Memorandum

MIAMI-DADE COUNTY

Date: April 6, 2010

To: Honorable Chairman Dennis C. Moss
and Members, Board of County Commissioners

Agenda Item No. 9(A)(1)

From: George M. Burgess
County Manager

Subject: Request to Enter into a Locally Funded Agreement with the Florida Department of Transportation, in the amount of $869,925.95

RECOMMENDATION

It is recommended that the Board of County Commissioners (Board) authorize the County Mayor or Mayor's designee to execute the attached Locally Funded Agreement and accompanying Memorandum of Agreement establishing the terms under which Miami-Dade County and the State of Florida's Department of Transportation (FDOT) will share the costs of obtaining raster imagery, surveying and aerial photography services. The costs for the services are being allocated on a pro-rated basis to both parties by geographic coverage area. The services provided under this agreement will support the County's Geographic Information System (GIS).

SCOPE

The impact of this project is countywide as GIS is a prominent technology used in the County's network portal (Miamidade.gov) and is fully integrated into operational systems such as 3-1-1 and 9-1-1.

FISCAL IMPACT

The total cost of this project is $1,169,925.95 of which FDOT will pay $300,000 and the County will pay $869,925.95. The County's portion will be funded from General and Internal Service Funds and will be used to access two contracts to obtain raster imagery, surveying and aerial photography services. The County will advance $431,353.63 to FDOT to be deposited into the State Transportation Trust Fund for the services that will be provided through FDOT contract No. C-8093. In the event that the project is terminated before completion, the balance of County's funds will be returned to the County. Services will also be provided through the County's existing Project Specific Services Agreement No. E05-MDAD-02 awarded by the Board on May 25, 2006 and will be funded from the remaining $438,572.32 of the County's share of the project costs.

PROJECT MONITOR

The County contracted portion of the project will be managed by Martha Guerra, Systems Support Manager, and FDOT's contracted portion will be managed by Scott Perkins, P.E. Project Manager. The Locally Funded Agreement is managed by Michelle L. Meaux, JPA Coordinator.

BACKGROUND

The services that will be obtained through this joint effort will support the GIS applications that both entities maintain. FDOT uses the data and information to support FDOT maintained roadways, while the County will use the data and images to provide enhanced support to 3-1-1, 9-1-1 and all other County services, citizens, and businesses that depend on the County's GIS applications. For example, GIS is a key component in maintaining the County's infrastructure owned and managed by the Water and Sewer Department (WASD), Department of Environmental Resources Management (DERM), Public Works, Planning and Zoning, and Property Appraiser among others.

Additionally, current GIS information is critical to areas such as Emergency Management, Homeland Security and first responders.

Assistant County Manager

MEMORANDUM

(Revised)

TO: Honorable Chairman Dennis C. Moss and Members, Board of County Commissioners

DATE: April 6, 2010

FROM: R. A. Cuevas, Jr. County Attorney

SUBJECT: Agenda Item No. 9(A)(1)

Please note any items checked.

_____ **"3-Day Rule" for committees applicable if raised**

_____ **6 weeks required between first reading and public hearing**

_____ **4 weeks notification to municipal officials required prior to public hearing**

_____ **Decreases revenues or increases expenditures without balancing budget**

_____ **Budget required**

_____ **Statement of fiscal impact required**

_____ **Ordinance creating a new board requires detailed County Manager's report for public hearing**

_____ **No committee review**

_____ **Applicable legislation requires more than a majority vote (i.e., 2/3's ____, 3/5's ____, unanimous _____) to approve**

✓ **Current information regarding funding source, index code and available balance, and available capacity (if debt is contemplated) required**

Approved _____ Mayor
Veto _____
Override _____

Agenda Item No. 9(A)(1)
4-6-10

RESOLUTION NO. _____

RESOLUTION AUTHORIZING EXECUTION OF A LOCAL FUNDED AGREEMENT WITH THE STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION, IN AN AMOUNT NOT TO EXCEED $869,925.95; TO OBTAIN RASTER IMAGERY AND AERIAL PHOTOGRAPHY SERVICES

WHEREAS, this Board desires to accomplish the purposes outlined in the accompanying memorandum, a copy of which is incorporated herein by reference,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MIAMI-DADE COUNTY, FLORIDA, that this Board approves the execution of the Locally Funded Agreement between Miami-Dade County and the State of Florida Department of Transportation (FDOT) to enable the County to obtain raster imagery and aerial photography, in an amount not to exceed $869,925.95; authorizes the County Manager to execute same for and on behalf of Miami-Dade County and to exercise all provisions contained therein.

The foregoing resolution was sponsored by Commissioner , who moved its adoption. The motion was seconded by Commissioner and upon being put to a vote, the vote was as follows:

Dennis C. Moss, Chairman
Jose "Pepe" Diaz, Vice-Chairman

Bruno A. Barreiro
Carlos A. Gimenez
Barbara J. Jordan
Dorrin D. Rolle
Katy Sorenson
Sen. Javier D. Souto
Audrey M. Edmonson
Sally A. Heyman
Joe A. Martinez
Natacha Seijas
Rebeca Sosa

The Chairman thereupon declared the resolution duly passed and adopted this 6th day of April, 2010. This resolution shall become effective ten (10) days after the date of its adoption unless vetoed by the Mayor, and if vetoed, shall become effective only upon an override by this Board.

MIAMI-DADE COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

HARVEY RUVIN, CLERK

By:_____
Deputy Clerk

Approved by County Attorney as
to form and legal sufficiency.

Oren Rosenthal

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MEMORANDUM OF AGREEMENT

THIS AGREEMENT, made and entered into this _____, day of _____, 20__, by and between the State of Florida, Department of Transportation, hereinafter referred to as "FDOT" and the State of Florida, Department of Financial Services, Division of Treasury and Miami-Dade County hereinafter referred to as the "Participant".

WITNESSETH

WHEREAS, "FDOT" is currently constructing the following project:

Financial Project Number: 250608-1-32-06
County: Miami-Dade

hereinafter referred to as the "Project".

WHEREAS, FDOT and the Participant entered into a **Locally Funded Agreement** dated _____, wherein DOT agreed to perform certain work on behalf of the Participant in conjunction with the Project.

WHEREAS, the parties to this AGREEMENT mutually agreed that it would be in the best interest of the FDOT and the Participant to establish an interest bearing escrow account to provide funds for the work performed on the Project on behalf of the Participant by the FDOT.

NOW THEREFORE, in consideration of the premises and the covenants contained herein, the parties agree to the following:

1. An initial deposit in the amount of $431,353.63 (FOUR HUNDRED THIRTY ONE THOUSAND THREE HUNDRED FIFTY THREE DOLLARS AND SIXTY THREE CENTS) will be made by the Participant into an interest bearing escrow account established by the FDOT for the purposes of the project. Said escrow account will be opened with the Department of Financial Services, Division of Treasury, Bureau of Collateral Management on behalf of the FDOT upon receipt of this Memorandum of Agreement. Such account will be an asset of FDOT.

2. Other deposits will be made only by the Participant as necessary to cover the cost of additional work prior to the execution of any Supplemental Agreements.

3. All deposits shall be made payable to the Department of Financial Services, Revenue Processing and mailed to the FDOT Office of Comptroller for appropriate processing at the following address:

Florida Department of Transportation
OOC-GOA, LFA Section
605 Suwannee Street, MS 42B
Tallahassee, Florida 32399

4. The FDOT's Comptroller and/or her designees shall be the sole signatories on the escrow account with the Department of Financial Services and shall have sole authority to authorize withdrawals from said account.

5. Unless instructed otherwise by the parties hereto, all interest accumulated in the escrow account shall remain in the account for the purposes of the project as defined in the LFA.

6. The Department of Financial Services agrees to provide written confirmation of receipt of funds to the FDOT.

7. The Department of Financial Services further agrees to provide periodic reports to the FDOT.

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
COMPTROLLER

STATE OF FLORIDA
DEPARTMENT OF FINANCIAL SERVICES
DIVISION OF TREASURY

PARTICIPANT SIGNATURE

PARTICIPANT NAME & TITLE

PARTICIPANT ADDRESS

FEDERAL EMPLOYER I.D. NUMBER

LOCALLY FUNDED AGREEMENT

THIS LOCALLY FUNDED AGREEMENT (hereinafter 'Agreement') is made and entered into this ____ day of _____, 20__, between **MIAMI-DADE COUNTY,** a political subdivision of the State of Florida, existing under the Laws of the State of Florida, hereinafter referred to as the 'COUNTY', and the **STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION** a component agency of the State of Florida, hereinafter referred to as the 'DEPARTMENT'.

