C. § 4842.

No.: MA-PO-16-266

All other provisions of the Contract not specifically changed by this Amendment remain in effect and are binding upon the parties.

PIMA COUNTY

Min Malay

Chairman, Board of Supervisors

AUG 0 3 2020

Date

ATTEST

Clerk of the Board

AUG 0 3 2020

Date

APPROVED AS TO FORM

Deputy County Attorney

Stacey Roseberry Print DCA Name

7/31/2020

Date

CONTRACTOR

-DocuSigned by:

Brian Brockmann

Authorized₁Officer Signature

Brian Brockmann

Printed Name and Title

7/31/2020

Date

Pictometry International Corp. 25 Methodist Hill Drive Rochester, NY 14623 ORDER # C19812459

BILL TO
Pima County, AZ
Jack Lloyd, Manager - Shared Application Platforms
33. N. Stone Ave, 14th Floor
Tucson, AZ 85701
(520) 724-6689
iack.llovd@pima.gov

SHIP TO
Pima County, AZ
John Dickinson, Senior GIS Analyst
33. N. Stone Ave,
14th Floor
Tucson, AZ 85701
(520) 724-6708
john.dickinson@pima.gov

CUSTOMER ID	SALES REP
A115793	bgarcia

QTY	PRODUCT NAME	PRODUCT DESCRIPTION	LIST PRICE	DISCOUNT	AMOUNT
260	T.D. Ch. Drib Cit i CED	L'DAD LA LE L'ATTIACC	0.450.05	PRICE (%)	ф101 632 7 0
269	LiDAR-PURCHASED- 0.7m postings (sq mi) Custom Area	LiDAR data delivered in tiled LAS format, nominal raw post spacing of 0.7m, vertical accuracy sufficient to support optional generation of 1-ft contours (available separately). Customer shall own the copy of this LiDAR product delivered to Customer pursuant to this Agreement. Pictometry shall retain copies of said LiDAR product and shall own those copies. Applicable Terms and Conditions: Order Form	\$472.27	\$377.82 (20%)	\$101,632.50
269	Reveal Essentials Neighborhood	Consists of color-balanced, measurable orthomosaic imagery at a Neighborhood level, generated by a fully automated photogrammetric process, and delivered digitally in various formats with the associated metadata. Applicable Terms and Conditions: Delivered Content Terms and Conditions of Use	\$72.00		\$19,368.00
269	LIDAR-DEM and 1ft Contours (sq mi)	Available with qualifying LiDAR purchase. Gridded bare earth DEM in ArcGIS GRID format and tiled contours at a 1-foot interval in ESRI Polyline Feature Class format. Refer to attached terms and conditions. Applicable Terms and Conditions: Delivered Content Terms and Conditions of Use	\$55.00		\$14,795.00
269	LIDAR DSM - Pictometry (sq mi)	Available with qualifying LiDAR purchase. Gridded first return DSM in ArcGIS GRID format. Refer to attached terms and conditions. Applicable Terms and Conditions: Delivered Content Terms and Conditions of Use	\$35.00		\$9,415.00
1	Media Drive Capacity 931G - Drive Model 1T - EXTPOWER	External USB 2.0 / eSATA Externally Powered. Delivery media prices include copying a complete image library onto media. Sub-warehousing sold separately. Applicable Terms and Conditions: Order Form	\$199.00	\$0.00 (100%)	\$0.00
1	Reveal Orthomosaic - Combined	This product represents a single orthomosaic, combining tiles of multiple resolutions with the best-available resolution preferred Applicable Terms and Conditions: Delivered Content Terms and Conditions of Use	\$0.00		\$0.00

Thank you for choosing Pictometry as your service provider.		\$145,210.50
14 (4 D) (4 D) (4 D) (4 D)	•	•

¹Amount per product = ((1-Discount %) * Qty * List Price)

