

**Submitted for:** Countywide GIS Program

Recommended by: Steve Bordelon Feb. 16, 2018  
Department Director Date

Approved by: Veronica C. Baker 3/6/18  
County Administrator Date

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact

Fiscal Years	2018	2019	2020	2021	2022
Capital Expenditures	\$0	0	0	0	0
Operating Costs	\$0	0	0	0	0
External Revenues	\$0	\$0	\$0	\$0	\$0
Program Inc (County)	0	0	0	0	0
In-Kind Match (County)	0	0	0	0	0
NET FISCAL IMPACT	\$0	\$0	\$0	\$0	\$0
# Additional FTE Positions (Cumulative)	0	0	0	0	0

Is Item Included in Current Budget      Yes \_\_\_\_ No X  
Does this item include the use of federal funds      Yes \_\_\_\_ No X  
Revenue Budget Number:      Fund \_\_\_\_ Dept \_\_\_\_ Unit \_\_\_\_ RevSrc \_\_\_\_

B. Recommended Sources of Funds / Summary of Fiscal Impact

C. Department Fiscal Review: RT Chahal 2/21/18

III. REVIEW COMMENTS

A. OFMB Fiscal and/or Contract Development & Control Comments:

Sup. Ponce 2/28/18      2/28 OFMB      2/28/18      2/28/18  
2/28/18      3/2/18 Contract Administration      3/2/18

B. Legal Sufficiency:

RL C. C. 3/5/18  
Assistant County Attorney

C. Other Department Review:

\_\_\_\_\_  
Department Director

THIS SUMMARY IS NOT TO BE USED AS A BASIS FOR PAYMENT.



## United States Department of the Interior

National Geospatial Technical Operations Center

U.S. Geological Survey  
1400 Independence Road  
Rolla, MO 65401

U.S. Geological Survey  
Box 25046 MS 510  
Denver, Colorado 80225

### **AMENDMENT #2 TO JOINT FUNDING AGREEMENT FOR PALM BEACH COUNTY LIDAR PROCURMENT**

January 30, 2018

Christine Benkley  
County GIS Coordinator  
Palm Beach County  
301 North Olive Ave.  
West Palm Beach, FL 33401  
(561) 233-5305

Ms. Benkly,

This letter is to modify the Joint Funding Agreement (JFA) #16H5FL001 originally dated 22 March, 2015 and modified 16 September, 2016 between the U.S. Geological Survey (USGS), National Geospatial Technical Operations Center (NGTOC) and the Palm Beach County Board of County Commissioners for the procurement of lidar data and derivative elevation products. The project required a revision to the delivery schedule causing it to no longer be aligned with the timing of the billing schedule. As a result of this change the agreement will need to be extended to accommodate the new billing terms.

The purpose of this amendment is to extend the end date and to define an updated billing schedule.

Accordingly, section 2 of the agreement is hereby modified to read as follows:

2 (a). \$177,840.00 by the party of the first part during the period March 31<sup>st</sup> 2016 to **August 31<sup>st</sup> 2018.**

2 (b). \$512,000 by the party of the second part during the period March 31<sup>st</sup> 2016 to **August 31<sup>st</sup> 2018.**

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Section 9 of the agreement is hereby modified to read as follows:

USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered \$200K within one week of 1/1/17, \$100K within one week of 4/1/17, \$42K within one week of 7/1/17, \$45K within one week of 10/1/17, \$40K within one week of 1/1/18, **\$1K within one week of 3/15/18 and the remaining balance of the agreement amount within one week of 6/15/18.** Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

This amendment does not affect any of the other terms of the agreement.

Please have the approving official sign this amendment and return a fully executed copy to the following address:

Walter Kloth  
USGS, National Geospatial Technical Operations Center (NGTOC)  
P.O. Box 25046, MS 510  
Denver, CO 80225-0046  
Phone: (303) 202-4334.

It would also be acceptable if you should choose to return a PDF of the fully executed amendment to the following E-Mail address: [wkloth@usgs.gov](mailto:wkloth@usgs.gov).

If you have questions or need additional information, please contact Walter Kloth as shown above. Thank you for your participation in this cooperative effort.