RECITALS:

WHEREAS, the DEPARTMENT retains a consultant to obtain surveying services, raster imagery, and aerial photography services, for a geographic portion of Miami-Dade County under Contract C-8O93, funded by the DEPARTMENT; and

WHEREAS, the COUNTY retains the same consultant to obtain raster imagery and aerial photography services for a smaller geographic portion of Miami-Dade County, under existing Project Specific Services Agreement Number E05-MDAD-02; and

WHEREAS, the COUNTY desires to enter into a Locally Funded Agreement with the DEPARTMENT on said services through the DEPARTMENT contract, sharing the end result and prorating the cost in relation to the benefit of the services received by each agency; and

WHEREAS, the Scope of Services for the project funded by this Agreement , hereinafter referred to as the 'PROJECT', is defined in the attached Exhibit "A", 'Scope of Services', which is herein incorporated by reference; and

WHEREAS, the PROJECT serves the best interest of both the DEPARTMENT and the COUNTY, and it would be practical and economically advantageous for the COUNTY to advance the funds for the prorated cost of the PROJECT to the DEPARTMENT, under Financial Project Number 250608-1-32-06; and

WHEREAS, the parties are authorized to enter into this Agreement pursuant to **Sections 334.044(7)** and **339.12 (2006), *Florida Statutes,*** and authorize its officers to do so.

NOW, THEREFORE, in consideration of the premises, the mutual covenants and other valuable considerations contained herein, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. INCORPORATION OF RECITALS

The foregoing recitals are true and correct and are incorporated into the body of this Agreement, as fully set forth herein.

2. GENERAL REQUIREMENTS

(a) A true and correct copy of the Resolution of the COUNTY Commission approving this Agreement is attached hereto as Exhibit "C", 'MIAMI-DADE COUNTY RESOLUTION', and is incorporated herein by reference.

(b) The DEPARTMENT will administer a portion of the PROJECT, hereinafter the "DEPARTMENT CONTRACTED PROJECT PORTION", in accordance with Exhibit "A" and DEPARTMENT Contract C-8O93. The DEPARTMENT will complete the DEPARTMENT CONTRACTED PROJECT PORTION utilizing the funds provided by the COUNTY and the funds set aside by the DEPARTMENT as set forth in Exhibit "B.

(c) The COUNTY will provide funding to the DEPARTMENT, in the aggregate amount of FOUR HUNDRED THIRTY ONE THOUSAND THREE HUNDRED FIFTY THREE DOLLARS AND SIXTY THREE CENTS ($431,353.63), for the DEPARTMENT CONTRACTED PROJECT PORTION, subject further to the provisions in Section 3 of this Agreement and as outlined in the attachment Exhibit "B", "Financial Summary", which is herein incorporated by reference.

(d) As a material inducement to the DEPARTMENT's commitments under this Agreement, the COUNTY agrees that it will be solely responsible for the completion of a portion of the PROJECT, hereinafter the "COUNTY CONTRACTED PROJECT PORTION", which is described in Exhibit "A". The COUNTY shall provide funding in the amount of Four Hundred Thirty Eight Thousand Five Hundred Seventy Two Dollars and Thirty Two Cents ($438,572.32) under COUNTY Contract E05-MDAD-02, to pay for the services required to complete the COUNTY CONTRACTED PROJECT PORTION. The COUNTY shall be soley responsible for any additional costs required for completion of the COUNTY CONTRACTED PROJECT PORTION.

(e) The amount of ONE MILLION ONE HUNDRED SIXTY NINE THOUSAND NINE HUNDRED TWENTY FIVE DOLLARS AND NINETY FIVE CENTS ($1,169,925.95) is the overall PROJECT cost shared between the COUNTY and the DEPARTMENT, as outlined in Exhibit "B".

(f) Upon the receipt, authorization and encumbrance of funding received from the COUNTY as a result of this Agreement, the DEPARTMENT will authorize its Consultant under Contract C-8O93 to commence work on the DEPARTMENT CONTRACTED PROJECT PORTION.

3. FINANCIAL PROVISIONS

(a) The COUNTY agrees that it will, no later than thirty (30) calendar days after the DEPARTMENT's execution of this Agreement, furnish the DEPARTMENT an advance deposit in the amount of FOUR HUNDRED THIRTY ONE THOUSAND

THREE HUNDRED FIFTY THREE DOLLARS AND SIXTY THREE CENTS ($431,353.63) for full payment of the COUNTY'S share of the estimated PROJECT cost for Locally Funded Project Number 250608-1-32-06. The advance deposit shall be the COUNTY's share of the total estimated cost of the DEPARTMENT CONTRACTED PROJECT PORTION. The DEPARTMENT may utilize this deposit for payment of the costs of the DEPARTMENT CONTRACTED PROJECT PORTION.

(b) The COUNTY may request PROJECT modifications or changes subject to the DEPARTMENT's reasonable approval provided, however, that the COUNTY bear all costs for such modifications or changes. The DEPARTMENT shall seek prior approval from the COUNTY for all modifications or changes to the DEPARTMENT CONTRACTED PROJECT PORTION that affect the COUNTY's share of costs or will alter work product to be delivered to the COUNTY. The COUNTY shall not unreasonably withhold its consent to such modifications or changes. If PROJECT modifications or changes occur that increase the COUNTY's share of the DEPARTMENT CONTRACTED PROJECT PORTION costs, the COUNTY will be notified by the DEPARTMENT accordingly. The COUNTY agrees to give reasonable consideration to providing additional funds necessary, subject to the approval of the COUNTY Commission, in advance of additional work being performed, to ensure that cash on deposit with the DEPARTMENT is sufficient to fully fund its share of the DEPARTMENT CONTRACTED PROJECT PORTION. If additional funding is not available or is not approved by the COUNTY Commission for increased costs, the COUNTY agrees to authorize the DEPARTMENT to limit the Scope of Services to that which the available funding can cover. Funds due from the COUNTY during the DEPARTMENT CONTRACTED PROJECT PORTION shall be paid pursuant to the Florida Prompt Payment Act, **Section 218.70-218.80, F.S.,** only after an amendment to this Agreement is executed in writing authorizing any funds other than those specified herein.

(c) The DEPARTMENT intends to have its final and complete accounting of all costs incurred in connection with the work performed hereunder within three hundred and sixty (360) days of final payment to the Consultant. The DEPARTMENT considers the DEPARTMENT CONTRACTED PROJECT PORTION complete when final payment has been made to the Consultant, not when the work is complete. All cost records and accounts shall be subject to audit by a representative of the COUNTY for a period of three (3) years after final close out of the PROJECT. The COUNTY will be notified of the final cost. Both parties agree that in the event final accounting of total DEPARTMENT CONTRACTED PROJECT PORTION costs pursuant to the terms of this Agreement is less than the total deposit to date, a refund of the excess will be made by the DEPARTMENT to the COUNTY. If the final accounting is not performed within three hundred and sixty (360) days, the COUNTY is not relieved from its obligation to pay nor is the DEPARTMENT relieved of its obligation to refund any deposit funds in excess of the prorated portion of the COUNTY's contribution.

(d) Except for those obligations incurred as a result of County modifications as set forth in Section 3(b), in the event the final accounting of total DEPARTMENT CONTRACTED PROJECT PORTION costs is greater than the total deposits to date, the COUNTY will pay a portion of the additional amount prorated to the relative contributions of the costs of the PROJECT within forty (40) calendar days from the date of the invoice from the DEPARTMENT. The COUNTY agrees to pay interest at a rate as established pursuant to **Section 55.03, F.S.**, on any invoice not paid within forty (40) calendar days until the invoice is paid.

(e) The payment of funds under this Locally Funded Agreement will be made directly to the DEPARTMENT for deposit and as provided in the attached Memorandum of Agreement **(MOA)** between the COUNTY, Department and the State of Florida, Department of Financial Services, Division of Treasury.

(f) Nothing in this Agreement shall be construed to violate the provisions of Section 339.135(6)(a), Florida Statutes, which provides as follows:

"The Department, during any fiscal year, shall not expend money, incur any liability, or enter into any contract which, by its terms, involves the expenditure of money in excess of the amounts budgeted as available for expenditure during such fiscal year. Any contract, verbal or written, made in violation of this subsection is null and void, and no money may be paid on such contract. The Department shall require a statement from the Comptroller of the Department that such funds are available prior to entering into any such contract or other binding commitment of funds. Nothing herein contained shall prevent the making of contracts for periods exceeding one year, but any contract so made shall be executory only for the value of the services to be rendered or agreed to be paid for in succeeding fiscal years; and this paragraph shall be incorporated verbatim in all contracts of the Department which are for an amount in excess of TWENTY FIVE THOUSAND DOLLARS ($25,000.00) and which have a term for a period of more than one year."

4. EFFECTIVE DATE OF THIS AGREEMENT

This Agreement shall become effective upon execution by the COUNTY and the DEPARTMENT and as of the date set forth on page one (1) hereof.

5. PROVISIONS SEPARABLE

The provisions of this Agreement are independent of and separable from each other, and no provision shall be affected or rendered invalid or unenforceable by virtue of the fact that for any reason any other or others of them may be invalid or unenforceable in whole or in part.