FEES; PAYMENT TERMS

All amounts due to Pictometry pursuant to this Agreement ("Fees") are expressed in United States dollars and do not include any duties, taxes (including, without limitation, any sales, use, ad valorem or withholding, value added or other taxes) or handling fees, all of which are in addition to the amounts shown above and, to the extent applicable to purchases by Customer, shall be paid by Customer to Pictometry without reducing any amount owed to Pictometry unless documents satisfactory to Pictometry evidencing exemption from such taxes is provided to Pictometry prior to billing. To the extent any amounts properly invoiced pursuant to this Agreement are not paid within thirty (30) days following the invoice due date, such unpaid amounts shall accrue, and Customer shall pay, interest at the rate of 1.5% per month (or at the maximum rate allowed by law, if less). In addition, Customer shall pay Pictometry all costs Pictometry incurs in collecting past due amounts due under this Agreement including, but not limited to, attorneys' fees and court costs.

Due at Initial Shipment of Imagery

\$145,210.50

Total Payments \$145,210.50

PRODUCT PARAMETERS

MOSAIC TILES

Product:Reveal Essentials NeighborhoodLeaf:Leaf Off: Less than 30% leaf cover

Product:Reveal Orthomosaic - CombinedLeaf:Leaf Off: Less than 30% leaf cover

STANDARD ORTHO MOSAIC PRODUCTS

Pictometry standard ortho mosaic products are produced through automated mosaicking processes that incorporate digital elevation data with individual Pictometry ortho frames to create large-area mosaics on an extremely cost-effective basis. Because these products are produced through automated processes, rather than more expensive manual review and hand-touched corrective processes, there may be inherent artifacts in some of the resulting mosaics. While Pictometry works to minimize such artifacts, the Pictometry standard ortho mosaic products are provided on an 'AS IS' basis with respect to visible cutlines along mosaic seams resulting from the following types of artifacts:

- i. Disconnects in non-elevated surfaces generally caused by inaccurate elevation data;
- ii. Disconnects in elevated surfaces (e.g., roadways, bridges, etc.) generally caused by elevated surfaces not being represented in the elevation data;
- iii. Building intersect and clipping generally caused by buildings not being represented in the elevation data;
- iv. Seasonal variations caused by images taken at different times during a season, or during different seasons;
- v. Ground illumination variations caused by images taken under different illumination (e.g., sunny, high overcast, morning light, afternoon light, etc.) within one flight day or during different flight days;
- vi. Single GSD color variations caused by illumination differences or multiple-aircraft/camera captures;
- vii. Mixed GSD color variations caused by adjacent areas being flown at different ground sample distances (GSDs); and
- viii. Water body color variations caused by multiple individual frames being used to create a mosaic across a body of water (e.g., lakes, ponds, rivers, etc.).

Other Pictometry products may be available that are less prone to such artifacts than the Pictometry standard ortho mosaic products.

LIDAR

Product: LiDAR-PURCHASED-0.7m postings (sq mi) Custom Area

Funding Source: Self-funded / None

(see related Terms & Conditions as applicable)

Product: LIDAR-DEM and 1ft Contours (sq mi)

Funding Source: Self-funded / None

(see related Terms & Conditions as applicable)

APPENDIX 1

PHOTOGRAMMETRIC PRODUCT SPECIFICATIONS

LiDAR 0.7 m

This section describes the operational parameters of the ALTM Gemini that Pictometry intends to set for collection of data. Actual collection parameters may vary due to weather conditions and/or air traffic control (ATC) restrictions. Pictometry stipulates the final accuracy of the dataset regardless of actual capture parameters.

CAPTURE PARAMETERS (NOMINAL) – 0.7 M POSTINGS

Flight Altitude: 760m/2500ft Point Spacing: 0.7m

Point Density: 2 points per square meter

Pulse Repetition Freq.: 70kHz
Scan Angle (+/-): 15.8 degrees
Scan Frequency: 56Hz
Swath Width: 430m/1400ft

Overlap: 30%

Vertical Accuracy: 9.25 cm RMSE_z bare earth

18.2 cm NSSDA Vertical Accuracy (95% confidence) - bare earth

Horizontal Accuracy: 25cm; RMSE
Returns: Up to four per pulse
Intensity records: Recorded for each return

Coordinate System: Customer preferred system and units (must be specified and approved in advance of start of work).