U.S. GEOLOGICAL SURVEY,  
NATIONAL GEOSPATIAL TECHNICAL  
OPERATIONS CENTER (NGTOC)

**KARI  
CRAUN**

Digitally signed  
by KARI CRAUN  
Date: 2018.01.30  
15:23:41 -06'00'


(Signature)

Kari J. Craun  
Director, NGTOC

Date 1/30/2018

PALM BEACH COUNTY BOARD  
OF COUNTY DIRECTORS

(Signature)

Steve Bordelon   
Director, PBC Information System  
Services

Date 2-16-2018

APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY





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National Geospatial Technical Operations Center

U.S. Geological Survey  
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NATIONAL GEOSPATIAL TECHNICAL  
OPERATIONS CENTER (NGTOC)

**KARI  
CRAUN**

Digitally signed  
by KARI CRAUN  
Date: 2018.01.30  
15:23:41 -06'00'

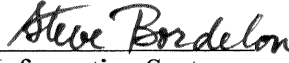
(Signature)

Kari J. Craun  
Director, NGTOC

Date 1/30/2018


PALM BEACH COUNTY BOARD  
OF COUNTY DIRECTORS

(Signature)

Steve Bordelon   
Director, PBC Information System  
Services

Date 2-16-2018

APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY

  
County Attorney



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(561) 233-5305

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NATIONAL GEOSPATIAL TECHNICAL  
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**KARI  
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(Signature)

Kari J. Craun  
Director, NGTOC

Date 1/30/2018

PALM BEACH COUNTY BOARD  
OF COUNTY DIRECTORS

(Signature)

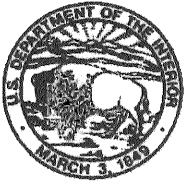
Steve Bordelon   
Director, PBC Information System  
Services

Date 2-16-2018

APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY

  
County Clerk





## United States Department of the Interior

National Geospatial Technical Operations Center

U.S. Geological Survey  
1400 Independence Road  
Rolla, MO 65401

U.S. Geological Survey  
Box 25046 MS 510  
Denver, Colorado 80225

### AMENDMENT TO JOINT FUNDING AGREEMENT FOR PALM BEACH COUNTY LIDAR PROCURMENT

August 30, 2016

Christine Benkley  
County GIS Coordinator  
Palm Beach County  
301 North Olive Ave.  
West Palm Beach, FL 33401  
(561) 233-5305

Ms. Benkly,

This letter is to modify the Joint Funding Agreement (JFA) #16H5FL001 dated 22 March, 2015 between the U.S. Geological Survey (USGS), National Geospatial Technical Operations Center (NGTOC) and the Palm Beach County Board of County Commissioners for the procurement of lidar data and derivative elevation products. The project was delayed to the next suitable capture window which caused the billing sequence to no longer be aligned with the timing of the project. As a result of this change the end date of the agreement will need to be extended to accommodate the new billing terms.

The purpose of this amendment is to extend the end date and to define the new billing terms.

Accordingly, section 2 of the agreement is hereby modified to read as follows:

2 (a). \$177,840.00 by the party of the first part during the period March 31<sup>st</sup> 2016 to May 31<sup>st</sup> 2018.

2 (b). \$512,000 by the party of the second part during the period March 31<sup>st</sup> 2016 to May 31<sup>st</sup> 2018.

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This amendment does not affect any of the other terms of the agreement.

**Please have the approving official sign this amendment and return a fully executed copy to the following address:**

Mark Gewinner  
USGS, National Geospatial Technical Operations Center (NGTOC)  
1400 Independence Road, MS 323  
Rolla, MO 65401  
Phone: (573) 308-3636.

It would also be acceptable if you should choose to return a PDF of the fully executed amendment to the following E-Mail address: [mgewinner@usgs.gov](mailto:mgewinner@usgs.gov).

If you have questions or need additional information, please contact Mark Gewinner as shown above. Thank you for your participation in this cooperative effort.