6. AMENDMENT OF AGREEMENT

This Agreement may be amended by mutual agreement of the DEPARTMENT and the COUNTY expressed in writing, executed and delivered by each party.

7. NOTICES

(a) All notices, requests, demands, consents, approvals, and other communications which are required or permitted under or given hereunder, shall be in writing and hand delivered or sent by either registered or certified U.S. mail, return receipt requested, postage prepaid, addressed to the party to receive such notices as follows:

To the COUNTY:
Miami-Dade County
Enterprise Services Technology Department
5680 SW 87th Avenue
Miami, Florida 33173
Attn: Martha Guerra, Systems Support Manager

To the DEPARTMENT:
Florida Department of Transportation
1000 NW 111 Avenue, Room 6202B
Miami, Florida 33172-5800
Attn: Michelle L. Meaux, JPA Coordinator

(b) Either party may, by notice given as aforesaid, change its address for all subsequent notices. Notices given in compliance with this section shall be deemed given when placed in the mail.

8. ENTIRE AGREEMENT

This Agreement, including its attached Exhibits, contain the sole and entire Agreement between the parties with respect to such subject matter and supersede any and all other prior written or oral agreements between them with respect to such subject matter.

9. BINDING EFFECT

This Agreement shall be binding upon the parties and their respective representatives, successors and assigns.

10. WAIVER

Waiver by either party of any breach of any provision of this Agreement shall not be considered as or constitute a continuing waiver or a waiver of any other breach of the same or any other provision of this Agreement.

11. CAPTIONS

The captions contained in this Agreement are inserted only as a matter of convenience or reference and in no way define, limit, extend or describe the scope of this Agreement or the intent of any of its provisions.

12. ABSENCE OF THIRD PARTY BENEFICIARIES

Nothing in this Agreement, express or implied, is intended to (a) confer upon any entity or person other than the parties and their permitted successors and assigns any rights or remedies under or by reason of this Agreement as a third party beneficiary or otherwise except as specifically provided in this Agreement; or (b) authorize anyone not a party to this Agreement to maintain an action pursuant to or based upon this Agreement.

13. OTHER DOCUMENTS

The parties shall take all such actions and execute all such documents which may be reasonably necessary to carry out the purposes of this Agreement, whether or not specifically provided for in this Agreement; provided that the parties further acknowledge that certain additional actions by the COUNTY may require approval by the COUNTY Commission, and, to the extent such approval is required by applicable law, obtaining such approval shall be a condition to the obligations of the COUNTY under this Section.

14. GOVERNING LAW

This Agreement and the interpretation of its terms shall be governed by the laws of the State of Florida, without application of conflicts of law principles. Venue for any judicial, administrative or other action to enforce or construe any term of this Agreement or arising from or relating to this Agreement shall lie exclusively in Miami-Dade County, Florida.

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement on the day and year first above written, the MIAMI-DADE COUNTY, signing by and through its County Manager, and the STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION, signing by and through its District Secretary, each duly authorized to execute same.

MIAMI-DADE COUNTY:

BY: _____
COUNTY MANAGER

ATTEST: _____
(SEAL) COUNTY CLERK

STATE OF FLORIDA,
DEPARTMENT OF TRANSPORTATION:

BY: _____
DISTRICT SECRETARY

ATTEST: _____
(SEAL) EXECUTIVE SECRETARY

LEGAL REVIEW:

_____
COUNTY ATTORNEY

_____
DISTRICT CHIEF COUNSEL

EXHIBIT 'A'

SCOPE OF SERVICES

The project area encompasses approximately 1,171 square miles of Miami-Dade County, Florida. The vendor will provide the following products:

- Color aerial photography at 1"=330' scale of the areas within the Urban Development Boundary (UDB) and the DEPARTMENT-maintained roadways outside the UDB.
    - Though 1"=250' scale is the standard flight scale identified by Florida Department of Transportation specifications for 1"=40' scale mapping, the vendor warrants that the mapping produced from this scale of photography will meet 1"=40' National Map Accuracy Standards.
- Color aerial photography at 1"=1,600' scale of the full 1-foot resolution area, including areas outside the UDB.
- Color digital orthophotography at 0.25-foot (0.25-foot by 0.25-foot) pixel resolution with ±1.0-foot horizontal accuracy for areas within the UDB – an area covering approximately 498 square miles.
- Color digital orthophotography at 1.0-foot (1.0-foot by 1.0-foot) pixel resolution with ±5-foot horizontal accuracy for within the UDB and outside the UDB – an area covering approximately 1,171 square miles.
- An Implementation Plan describing the phases and tasks of the project.

Organization of the Scope of Services

This Scope of Services is organized into the following sections:

- Implementation Plan
- Aerial Photography Services
- Ground Control Services
- Softcopy Aerial Triangulation Services
- Digital Orthophotography Production Services

Following are detailed descriptions of each of these components.

IMPLEMENTATION PLAN

The vendor will deliver an implementation plan covering the phases and tasks of the project. In both narrative and chart formats, the plan will illustrate the schedule and deliverables for each phase and task, and will clearly identify the team members responsible for each portion of the project.

The schedule will include the following milestones and their deliverables:

- Placement of ground control targets
- Photographic mission
- Ground control survey
- Photography scanning
- Softcopy aerial triangulation
- Digital orthophotograph development

AERIAL PHOTOGRAPHY SERVICES

The vendor will acquire color aerial photography at 1"=330' scale of the areas within the UDB and the DEPARTMENT-maintained roadways outside the UDB, and at 1"=1,600' scale of the areas outside the UDB. These aerial photo negatives will be used to produce the color digital orthophoto images.

The DEPARTMENT-maintained roadways outside the UDB to be included in the 1"=330' scale photo coverage are as follows:

- All of Krome Avenue, from Homestead north to Okeechobee Road
- Okeechobee Road from where it exits the area within the UDB, north to the county line
- Tamiami Trail, *west to the county line*
- SR 9336 (Main Park Road) from Homestead southwest to the project area boundary – *to the same coverage as for the 2007 project, not all the way to the county line.*
- US 1 from Florida City south to the county line

As was scoped in the 2007 project, Card Sound Road from Florida City, south to the county line shall not be considered part of the DEPARTMENT-maintained roadways. It will not be included in the 1"=330' scale photo coverage or the 0.25-foot pixel resolution orthophotos.

There are no other DEPARTMENT-maintained roadways outside the UDB, so no others will be included in the 1"=330' scale photo coverage or the 0.25-foot pixel resolution orthophotos.

Flight Plans

Flight plans will be submitted to the DEPARTMENT and the COUNTY for review before any aerial photography is flown for the project. The plans will be developed based on a digital orthophoto tiling system matching the current Miami-Dade County image tiling system for the 0.25-foot pixel resolution images, including those developed for the DEPARTMENT-maintained roadways outside the UDB.

The vendor will use Computer-Controlled Navigation System (CCNS-4) flight management to provide mission planning, aircraft guidance, photo control, and camera control. The system will help eliminate drift, crab, excess overlap/sidelap, and help ensure proper scale and coverage.

The vendor will process film as soon as possible after aerial photography has been completed. The photography will be edited and checked to verify that all specifications have been met. This will allow any necessary reflights to be accomplished as soon as possible after the date of the original photography.

During film editing, the vendor will verify that the actual flight height did not deviate from the contract specification. This quality control process requires taking measurements of random negatives from each flight, determining the ratio to the appropriate U.S. Geological Survey (USGS) quadrangle map, and calculating the exact scale of the negative between two points. If the scale fluctuates, the vendor will examine all negatives from all flights to determine if any flights need to be reflown.

No paper contact prints will be delivered to either the DEPARTMENT or the COUNTY.

Environmental Conditions

Aerial photography will be obtained when the sky is clear; free from smoke, dust, clouds, haze, and high humidity. The ground will be free of cloud shadows, floodwaters and wet ground that renders structures, soil, streets/roads, and so forth unidentifiable. The solar angle will be 30 degrees or more above the horizon at the time of exposure.

Aerial Camera

The vendor will acquire aerial photography with a Leica RC30 camera system with a low-distortion, high-resolution lens and forward motion compensation (FMC). The RC30 is a precision aerial mapping camera designed for vertical aerial photography in a 9" x 9" format. The lens meets or exceeds all the following:

- A calibrated focal length of 153 mm ±3.0 mm
- A minimum aperture of f4.0
- Radial distortion that does not exceed 10 micrometers
- A nominal 6-inch focal length with a usable angular field of view of at least 90 degrees
- Eight fiducial marks recorded on each negative

Aerial Film

The color film will be AGFA X-100 or equivalent – a fine-grain, high-speed, photographic emulsion on a dimensionally stable safety base with wide exposure latitude. This film is designed for aerial mapping, triangulation, and aerial reconnaissance photography.

Outdated film will not be used, and the film will be stored according to the manufacturer's recommendations. In addition, no film splicing within flight lines will be performed, and any required reflights will be added to the ends of existing film reels.