Filtering: Automated methods with manual review and clean up with the following minimum performance specifications:

95% of outliers removed 95% of vegetation removed 98% of buildings removed

Contour Interval Meets or exceeds FEMA requirements to generate contours at a 1' interval. **NOTE:** While Pictometry stipulates this

accuracy, independent verification of this accuracy as well as additional independent reporting is usually required to qualify for FEMA funding. Pictometry offers these services through an independent subcontractor for additional cost.

Deliverables:

LiDAR Data

Tiled* LAS v1.2 files including Return Number and Intensity attribute for each return

Duplicate points and 95% of outliers removed

o Ground points classified via automated methods with manual review and clean up

95% of vegetation features removed

98% of buildings removed

Buildings and vegetation not classified separately

NOTE: LiDAR data deliverables will extend approximately 140m beyond the specified project area

Raw GPS/INS data and laser range files with supporting information

FGDC compliant metadata

Estimated Data Sizes (at 0.7m point spacing): 20-25GB per 100 square miles (approximate)

DEM Bare Earth

ESRI Terrain

Pictometry will convert the Bare Earth classified data contained in the LAS files to ESRI Terrain data as a fundamental step toward deriving subsequent bare earth terrain products. Developing the data in this manner will significantly enhance the delivery of data to the Customer and provide maximum flexibility for future use, updates, and edits. **Standard Hydrographic Breaklines (described below) will be incorporated into all terrain deliverables.** Additional breaklines may be developed and incorporated into the terrain at any time.

Digital Elevation Models (DEMs)

The standard DEM deliverable will be assumed to have a 10-foot grid cell size unless otherwise specified by the customer. Pictometry will also develop a Hillshade from the DEM for visualization and cartographic mapping purposes.

Standard Hydrographic Breaklines

Breaklines are linear features that describe a change in the smoothness or continuity of a surface. As part of the baseline effort to create a DEM, Pictometry will develop limited 3D breaklines for water feature boundaries and wide rivers and incorporate those into the ESRI Terrain data prior to generating any derived products. Hydrographic breaklines will be delineated using the LiDAR data with elevation values assigned from the LiDAR data, using best available aerial photography and the National Hydrography Dataset (NHD) as references.

Water bodies will be defined for the purposes of this task as being larger than 5m across, or greater than one (1) acre. Breaklines delineating the edge of water will be created for all such water bodies. Breaklines will not be developed for streams less than 5m across, also referred to in NHD as 'single line streams'.

The standard for water bodies in the USGS Specification is 100ft and two (2) acres respectively. 'Hydro-flattening', as defined in the USGS Specification, will be completed at a minimum on all water bodies meeting the USGS definition. This task is intended to meet or exceed the requirements for 'Hydro-flattening' in the USGS Specification.

For flat and level water bodies (ponds, lakes), a single elevation value will be assigned to the entire polygon and/or to every bank vertex. The entire water surface edge will be at or just below the immediately surrounding terrain. For streams and rivers, breaklines indicating flat and level bank-to-bank conditions (perpendicular to the apparent flow centerline) will be created, with the gradient along the bank to follow the immediately surrounding terrain. Monotonicity will be enforced on breaklines meeting the USGS Specification. Stream and river breaklines delineating the edge of water will stop at road crossings (i.e., culvert locations).

Bare earth LiDAR points that are within the design Nominal Point Spacing (NPS) of a breakline will be re-classified as 'Ignored Ground' once the breaklines have been completed. The design NPS of a LiDAR collection is typically between 1 and 2 meters, but may be greater or less depending on the collection specifications of the project.

The identification and prioritization of additional breaklines beyond those minimally described here represents a wide range of expectations and detail depending on specific project/customer needs and intended uses. Most customized uses of breaklines are appropriate for project specific purposes, such as hydraulic modeling, construction site design or transportation engineering. As such, additional breakline development options are offered below. Additional detailed breaklines can be developed and incorporated into the terrain data at any time.