U.S. GEOLOGICAL SURVEY,  
NATIONAL GEOSPATIAL TECHNICAL  
OPERATIONS CENTER (NGTOC)

PALM BEACH COUNTY BOARD  
OF COUNTY DIRECTORS

KARI CRAUN

Digitally signed by KARI CRAUN  
DN: c=US, o=U.S. Government,  
ou=Department of the Interior, ou=Geological  
Survey, cn=KARI CRAUN,  
0.9.2342.19200300.100.1.1=14001000295101  
Date: 2016.08.31 08:51:54 -0500

(Signature)

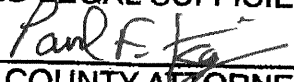
Kari J. Craun  
Director, NGTOC

Date August 30, 2016

  
(Signature)

Steve Bordelon  
Director, PBC Information System  
Services

Date 9/16/16

APPROVED AS TO FORM  
AND LEGAL SUFFICIENCY  
  
COUNTY ATTORNEY

Form 9-1366  
(April 2015)

U.S. DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Customer #:  
Agreement #:  
Project #:  
TIN #: 59-6000785  
Fixed Cost Agreement NO

JOINT FUNDING AGREEMENT

FOR

2016 Palm Beach County, Florida Lidar Collection and Processing Project

THIS AGREEMENT is entered into as of the, 22nd day of March, 2016 by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the Palm Beach County Board of County Commissioners, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation activities for the procurement of lidar data and derivative elevation products (see attached Statement of Work) herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$0.00
- (a) by the party of the first part during the period
- | Amount       | Date                   | to | Date           |
|--------------|------------------------|----|----------------|
| \$177,840.00 | Date of last signature |    | March 31, 2017 |
- (b) by the party of the second part during the period
- | Amount       | Date                   | to | Date           |
|--------------|------------------------|----|----------------|
| \$512,000.00 | Date of last signature |    | March 31, 2017 |
- (c) Contributions are provided by the party of the first part through other USGS regional or national programs, i the amount of: \$0.00
- Description of the USGS regional/national program:
- (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.
3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.



- 5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the part of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
- 6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner either party may terminate this agreement upon 60 days written notice to the other party.

9-1366 (Continuation)

Customer #:

Agreement #:

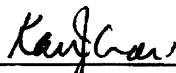

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to tha for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement the cooperative relations between the parties.

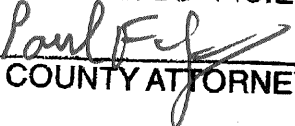
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered within one week of the following dates, independent of delivery: April 1, 2016 for \$200,000.00, July 1, 2016 for \$142,000, September 1, 2016 for \$85,000, and January 1, 2017 for the remaining balance of the agreement amount.. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey United States Department of the Interior		Palm Beach County Board of County Commissioners	
USGS Point of Contact		Customer Point of Contact	
Name:	Louis Driber, Geospatial Liaison to Florida	Name:	Christine Benkly, County GIS Coordinator
Address:	1400 Village Square Blvd, Suite 3-133 Tallahassee, FL 32312	Address:	301 North Olive Ave., West Palm Beach, FL 33401
Telephone:	850-345-9410	Telephone:	561-233-5305
Email:	ldriber@usgs.gov	Email:	cbenkly@pbcgov.org

Signatures and Date

Signature:	Date:	Signature:	Date:
	3/14/2016		3-22-16
Name:	Kari J. Craun	Name:	Steve Bordelon
Title:	Director, USGS-NGTOC	Title:	Director, PBC Information System Services

APPROVED AS TO FORM AND LEGAL SUFFICIENCY



COUNTY ATTORNEY

**STATEMENT OF WORK**  
**FOR THE**  
**PALM BEACH COUNTY, FLORIDA**  
**2016 LIDAR DATA ACQUISITION AND**  
**PRODUCT DEVELOPMENT PROJECT**  
**BAA G15PS00558 3DEP AWARD**

**MARCH 1, 2016**

**1) Purpose:**

The USGS, Federal Emergency Management Agency, and Palm Beach County Board of County Commissioners will collaborate to acquire high-resolution LiDAR data and produce derived elevation products covering an area of approximately 2,000 square miles over Palm Beach County, as shown in Attachment A. This project is for 2016 spring acquisition of high resolution LiDAR data and generation of derived products. The LiDAR data will be processed to produce a classified point cloud, tile-based bare earth Digital Elevation Models (DEMs), topographic contours, and related products. In addition, to the extent funding allows, optional deliverables produced include QL2+ point cloud (4 points per meter) and building outlines. All resulting elevation products will be placed in the public domain and will be made available for viewing and download through the USGS National Map.