Film Advance

Aerial film that remains in the camera overnight will be advanced at least three frames before the acquisition of the next day's photography.

Labeling

Each negative will electronically labeled by the aerial camera to catalog it for orthophoto production. Traditional, manual film labeling will not be performed in order to protect the film from repeated handling.

Reflights

The vendor will refly, at no additional fee, any aerial photography that does not meet defined specifications. All reflights will be centered on the plotted flight lines and will be taken with the same camera system.

Photographic Specifications

Overlap

Overlap of individual exposures of photography will be maintained between 55 and 65 percent, for an average of 60 percent.

Crab

Crab will not exceed 5 degrees between any two consecutive photographs or exceed 3 degrees on any one flight line. At the earliest opportunity, new photography will be acquired to replace any photographs or flight lines that do not meet these specifications.

Sidelap

Sidelap will average 30 percent, ±5 percent. Any adjacent negatives with sidelap of less than 25 percent or more than 35 percent will be rejected, and the affected flights will be reflown at the earliest opportunity.

Tilt

Any two successive negatives with tilt exceeding 5 degrees will be rejected, and new color aerial photography for these areas will be acquired. Overall, tilt will average 1 degree or less.

Quality Assurance/Quality Control

Quality assurance will be provided by the use of the Computer-Controlled Navigation System (CCNS-4). This flight management system provides mission planning, aircraft guidance, photo control, and camera control. The system helps eliminate drift, crab, excess overlap/sidelap, and helps ensure proper scale and coverage. The functions of this system are as follows:

- The system guides the pilot along the proper flight line at the proper altitude.
- Photo centers are precomputed during mission planning. The system will automatically trigger the camera at the appropriate exposure positions.
- Actual flight data and GPS positions of each exposure are recorded.
- The camera is automatically controlled for drift, crab, overlap, and V/H (velocity to height ratio).

Photo Processing

All processing of exposed film—including developing, fixing, washing, and drying—will be performed by a state-of-the-art Kodak Versamat developer. All processing machines will be sensimetrically controlled, and chemical solution pH and specific gravity values will be taken before chemical usage.

All densitometers are calibrated twice yearly and will be certified daily using reflection and transmission standards. Sensimetric controls will be processed before and after each master roll of original film, in accordance with Eastman Kodak publications.

All aerial photography and photo lab procedures will be subject to acceptance checking in accordance with these specifications. The vendor will provide quality assurance of the aerial photography and photo laboratory procedures.

Negatives

Negatives will be clear and sharp in detail and uniform in density. They will contain no static marks, tears, scratches, or other blemishes that would interfere with the intended purpose.

Film Scanning

To produce the highest quality digital images, the vendor will scan the film directly, using a precision roll scanner. The scanner will have a geometric resolution of 1 micron, or better, and a radiometric resolution of 256 gray levels or 256 color levels for each of the red, green, and blue (RGB) bands. Scanning will be performed at a resolution of 14 microns.

The vendor will scan the film directly instead of first producing film diapositives for scanning in order to protect the integrity of the film and minimize the chance of damage from scratches, dust or lint.

Quality Assurance/Quality Control

- Film processors are cleaned and recertified daily; chemistry levels are checked several times a day.
- Processing chemistry temperature and drying temperature are inspected several times a day.
- A 21-step wedge is placed on the film several times for each project to ensure that it meets quality standards.
- The vendor uses both static control and pressurized air to preserve a clean environment for aerial film and all photo lab products.
- All photo lab products are quality checked once after completion and once again before delivery to clients.
- Specification information is recorded and filed on each scan produced by the vendor.
- Client samples are kept on file for future jobs as needed.
- After scanning and rastorization, the image is restored and viewed to ensure proper quality before the next production step.

Aerial Photography Deliverables

The vendor will deliver the following items to the DEPARTMENT:

- Original photo negatives
- All flight line maps (one copy)
- Camera calibration report (one copy)
- Photography Edit Report (one copy)

The vendor will deliver the following items to the COUNTY:

- All flight line maps (two copies)
- Camera calibration report (two copies)
- Photography Edit Report (two copies)

GROUND CONTROL SERVICES

The vendor will utilize as many existing points as possible and will establish new photo control points, where needed, to support digital orthophoto production. All GPS network design, observation techniques, and data adjustments will be supervised by a Florida Professional Surveyor and Mapper and according to the specifications in *Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques,* Version 5.0, of August 1, 1989, published by the

Federal Geodetic Control Subcommittee (FGCS). The control survey will be sealed by a Florida Professional Surveyor and Mapper in accordance with Florida Minimum Technical Standards.

GPS Observations and Data Adjustment

The vendor will design a geometric and observation plan before performing GPS observations. The plan and methods will be submitted to the DEPARTMENT and the COUNTY for review and approval.

The observational approach will follow Federal Geodetic Control Subcommittee (FGCS) specifications for a second-order, class I GPS control survey.

The vendor will download and process each day's data. This will ensure the integrity of the network as it is constructed. As a daily quality control measure, the vendor will subject the network to loop closure analyses and least-squares adjustments. This daily procedure enables the vendor to detect and reobserve any blunders or poor-quality lines as needed.

Horizontal Control Survey

All GPS control will be based on the Florida State Plane Coordinate System (East Zone), referenced to North American Datum (NAD83/90) expressed in U.S. survey feet. All horizontal control will be second-order class I or better.

Vertical Control Survey

The vertical datum used for this survey will be North American Vertical Datum 1988 (NAVD88) expressed in U.S. survey feet. All vertical control will be GPS equivalent of third-order or better.

Ground Control Targeting

Before exposing aerial photography, the vendor will target the existing points and any of the new points that cannot be adequately positioned using photo-identifiable points. Targets will be placed in the following manner:

- **Paved Areas.** If a control point is located in a paved area, it will be targeted with a latex painted symbol. The latex paint is designed to wear off over time.

- **Unpaved Areas.** Any monuments or control points found or established in unpaved areas will be targeted with fiberglass-reinforced cloth.

All target panels will be of appropriate size for the photography and will be sufficiently light-reflectant to create a high contrast to the background. Where flagging material is used, targets will be secured with the center of the target over the station. The shape of targets will be an "**X**" (cross) if space permits, a "**T**" (tee) if space is limited, and a "**V**" (chevron) if required by severe space constraints. Painted targets will be set two to three weeks before the tentative flight window. Cloth targets will be set the week before the tentative flight window.

Airborne GPS

The vendor will use differential airborne GPS during the acquisition of aerial photography. This GPS technique provides accurate positioning of the camera at the instant of exposure, thereby reducing the number of ground control points needed for aerial triangulation. Reducing the number of ground control points has helped us minimize project costs.

Quality Assurance/Quality Control

- GPS acquisition will be performed according to the quality assurance/quality control specifications as outlined in *Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques,* Version 5.0, of August 1, 1989, published by the Federal Geodetic Control Subcommittee (FGCS).

- The vendor will download and process each day's data. This will ensure the integrity of the network as it is constructed. As a daily quality control measure, the vendor will subject the network to loop closure analyses and least-squares adjustments. This daily procedure enables the vendor to detect and reobserve any blunders or poor-quality lines as needed.

- Additional benchmarks/monuments may be used to provide quality control test points for GPS surveying.

Report Requirements and Deliverables

At the completion of ground control activities, the vendor will produce three copies of a comprehensive survey control document on the GPS control survey network (one copy to the DEPARTMENT and two copies to the COUNTY).

The report will cover the following:

- Introduction
- Data processing performed
- Software
- Equipment
- Field logs
- Station list with final coordinates
- Location diagram for each monument
- Control diagram
- In addition to the NAVD88 elevations listed for the ground control points, the elevations for the points will be listed in the NGVD29 vertical datum.
- The seal of a Florida Professional Surveyor and Mapper in accordance with Florida Minimum Technical Standards.

SOFTCOPY AERIAL TRIANGULATION SERVICES

For softcopy triangulation, the vendor will use images scanned directly from the negatives and digital softcopy techniques for the aerial triangulation to extend and densify ground control for the 1"=330' scale and the 1"=1,600' scale color aerial photography.

Point Mensuration

Mensuration will be performed using a photogrammetric softcopy workstation running Intergraph's ImageStation Automatic Triangulation, which incorporates automatic pass point and tie point selection, numbering, and measurement in one batch process. The point measurement process uses autocorrelation algorithms to measure and automatically transfers both pass and tie points within the defined block of images. All measurements are run through a robust built-in bundle block adjustment to detect any initial blunders in mensuration. Any errors detected here are removed automatically with an initial sigma naught computed and weak areas of the block flagged. Once these quality control checks are complete, the measurement process ends and the results are taken to the next step which is Multiphoto Orientation.

Initial Adjustment

The Multiphoto Orientation environment allows for the review of block geometry and point residuals, the measurement of ground control points as well as new pass/tie points in weak areas of the block. A detailed analysis is equally performed to remove all single ray points, with all points flagged as blunders either removed or re-measured and new residuals automatically computed. During each computation phase, a 3D least-squares transformation computes seven parameters for each photo (scale, three rotational parameters, and exposure station coordinates) in order to convert the individual photos to the local coordinate system. The coordinates of the ground control points integrated into the solution are weighted according to their individually-assigned estimates of accuracy. The process is repeated until all errors are detected and corrected. Then the results are taken into Photo Triangulation for the final block adjustment.

Bundle Adjustment

The final adjustment of the photogrammetric and geodetic observations involves several iterations of Photo Triangulation. This comprehensive block adjustment is used to further detect blunders, integrate ABGPS, and refine the bundle solution. The final aerial triangulation solution which is computed includes the rotational parameters for each exposure station (omega, phi, kappa), and coordinates of the camera lens at each exposure station (XL, YL, ZL), along with ground control coordinates for the pass points ant tie points. Lastly, RMS misclosures in ground units are computed for horizontal and vertical ground control points as a final check of the precision of the aerial triangulation solution.

Ground Coordinate Systems

All horizontal and vertical ground control positions computed by aerial triangulation will be in the Florida State Plane Coordinate System (East Zone), referenced to NAD83(90)/NAVD88, expressed in U.S. survey feet.

In addition to the adjustment completed in NAD83(90)/NAVD88, an adjustment for the 1"=330' scale aerial photography will also be completed in NAD83(90)/NGVD29, in order to support the DEPARTMENT'S vertical datum for later stereo photogrammetric collection of topographic features. (Stereo photogrammetric collection of topographic features is not part of this Scope of Services.)

Aerial Triangulation Deliverables

On completion of aerial triangulation, the vendor will produce an aerial triangulation report containing the following information (one copy to the DEPARTMENT and two copies to the COUNTY):

- Results of aerial triangulation adjustment including computations and RMS results
- Discussion of problems and resolutions
- Identification of all points that were excluded in the initial solution and were subsequently discarded, with an explanation of why they were discarded
- Identification of the weight factors applied to all points used in the final solution
- Identification of the quality control and statistical procedures to ensure the accuracy of the adjustment
- A narrative tying together the items listed above, as well as descriptions of procedures, laboratory equipment, and computer programs

DIGITAL ELEVATION MODEL (DEM) DENSIFICATION SERVICES

The vendor will incorporate stereo photogrammetric updates to the existing Digital Elevation Model (DEM), where necessary, for the DEM to support the accuracy requirements to support orthorectification of the 1"=330' scale photography to create the 0.25-foot color digital orthophotos, and the 1"=1,600' scale photography to create the 1.0-foot color digital orthophotos.

DEM Deliverables

- DEM digital data in ESRI shapefile format (points and breaklines), in Florida State Plane coordinates NAD83/90 and elevations in NAVD88 expressed in U.S. survey feet.

Planimetric Updates

No planimetric updates will be performed for the project. However, updates or full planimetric mapping can be performed at a future date using the 1"=330' or 1"=1,600' scales of photography.

DIGITAL ORTHOPHOTO PRODUCTION SERVICES

The vendor will provide the following digital orthophoto products:

- Color digital orthophotography at 0.25-foot (0.25-foot by 0.25-foot) pixel resolution with ±1.0-foot horizontal accuracy for areas within the UDB – an area covering approximately 498 square miles.

- Color digital orthophotography at 0.25-foot pixel resolution with ±1.0-foot horizontal accuracy for the DEPARTMENT-maintained roadways outside the UDB.

  The DEPARTMENT-maintained roadways outside the UDB to be included in the 0.25-foot pixel resolution orthophotos are as follows:

  - All of Krome Avenue, from Homestead north to Okeechobee Road
  - Okeechobee Road from where it exits the area within the UDB, north to the county line
  - Tamiami Trail, west to the county line
  - SR 9336 (Main Park Road) from Homestead southwest to the project area boundary – *to the same coverage as for the 2007 project, not all the way to the county line.*
  - US 1 from Florida City south to the county line

  Orthophoto images at 0.25-foot pixel resolution will cover a **200-foot corridor** centered on the roadways for the DEPARTMENT-maintained roadways outside the UDB

  As was scoped in the 2007 project, Card Sound Road from Florida City, south to the county line shall not be considered part of the DEPARTMENT-maintained roadways. It will not be included in the 1"=330' scale photo coverage or the 0.25-foot pixel resolution orthophotos.

  The vendor's understanding is that there are no other DEPARTMENT-maintained roadways outside the UDB, so no others will be included in the 0.25-foot pixel resolution orthophotos.

- Color digital orthophotography at 1.0-foot (1.0-foot by 1.0-foot) pixel resolution with ±5-foot horizontal accuracy for within the UDB and outside the UDB – an area covering approximately 1,171 square miles.

Following the acquisition and development of aerial photography, ground control, and aerial triangulation, digital orthophotos will be produced following this step-by-step process:

- **Aerial Image.** The vendor will select aerial images from the 1"=330' and 1"=1,600' scale color images that will provide complete coverage of the project area.

- **Image Control.** The individual image orientation parameters derived in the triangulation process will be used to control each individual image. The six exterior orientation parameters consist of the X_L, Y_L, Z_L (easting, northing, elevation) coordinates of exposure station and the angles ω, φ, κ that describe the angular orientation.

- **Image Scanning.** Using a precision roll scanner, the vendor will scan the 1"=330' scale and 1"=1,600' scale of photography at 14-micron resolution.

  The entire exposure will be scanned, including fiducial marks that will be used during the spatial resection. The scanned image will be checked for completeness, cleanliness, and image quality at the workstation.

  Note: The input pixel size of 14 microns for the 1"=330' and 1"=1,600' scales of photography will yield pixel sizes in ground units of 0.18-foot and 0.88-foot respectively. This will easily satisfy the final ground resolutions of 0.25-foot and 1.0-foot respectively.

- **Inner Orientation.** On the digital workstation, each fiducial mark will be visited with the system cursor to obtain its row/column location in the image. A coordinate transformation based on the camera calibration fiducial coordinates will then be undertaken. This transformation will allow the conversion of every pixel in the image from a sample/line location to an X, Y location.

- **Absolute Orientation.** The digital imagery will be set up and oriented on a digital workstation using the six exterior orientation parameters.

- **Image Quality Check.** Each digital orthophoto image will be checked and corrected to ensure a proper and consistent tone, as well as density, contrast, and brightness qualities. Also, each image will be checked on the screen at the appropriate output scale for image defects such as scratches or other blemishes.

- **Image Rectification.** The DEM developed for the 2007, 2003, 2001, and 1999 orthophoto projects, updated where needed, will be used to orthorectify the images.

  The relevant DEM data will be merged with the orientation parameters and the original digital image. A complete differential rectification is carried out with a set of algorithms that remove image displacement due to topographic relief and the tip and tilt of the aircraft at the moment of exposure.

  The vendor will use the exponential interpolation resampling technique for resampling the image during rectification. This process provides the best image clarity compared to nearest-neighbor interpolation, cubic convolution, or bilinear interpolation.

  The resulting raster digital orthophoto will have values of 0 to 255 for each of the red, green, and blue (RGB) bands associated with each pixel for the orthophotos.

- **Image Mosaicking.** The mosaicking process will be done interactively by the photogrammetric technician to ensure that no loss of information occurs and to locate the mosaic line as unobtrusively as possible. The mosaic line is placed so that above ground features, such as buildings, are not cut-off between overlapping images. The images are radiometrically balanced during the mosaic process to eliminate any tonal differences between the individual images. Once the mosaic line is placed, the mosaic process commences, using a specifically designed algorithm

to "feather" the mosaic line between the images. The delivery tiles are clipped from the mosaicked images.

- **Accuracy and Scale Check.** Each digital orthophoto image will be checked for accuracy on screen. All control points (control panels or photo-identifiable points) that are visible on the color aerial photography will be visited on screen and the *X, Y* coordinates will be displayed. This information will be cross-referenced with the *X, Y* information provided by the original ground survey. All breakline data will also be displayed over the image to ensure that physical breaks will line up with what is seen on the orthophoto.

  Note: The existing planimetric mapping has ±5-foot accuracy. It is probable that the planimetric mapping will not exactly overlay corresponding features on the new digital orthophotography.

- **File Generation.** In addition to the 0.25-foot resolution within the UDB and 1.0-foot resolution outside the UDB, the vendor will provide a reduced resolution data set of the 0.25-foot imagery within the UDB and extending out Tamiami Trail, to 1.0-foot – creating a 1.0-foot resolution data set covering the entire project area.

- **Image Tiling System.** The vendor will match the current Miami-Dade County image tiling system for the 1.0-foot and 0.25-foot pixel resolution images, including those developed for the DEPARTMENT-maintained roadways outside the UDB.

- **Imagery Datum.** Orthophoto imagery will be delivered in the Florida State Plane Coordinate System (East Zone), referenced to NAD83(90)/NAVD88, expressed in U.S. survey feet.