Deliverables

Collection-wide point data (bare earth only) in ESRI multi-point format Collection-wide Terrain Data Model (bare earth) in ArcGIS TERRAIN format Collection-wide Digital Elevation Model (bare earth) in ArcGIS GRID format Collection-wide polyline files in ESRI Polyline Feature Class format Collection-wide Hillshade of the Bare earth DEM in ArcGIS format

Contours

The range of available algorithms can result in significant differences in cartographic output quality for the generation of topographic contours. Some methods more accurately represent the point data, but result in a more angular and less cartographically pleasing output. Other methods will smooth the data to varying degrees but produce a much higher quality cartographic output. The customer will be given options, based on demo data, for having their collection area contours created from smoothed data or not-smoothed data.

This task will result in vector (line) data and as such, tiling the data will be required because the vector files can be quite large. The output tiling scheme will correspond to the LiDAR tiles unless the customer requests a different tiling scheme in advance. Final tiled vector data will be seamless and free of edge effects. Pictometry will establish elevation attributes to each contour line and identify 10, 20, and 50 ft. index contours unless otherwise specified by the Customer.

Deliverables:

Tiled 1-foot or 2-foot* contour files in ESRI Polyline Feature Class format. (*NOTE: Contours will be created at maximum resolution supported by the collection as specified in Section A.)

DSM (Reflective Surface)

Pictometry will convert the data contained in the LAS files to a raster based Digital Surface Model (DSM) representing a 'first surface' detected by the sensor. This first surface is represented by both bare ground in open terrain, as well as the tops of trees and buildings in areas with significant non-ground features. The elevation value of each cell in the raster dataset will represent the highest elevation value of points that fall within that cell. This surface model will not include the development or use of additional breaklines beyond that which are included with the bare earth data. Included with each DSM will be a Hillshade for visualization and cartographic purposes.

Pictometry will also calculate and deliver a 'normalized' Digital Surface Model (nDSM) where the elevation value of each cell represents the height above ground of the highest point within that cell. For both surface models, cells with no points will be interpolated based on the averaged values of nearby cells (nearest neighbor).

Pictometry recommends including some cautionary language to all potential users of DSM data due to some of the unique characteristics of such a dataset. In some areas, a first surface model will result in objects that appear to contain a solid volume, so caution should be used when interpreting the data. Pictometry does not recommend the use of image draping on first surface DSM models as the image stretching can be aesthetically undesirable.

Deliverable:

Collection-wide DSM and nDSM in ArcGIS GRID format with 10 foot grid cell size unless otherwise specified by the Customer.

Essentials Neighborhood deliverables

Product	Essentials Neighborhood	
Orthomosaic Specifications	Resolution at 6in GSD	
	Typical Positional Horizontal Accuracy: 1m at a 95% confidence level	
	Fully automated photogrammetric orthomosaic. Imagery may contain	
	seamlines	
	Project-wide color and contrast balancing	
Metadata and Reporting	Metadata:	
	Metadata generated that meets FGDC Standards upon request	
	Shapefile(s) with discrete deliverable boundaries and directional metadata	
Orthomosaic Deliverable	Resolution:	
Format (Online)	Resolution at 6in GSD	
	Access Methods:	
	Available via web-based viewer (Connect) - Contracted separately	
	Also available via WMS/WMTS (Image Service) - Contracted separately	
Orthomosaic Deliverable	Resolution:	
Format (Physical)	Resolution at 6in GSD	

	Projection/Coordinate System:	
	Customer Selectable	
	Datum:	
	Customer Selectable	
	File Format:	
	Mosaic Tiles	
	 Available as JPEG, GeoTIFF, JPEG2000, PNG, ECW, MrSID (All versions) with world file 	
	 Includes separate Pictometry Map Image (PMI) trailer file 	
	Project-Wide Mosaic	
	 Available in ECW, MrSID (All versions) format 	
Delivery Timeline	 Best efforts to make ortho imagery available online and/or ready for 	
	physical delivery within 30 days of capture completion	

MAP(S)