**2) Statement of Work**

USGS will select a qualified vendor to perform the LiDAR collection and processing via the Bureau's Geospatial Product and Service Contract (GPSC). GPSC task orders are awarded to qualified vendors through federal government solicitation. Qualified consultants are selected in accordance with Public Law 92-528 (Brooks Act) and FAR 36.6 - Architect-Engineering Services, which establishes a qualifications-based selection process, in which contracts for Architectural and Engineering services are negotiated on the basis of demonstrated competence and qualification for the type of professional services required at a fair and reasonable price. Vendor selection is based on the following 6 criteria (1) Professional qualifications necessary for satisfactory performance of required services; (2) Specialized experience and technical competence in the type of work required; (3) Capacity to accomplish the work in the required time; (4) Past performance on contracts with Government agencies and private industry in terms of cost control, quality of work, and compliance with performance schedules; (5) Location in the general geographical area of the project and knowledge of the locality of the project and (6) Acceptability under other appropriate evaluation criteria. This process is aligned with the Department's consultant RFP and selection process.

USGS will contribute project funding to the project, administer data quality assurance and quality control (QA/QC), and manage all data deliverables. All land surveys conducted in support of this project will be performed by a qualified professional land surveyor licensed by the State of Florida.

The Task Order issued by USGS to the selected GPSC Contractor provides full details regarding project collection requirements and resulting deliverables.

USGS will:

- In combination with FEMA, contribute a BAA share of \$228,000 in support of total project cost (USGS: \$177,840, FEMA: \$50,160).
- Prepare a Task Order for agreed upon products and services.
- Serve as Government Point of Contact during the full period of the Agreement.
- Receive and catalog all project deliverables.
- Inspect all deliverables.
- Prepare product Validation Summary Report(s) and distribute to relevant project Points of Contact.
- Return data to Contractor as needed for error correction/rework.

Palm Beach County Board of County Commissioners will:

- Provide \$512,000.00 for production activities associated with LiDAR collection, processing, and derivative product generation. This includes the applicable GPSC assessment fee which is calculated by USGS as 5% of the total contracted project cost.

**3) Specifications and Deliverables**

All specifications and deliverables will meet or exceed the (Quality Level 2) U.S. Geological Survey LiDAR Guidelines and Base Specification, v 1.2 (<http://pubs.usgs.gov/tm/11b4/>). To supplement USGS specifications, FEMA-specific requirements such as cross section surveys, treatment of bridges and other features appearing in FEMA Procedure Memorandum No. 61 – Standards for LiDAR and Other High Quality Digital Topography, (<http://www.fema.gov/media-library/assets/documents/6998?id=2206>) will be adhered to and reflected in final product delivery.

**4) Project Data Specifications**

Quality Level	Aggregate nominal pulse spacing	Aggregate nominal pulse density	Minimum DEM Cell Size	Absolute Vertical Accuracy for DEMs		
				RMSEz nonvegetated	NVA at 95-percent confidence level	VVA at 95th percentile
	(m)	(pulses/m2)	(m)	(cm)	(cm)	(cm)
2	<=0.71	>2	1	10	19.6	29.4

NOTE: NVA, non-vegetated vertical accuracy, VVA - vegetated vertical accuracy

**Table 1 Key parameters from the USGS Lidar Base Specification 1.2**

- a) Vertical Datum:  
NAVD88 using the most recent approved Geoid model from the National Geodetic Survey (NGS) for purposes of performing conversions from ellipsoidal heights to orthometric heights.
- b) Horizontal Datum:  
Horizontal NAD83/ High Accuracy Reference Network 2007 adjustment (NAD83/2007).
- c) Coordinate System and Projection:  
NAD 1983 HARN Florida State Plane, East Zone (0901), units in U.S. Survey Feet.
- d) Tiling Scheme:  
1,500 x 1,500-foot regular grid.
- e) Ground Points:  
Full Point Cloud, LAS 1.4 format
- f) Contours, Breaklines, Building outlines (optional):  
If included as a project deliverable, ESRI file geodatabase format.
- g) Data Quality and Flight Season  
Where possible:
  - LiDAR collection during leaf-off season.
  - LiDAR will not be collected prior to 72 hours following a rain event of 0.5-inches or greater within the project area. Ground conditions shall be free of extensive flooding or any other type of inundation.
  - LiDAR data collection will not occur during high water events.
  - Atmospheric conditions shall be cloud, fog and smoke free during all collection operations.
- h) Tie to Existing LiDAR Data  
To the extent practical, LiDAR data collected for this project will be tied to LiDAR-derived elevations collected during previous adjacent projects so as to minimize differences in surface elevations at the intersecting seams of the project areas. The relevant adjacent elevation information will be provided to USGS by the customer. The vertical difference along a tie-edge will not exceed the Fundamental Vertical Accuracy (FVA) in consolidated terrains or the Supplemental Vertical Accuracy (SVA) in specific vegetation types.
- i) Digital Elevation Model (DEM) and Derived Contours:  
Bare Earth, hydro-flattened, grid posting no greater than 1-meter and no less than the design Aggregate Nominal Pulse spacing. DEM data set will comprise of individually tiled DEM files formatted to ESRI 32-bit floating point grid. One foot machine generated topographic contours shall be produced from hydro-flattened bare earth DEMs.