Quality Assurance/Quality Control

- Scanning tests will be conducted prior to beginning a project, to determine proper radiometric quality and consistency throughout.

- The vendor will use the exponential interpolation resampling technique for resampling the image during rectification. This process provides the best image clarity compared to nearest-neighbor interpolation, cubic convolution, or bilinear interpolation.

- Each digital orthophoto image will be checked and corrected to ensure a proper and consistent tone, as well as density, contrast, and brightness qualities. Each image will be checked on the screen at the intended output scale for image defects or other blemishes.

- Each digital orthophoto image will be checked for accuracy on screen. All control points (control panels or photo-identifiable points) that are visible on the color aerial photography will be visited on screen and the *X, Y* coordinates will be displayed. This information will be cross-referenced with the *X, Y* information provided by the original ground survey. Also all breakline DEM data will be displayed over the image to ensure the physical breaks coincide with the orthophoto to the stated accuracy standards.

- The reported accuracy of the orthophoto images will be determined by independent test surveys.

Digital Orthophoto Deliverables

- Color digital orthophotography at 0.25-foot pixel resolution with ±1.0-foot horizontal accuracy for areas within the UDB – an area covering approximately 498 square miles.

- Color digital orthophotography at 0.25-foot pixel resolution with ±1.0-foot horizontal accuracy for the DEPARTMENT-maintained roadways outside the UDB.

- Color digital orthophotography at 1.0-foot pixel resolution with ±5-foot horizontal accuracy for areas within the UDB and outside the UDB – an area covering approximately 1,171 square miles.

- The digital orthophotos will be delivered in standard TIFF (.tif) format, with an associated world file (.tfw) for each image, and in Intergraph GeoTIFF format (.tif), with an associated world file (.tfw), in order to be viewable on the COUNTY'S ESRI ArcMap environment and the DEPARTMENT'S Intergraph/MicroStation environments.

- Reduced resolution data set of the 0.25-foot imagery within the UDB and extending out Tamiami Trail, to 1.0-foot – creating a 1.0-foot resolution data set covering the entire project area.

- An ESRI shapefile of the orthophoto tile layout for the color image tiles.

- An ESRI shapefile indicating the dates of aerial photography for the areas within and outside the UDB.

- A project-wide MrSID file created from the 1.0-foot resolution color images. The compression rate will be mutually agreed upon by the DEPARTMENT, the COUNTY, and the vendor. A lower compression rate (for example, 20:1) may require that the project coverage be partitioned into multiple, non-overlapping MrSID files

- Final Report sealed by a Florida Professional Surveyor and Mapper in accordance with the Florida Minimum Technical Standards (one copy to the DEPARTMENT and two copies to the COUNTY). The report will explicitly state the maximum intended display scale for each orthophoto dataset in accordance with 61G17-6.003 Florida Administrative Code. The report will include an accuracy statement in the following form for the 0.25-foot pixel orthophoto dataset: *"Well-identified ground level features visible in this orthophotography have been measured to an estimated horizontal positional accuracy of plus or minus 1.0 foot at a 90 percent confidence level. This means that 90 percent of the well-identified ground level features represented on the orthophotographs are within 1.0 foot of their true coordinate position as determined by test surveys."* For the 1.0-foot pixel orthophoto dataset, the report will include an accuracy statement in the following form: *"Well-identified ground level features visible in this orthophotography have been measured to an estimated horizontal positional accuracy of plus or minus 5 feet at a 90 percent confidence level. This means that 90 percent of the well-identified ground level features represented on the orthophotographs are within 5 feet of their true coordinate position as determined by test surveys."*

Summary of Deliverables

Implementation Plan

- Implementation plan – hard copy and .pdf format (one copy to the DEPARTMENT and two copies to the COUNTY)

Aerial Photography

The vendor will deliver the following items to the DEPARTMENT:

- Original photo negatives
- All flight line maps (one copy)
- Camera calibration report (one copy)
- Photography Edit Report – hard copy and .pdf format (one copy)

The vendor will deliver the following items to the COUNTY:

- All flight line maps (two copies)
- Camera calibration report (two copies)
- Photography Edit Report – hard copy and .pdf format (two copies)

GPS Ground Control

- Three copies of the GPS ground control report with the seal of a Florida Professional Surveyor and Mapper in accordance with Florida Minimum Technical Standards – hard copy and .pdf format (one copy to the DEPARTMENT and two copies to the COUNTY).

Softcopy Aerial Triangulation

- Three copies of the aerial triangulation report – hard copy and .pdf format (one copy to the DEPARTMENT and two copies to the COUNTY)

DEM

- DEM digital data in ESRI shapefile format (points and breaklines), in Florida State Plane coordinates NAD83/90 and elevations in NAVD88 expressed in U.S. survey feet.

- DEM data will be delivered on Portable USB Hard Drive - one copy to the DEPARTMENT and one copy to the COUNTY

Digital Orthophotography

- Color digital orthophotography at 0.25-foot pixel resolution with ±1.0-foot horizontal accuracy for areas within the UDB – an area covering approximately 498 square miles (one copy to the DEPARTMENT and one copy to the COUNTY).

- Color digital orthophotography at 0.25-foot pixel resolution with ±1.0-foot horizontal accuracy for the DEPARTMENT-maintained roadways outside the UDB (one copy to the DEPARTMENT and one copy to the COUNTY).

- Color digital orthophotography at 1.0-foot pixel resolution with ±5-foot horizontal accuracy for areas within the UDB and outside the UDB – an area covering approximately 1,171 square miles (one copy to the DEPARTMENT and one copy to the COUNTY).

- The digital orthophotos will be delivered in standard TIFF (.tif) format, with an associated world file (.tfw) for each image, and in Intergraph GeoTIFF format (.tif), with an associated world file (.tfw), in order to be viewable on the COUNTY'S ESRI ArcMap environment and the DEPARTMENT'S Intergraph/MicroStation environments.

- Reduced resolution data set of the 0.25-foot imagery within the UDB and extending out Tamiami Trail, to 1.0-foot – creating a 1.0-foot resolution data set covering the entire project area (one copy to the DEPARTMENT and one copy to the COUNTY).

- An ESRI shapefile of the orthophoto tile layout for the color image tiles (one copy to the DEPARTMENT and one copy to the COUNTY).

- An ESRI shapefile indicating the dates of aerial photography for the areas within and outside the UDB (one copy to the DEPARTMENT and one copy to the COUNTY).

- A project-wide MrSID file created from the 1.0-foot resolution color images. The compression rate will be mutually agreed upon by the DEPARTMENT, the COUNTY, and the vendor. A lower compression rate (for example, 20:1) may require that the project coverage be partitioned into multiple, non-overlapping MrSID files (one copy to the DEPARTMENT and one copy to the COUNTY).

- Digital orthophoto data will be delivered on Portable USB Hard Drive - one copy to the DEPARTMENT and one copy to the COUNTY

- Final Report sealed by a Florida Professional Surveyor and Mapper in accordance with the Florida Minimum Technical Standards – hard copy and .pdf format (one copy to the DEPARTMENT and two copies to the COUNTY).

- Scanned film images of the 1"=330' scale aerial photography, organized by flight line so that the stereo images may be used for photogrammetric collection of topographic features (one copy to the DEPARTMENT).

Delivery Medium

- Image and vector data files will be delivered on Portable USB Hard Drives

Phases and Schedule of Payments

The Consultant shall perform and complete all tasks in accordance with the quality control measures stipulated in the *Scope of Services*. The order in which the phases are listed is not an indication of a requirement to perform the tasks associated with the phases in a particular sequence.

Phases

At the completion of every phase, or subphase for those phases that are subdivided, and upon acceptance of the deliverables by the DEPARTMENT'S and COUNTY'S representatives, the Consultant shall submit an invoice for payment representing the completed phase or subphase.

DEPARTMENT CONTRACTED PROJECT PORTION:

Phase 1: Photo Ground Survey and Airborne GPS Survey for Color Photography

Subphase 1: Photo Control Survey for FDOT-Maintained Roads Areas Outside the UDB

Fee: $18,758.56

Tasks Included
- ❖ Mobilization
- ❖ Reconnaissance/Targeting Ground Control Points
- ❖ Survey Observations of Ground Control Points
- ❖ Survey Observations during Airborne GPS Survey
- ❖ Survey Processing
- ❖ Survey Report

Milestones

- ♦ Mobilization
  - Deliverable: None
  - Acceptance: Not Applicable
  - Remedies: Not Applicable
- ♦ Reconnaissance/Targeting Ground Control Points
  - Deliverable: None
  - Acceptance: That targeting is completed prior the aerial photography missions.
  - Remedies: The vendor will refly flights taken over areas for which ground control targets were not placed prior the mission. If targets were placed but not visible on the aerial photography, then alternate photo-identifiable points will be selected from the aerial photography to serve as locations for ground control points.
- ♦ Survey Observations of Ground Control Points and during Airborne GPS Survey for the color photography, Survey Processing, and Survey Report
  - Deliverable: Three copies of the Ground Control Report
  - Acceptance: The DEPARTMENT and COUNTY will have 10 working days to review the ground control report to verify that the report has all sections specified in the contract, the

required survey methods and accuracies specified in the contract were met, and the report has the seal of a Florida Professional Surveyor and Mapper in accordance with Florida Minimum Technical Standards. If no review comments are received within 10 working days, then the report will be considered accepted.

- Remedies: The vendor will modify or add to the report in the case of deficiencies according to the contract specifications. If the report indicates that the control survey methods or accuracies do not meet contract specifications, then additional survey work will be accomplished to meet the contract specifications.

Phase 2: Aerial Photography
Subphase 1: Aerial Photography for FDOT-Maintained Roads Areas – 1= 330' Color Aerial Photography Outside the UDB
Fee: $19,707.60

Tasks Included
- ❖ Mobilization
- ❖ Color Aerial Photography Mission

Milestones

- ♦ Mobilization
  - Deliverable: Flight Map showing all aerial flights and the locations of all ground control points to be targeted.
  - Acceptance: DEPARTMENT and COUNTY have 10 working days to review the flight line maps and comment. If no comments received within 10 working days, the flight line maps will be considered accepted.
  - Remedies: The DEPARTMENT, COUNTY, and vendor will discuss and resolve any suggested modifications to the flight line maps.
  - Deliverable: Camera calibration report
  - Acceptance: DEPARTMENT and COUNTY have five working days to review the camera calibration report for calibration within three years.
  - Remedies: If camera calibration does not meet specifications, then the vendor will have to use a camera that does.
- ♦ Color Aerial Photography Mission
  - Deliverable: Photography Edit Report
  - Acceptance: None
  - Remedies: None

Phase 3: Process and Edit Film for FDOT-Maintained Roads Areas - 1= 330' Color Aerial Photography

Fee: $5,573.40

Tasks Included
- ❖ Processing Film
- ❖ Deliver Original Color Photo Negatives

Milestones

- Process and Edit Color Aerial Film
  - Deliverable: None
  - Acceptance: Not Applicable
  - Remedies: Not Applicable

Remedies: Not Applicable

- Deliver Original Color Photo Negatives
  - Deliverable: Original color photo negatives
  - Acceptance: Not Applicable
  - Remedies: Not Applicable

Phase 4: Aerial Triangulation for FDOT-Maintained Roads Areas Outside the UDB - 1= 330' Color Aerial Photography

Fee: $47,450.07

Tasks Included

- Color Image Scanning
- Data Processing
- Aerial Triangulation Report

Milestones

- Color Image Scanning
  - Deliverable: None
  - Acceptance: Not Applicable
  - Remedies: Not Applicable
- Data Processing and Aerial Triangulation Report
  - Deliverable: Three copies of the Aerial Triangulation Report
  - Acceptance: The DEPARTMENT and COUNTY will have 10 working days to review the aerial triangulation report to verify that the report has all sections specified in the contract, and that the required methods and accuracies specified by the contract were met. If no review comments are received within 10 working days, then the report will be considered accepted.
  - Remedies: The vendor will modify or add to the report in the case of deficiencies according to the contract specifications. If the report indicates that the methods or accuracies do not meet contract specifications, then additional steps as necessary will be accomplished to meet the contract specifications.

Phase 5: Raster Images – Orthorectification
Fee: $639,864.00 – Fee is the summation of the following Subphases 1 through 5:

- Subphase 1: $71,096.00 - FDOT Roads – 0.25-foot pixels, Color
- Subphase 2: $112,864.90 - Area 1 - 0.25-foot Pixels - Northeastern UDB, Color
- Subphase 3: $188,315.53 - Area 2 - 0.25-foot Pixels - Central UDB, Color
- Subphase 4: $187,604.57 - Area 3 - 0.25-foot Pixels - Southern UDB, Color
- Subphase 5: $79,983.00 - Areas 4A & 4B – 1.0-foot Pixels – Outside UDB, Color

Tasks Included

- ❖ Delivery of FDOT Roads – 0.25-foot pixels, Color
- ❖ Delivery of Area 1 - 0.25-foot Pixels - Northeastern UDB, Color
- ❖ Delivery of Area 2 - 0.25-foot Pixels - Central UDB, Color
- ❖ Delivery of Area 3 - 0.25-foot Pixels - Southern UDB, Color
- ❖ Delivery of Areas 4A & 4B – 1.0-foot Pixels – Outside UDB, Color
- ❖ Reduced Resolution Data Set
- ❖ Image Tile Layout
- ❖ Dates of Aerial Photography Shapefile
- ❖ MrSID Compressed Image
- ❖ Final Copy of all Data Sets on portable USB Hard Drive
- ❖ Final Report of Image Mapping

Milestones

- ♦ Subphase 1: Delivery of FDOT Roads – 0.25-foot pixels, Color
  - Deliverable: Preliminary Digital Orthophoto Data
  - Acceptance: DEPARTMENT and COUNTY have 20 working days to review the preliminary orthophoto data for meeting contract specifications for accuracy, tonal matching, edge matching, image quality, pixel size, and area coverage. If no review comments are received within 20 working days, then the orthophoto data will be considered accepted
  - Remedies: The vendor will correct orthophoto images that do not meet contract specifications and resubmit to the DEPARTMENT and COUNTY within 20 working days.
- ♦ Subphase 2: Delivery of Area 1 - 0.25-foot Pixels - Northeastern UDB, Color
  - Deliverable: Preliminary Digital Orthophoto Data
  - Acceptance: DEPARTMENT and COUNTY have 20 working days to review the preliminary orthophoto data for meeting contract specifications for accuracy, tonal matching, edge matching, image quality, pixel size, and area coverage. If no review comments are received within 20 working days, then the orthophoto data will be considered accepted
  - Remedies: The vendor will correct orthophoto images that do not meet contract specifications and resubmit to the DEPARTMENT and COUNTY within 20 working days.
- ♦ Subphase 3: Delivery of Area 2 - 0.25-foot Pixels - Central UDB, Color
  - Deliverable: Preliminary Digital Orthophoto Data
  - Acceptance: DEPARTMENT and COUNTY have 20 working days to review the preliminary orthophoto data for meeting contract specifications for accuracy, tonal matching, edge matching, image quality, pixel size, and area coverage. If no review comments are received within 20 working days, then the orthophoto data will be considered accepted
  - Remedies: The vendor will correct orthophoto images that do not meet contract specifications and resubmit to the DEPARTMENT and COUNTY within 20 working days.
- ♦ Subphase 4: Delivery of Area 3 - 0.25-foot Pixels - Southern UDB, Color
  - Deliverable: Preliminary Digital Orthophoto Data
  - Acceptance: DEPARTMENT and COUNTY have 20 working days to review the preliminary orthophoto data for meeting contract specifications for accuracy, tonal matching, edge matching, image quality, pixel size, and area coverage. If no review comments are received within 20 working days, then the orthophoto data will be considered accepted
  - Remedies: The vendor will correct orthophoto images that do not meet contract specifications

and resubmit to the DEPARTMENT and COUNTY within 20 working days.

- Subphase 5: Delivery of Areas 4A & 4B - 1.0-foot Pixels – Outside UDB, Color
  - Deliverable: Preliminary Digital Orthophoto Data
  - Acceptance: DEPARTMENT and COUNTY have 20 working days to review the preliminary orthophoto data for meeting contract specifications for accuracy, tonal matching, edge matching, image quality, pixel size, and area coverage. If no review comments are received within 20 working days, then the orthophoto data will be considered accepted
  - Remedies: The vendor will correct orthophoto images that do not meet contract specifications and resubmit to the DEPARTMENT and COUNTY within 20 working days.

  - Reduced Resolution Data Set
    - Deliverable: Reduced Resolution Data Set
    - Acceptance: DEPARTMENT and COUNTY will have 20 working days to review the reduced resolution data set for pixel size and area coverage.
    - Remedies: The vendor will correct any data sets that do not meet pixel resolution and area coverage, and resubmit to the DEPARTMENT and COUNTY within 20 working days.

  - Image Tile Layout
    - Deliverable: Final Index Tile Layout in Digital Form as ESRI Shapefile
    - Acceptance: DEPARTMENT and COUNTY will have 20 working days to the review the index for completeness and accuracy of tile identifiers.
    - Remedies: The vendor will correct any errors and resubmit to the DEPARTMENT and COUNTY within 10 working days.

  - Dates of Aerial Photography Shapefile
    - Deliverable Dates of Aerial Photography in Digital Form as ESRI Shapefile
    - Acceptance: DEPARTMENT and COUNTY will have 20 working days to the review the shapefile for completeness.
    - Remedies: The vendor will correct any errors and resubmit to the DEPARTMENT and COUNTY within 10 working days.

  - MrSID Compressed Image
    - Deliverable: MrSID Compressed Image – may be multiple, non-overlapping MrSID files if a lower compression rate (for example, 20:1) is selected.
    - Acceptance: DEPARTMENT and COUNTY will have 20 working days to the review the MrSID file for completeness and image quality.
    - Remedies: The vendor will correct any errors and resubmit to the DEPARTMENT and COUNTY within 10 working days.

  - Final Copy of all Data Sets on Portable USB Hard Drive
    - Deliverable: Two sets of all image data files on Portable USB Hard Drive
    - Acceptance: All data should have been reviewed and accepted prior to generation of final data sets on Portable USB Hard Drive. DEPARTMENT and COUNTY will have 20 working days to verify that all final data files are delivered.
    - Remedies: The vendor will deliver any missing data files to the DEPARTMENT and COUNTY within 10 working days.

COUNTY CONTRACTED PROJECT PROTION:

Phase 1: Photo Ground Survey and Airborne GPS Survey for Color Photography Subphase 2: Photo Control Survey for Miami-Dade County Areas within and outside the UDB - Not including FDOT-Maintained Roadways Outside the UDB
Fee: $131,922.90

Tasks Included
- ❖ Mobilization
- ❖ Reconnaissance/Targeting Ground Control Points
- ❖ Survey Observations of Ground Control Points
- ❖ Survey Observations during Airborne GPS Survey
- ❖ Survey Processing
- ❖ Survey Report

Milestones

- ♦ Mobilization
  - Deliverable: None
  - Acceptance: Not Applicable
  - Remedies: Not Applicable
- ♦ Reconnaissance/Targeting Ground Control Points
  - Deliverable: None
  - Acceptance: That targeting is completed prior the aerial photography missions.
  - Remedies: The vendor will refly flights taken over areas for which ground control targets were not placed prior the mission. If targets were placed but not visible on the aerial photography, then alternate photo-identifiable points will be selected from the aerial photography to serve as locations for ground control points.
- ♦ Survey Observations of Ground Control Points and during Airborne GPS Survey for the color photography, Survey Processing, and Survey Report
  - Deliverable: Three copies of the Ground Control Report
  - Acceptance: The DEPARTMENT and COUNTY will have 10 working days to review the ground control report to verify that the report has all sections specified in the contract, the required survey methods and accuracies specified in the contract were met, and the report has the seal of a Florida Professional Surveyor and Mapper in accordance with Florida Minimum Technical Standards. If no review comments are received within 10 working days, then the report will be considered accepted.
  - Remedies: The vendor will modify or add to the report in the case of deficiencies according to the contract specifications. If the report indicates that the control survey methods or accuracies do not meet contract specifications, then additional survey work will be accomplished to meet the contract specifications.

Phase 2: Aerial Photography (Includes Aerial Photography, Image Scanning, and Aerial Triangulation) - for Miami-Dade County Areas
Fee: $306,649.42 – Fee is the summation of the following Subphases 2 through 5:

- ❖ Subphase 2: $64,739.16 - Area 1
- ❖ Subphase 3: $108,025.60 - Area 2
- ❖ Subphase 4: $107,605.54 - Area 3
- ❖ Subphase 5: $26,279.12 - Areas 4A & 4B

Tasks Included
- ❖ Mobilization
- ❖ Color Aerial Photography Mission

Milestones

- ♦ Mobilization
  - Deliverable: Flight Map showing all aerial flights and the locations of all ground control points to be targeted.
  - Acceptance: DEPARTMENT and COUNTY have 10 working days to review the flight line maps and comment. If no comments received within 10 working days, the flight line maps will be considered accepted.
  - Remedies: The DEPARTMENT, COUNTY, and vendor will discuss and resolve any suggested modifications to the flight line maps.
  - Deliverable: Camera calibration report
  - Acceptance: DEPARTMENT and COUNTY have five working days to review the camera calibration report for calibration within three years.
  - Remedies: If camera calibration does not meet specifications, then the vendor will have to use a camera that does.
- ♦ Color Aerial Photography Mission
  - Deliverable: Photography Edit Report
  - Acceptance: None
  - Remedies: None

Tasks Included
- ❖ Processing Film
- ❖ Deliver Original Color Photo Negatives

Milestones

- ♦ Process and Edit Color Aerial Film
  - Deliverable: None
  - Acceptance: Not Applicable
  - Remedies: Not Applicable

Remedies: Not Applicable
- ♦ Deliver Original Color Photo Negatives
  - Deliverable: Original color photo negatives
  - Acceptance: Not Applicable
  - Remedies: Not Applicable

Tasks Included
- ❖ Color Image Scanning
- ❖ Data Processing
- ❖ Aerial Triangulation Report

Milestones

- Color Image Scanning
  - Deliverable: None
  - Acceptance: Not Applicable
  - Remedies: Not Applicable
- Data Processing and Aerial Triangulation Report
  - Deliverable: Three copies of the Aerial Triangulation Report
  - Acceptance: The DEPARTMENT and COUNTY will have 10 working days to review the aerial triangulation report to verify that the report has all sections specified in the contract, and that the required methods and accuracies specified by the contract were met. If no review comments are received within 10 working days, then the report will be considered accepted.
  - Remedies: The vendor will modify or add to the report in the case of deficiencies according to the contract specifications. If the report indicates that the methods or accuracies do not meet contract specifications, then additional steps as necessary will be accomplished to meet the contract specifications.

Delivery Schedule

The intent is to fly the aerial photography missions during January of 2010.

Ground Control operations will take place in winter 2010.

Initial Raster Imagery Delivery will be dependent on when the aerial photography is flown, but should be in August 2010 if aerial photography is completed within January of 2010.

Final delivery of all required products for the project will be on or before September 3, 2010, if aerial photography is able to be completed on schedule. A more formal schedule of deliverables will be developed as part of the Implementation Plan.

PROJECT LIMITS: **Miami-Dade County Vicinity**

DEPARTMENT Financial Project Number: **250608-1-32-06**

COUNTY: **Miami-Dade**

DEPARTMENT Project Manager: **Scott Perkins, P.E. 305-470-5194**

COUNTY Project Manager: **Martha Guerra, Systems Support Manager**

EXHIBIT 'B'

FINANCIAL SUMMARY

The DEPARTMENT's Work Program allocates the following funding, programmed under Financial Project Number 250608-1-32-06, for PROJECT completion:

Fiscal Year:	**Amount:**	**Fund Type:**
2010/2011	**$431,353.63**	**Local Funds (LF)**
DEPARTMENT Contract C-8O93:		
	$300,000.00	State Funds (DS)
COUNTY Contract E05-MDAD-02:		
	$438,572.32	COUNTY Funding
OVERALL PROJECT TOTAL:	$1,169,925.95	
MIAMI-DADE COUNTY'S ADVANCE DEPOSIT:		**$ 431,353.63**

EXHIBIT 'C'

MIAMI-DADE COUNTY RESOLUTION

To be attached hereto and incorporated herein once ratified by the Board of COUNTY Commissioners.

MIAMI-DADE COUNTY
BOARD OF COUNTY COMMISSIONERS
OFFICE OF THE COMMISSION AUDITOR

Legislative Notes

Agenda Item:	**9(A)1**
File Number:	**100427**
Committee(s) of Reference:	**Board of County Commissioners**
Date of Analysis:	**March 24, 2010**
Type of Item:	**Resolution**
District:	**Countywide**

Summary

This resolution approves the execution of a **Locally Funded Agreement** (LFA) between Miami-Dade County and the State of Florida Department of Transportation (FDOT) to enable the **County** to obtain raster imagery and aerial photography totaling $869,925.95. FDOT will pay $300,000 to share the cost of obtaining similar services mentioned above. The total cost of the project is $1,169,925.95. **FDOT will retain a consultant to perform the raster imagery and aerial photography services. According to the LFA, the County will retain the same consultant.**

Background and Relevant Information

The County has used these services in the past to provide enhanced support to 3-1-1, 9-1-1, citizens, and businesses that depend on the County's Geographic Information System.

On **November 28, 2006**, the Board of County Commissioners (BCC), through Resolution 1318-06, approved a similar contract totaling $1,199,999.

On January 23, 2003, the BCC, through Resolution 69-03, approved a Joint Participation Agreement between the County and FDOT for similar services totaling $1,127,999.77. Resolution 69-03 was revised from the original in that the service for Infrared Digital Orthphotography for mapping and geographic analysis was optional. **The total project cost was reduced by $228,000.**

According to Enterprise Technology Services Department staff, the proposed resolution differs from Resolution 1318-06 since this year's scope of work covers a larger area to satisfy the requirements of the Office of the Property Appraiser. The project that was approved in FY 2006 covered 926 square miles. This year's project covers 1,171 square miles. All other specifications and deliverables are the same. Negotiations reduced the price by $30,000.

The Office of the Property Appraiser utilizes high resolution photography to obtain accurate measurements, translating to a more accurate assessment roll.

Prepared by: Michael Amador-Gil