- j) Metadata:  
Processed LiDAR data and derived products will include FGDC-compliant metadata.
- k) Data Delivery Media:  
External Hard Drive

#### **5) Schedule and Data Delivery**

The LiDAR collection component of this project is planned to occur from April 1, 2016 through May 15, 2016, or as acceptable capture conditions allow. All processed data and derived products defined in the USGS project Task Order will be sent directly to USGS National Geospatial Technical Operations Center by the GPSC Contractor for evaluation.

USGS will evaluate project deliverables within 60 days of receipt. Substandard deliverables will be returned to the Contractor for correction/rework. The Contractor will remedy all discrepancies identified and return corrected deliverables to USGS within 30 days of notification for subsequent inspection. Upon acceptance of project deliverables, the Contractor will provide a copy of all deliverables to the Palm Beach County Board of County Commissioners LiDAR project Point of Contact.

#### **6) Other terms**

Every effort will be made to award contract(s) to complete the work as described in this SOW. However, if the total funding amount is not sufficient to complete the work as described, then adjustments will be made to either obtain additional funding, or, the project will be re-scoped to the mutual satisfaction of all stakeholders. To the extent funding allows, optional deliverables produced will include QL2+ point cloud (4 points per meter) and building outlines as defined by Palm Beach County Board of County Commissioners, in the following prioritized order:

- 1) QL2+
- 2) Building outlines for the entire PBC AOI
- 3) Building outlines in Boynton Beach
- 4) Building outlines for unincorporated PBC (1650 sq. miles)
- 5) Building outlines for the "URA" (42 sq. miles) and in the Archaeology areas of interest (291 sq. miles)
- 6) Building outlines in the Glades "USA" (60 sq. miles)

Data over military properties is not anticipated to be shared with partners or the public, unless clearance is provided. Should unexpected restrictions affect access to other data over military properties, then only federal funds will be applied to those areas.

Data acquisition will be scheduled to begin at the east (Atlantic) coast of Palm Beach County and progress westward. If data acquisition cannot be completed during a single season due to unacceptable capture conditions, then it is possible that the remaining AOI would be acquired during the next suitable collection window which may or may not be in the same calendar year.

7) **Contacts**

<b>USGS Financial Contacts:</b>		<b>Palm Beach Co. Financial Contact:</b>
Jim Almekinder	Name	Robert Busch
US Geological Survey		Palm Beach County Board of County Commissioners
1400 Independence Road, MS317	Address	301 N Olive Ave
Rolla, MO 65401		West Palm Beach, FL 33401
573-308-3549	Telephone	561-355-2918
<a href="mailto:jalmekinder@usgs.gov">jalmekinder@usgs.gov</a>	E-Mail	<a href="mailto:rbusch@pbcgov.org">rbusch@pbcgov.org</a>
Debbie Prater	Name	
US Geological Survey		
1400 Independence Road, MS318	Address	
Rolla, MO 65401		
573-308-3643	Telephone	
<a href="mailto:dprater@usgs.gov">dprater@usgs.gov</a>	E-Mail	

<b>USGS Delivery to:</b>		<b>Palm Beach Co. Delivery to:</b>
Patrick Emmett	Name	Christine Benkly
US Geological Survey		Palm Beach County Board of County Commissioners
1400 Independence Road	Address	301 N. Olive Ave
Rolla, MO 65401		West Palm Beach, FL 33401
573-308-3587	Telephone	561-233-5305
<a href="mailto:pemmett@usgs.gov">pemmett@usgs.gov</a>	E-Mail	<a href="mailto:cbenkly@pbcgov.org">cbenkly@pbcgov.org</a>

# Attachment A

## PALM BEACH COUNTY, FLORIDA 2016 LIDAR DATA ACQUISITION AND PRODUCT DEVELOPMENT PROJECT

