

**City of Palmer  
Action Memorandum No. 16-003**

**Subject:** Authorize the City Manager to Negotiate and Execute Amendment No. 1 to the Professional Services Agreement with Hattenburg, Dilley, and Linnell, LLC for the Airport Master Plan Project

**Agenda of:** January 12, 2016

**Council Action:** Authorized

**Originator Information:**

**Originator:** Tom Healy, Director of Public Works  
**Date:** December 17, 2015      **Requested agenda date:** January 12, 2016

**Department Information:**

Route to:	Department Director:	Signature:	Date:
_____	Community Development	_____	_____
<u>X</u>	Finance	_____	_____
_____	Public Safety	_____	_____
<u>X</u>	Public Works	<u>Healy</u>	<u>12/17/2015</u>

**Approved for presentation by:**

	Signature:	Remarks:
City Manager	<u>[Signature]</u>	_____
City Attorney	<u>[Signature]</u>	_____
City Clerk	<u>[Signature]</u>	_____

**Certification of Funds:**

Total amount of funds listed in this legislation: \$ 277,152

This legislation (√):

- Has no fiscal impact       Creates a positive impact in the amount of: \$ \_\_\_\_\_  
 Negative impact in the amount of: \$ 277,152

Funds are (√):

- Budgeted      Line item(s): 24-03-10-7124 – Airport Master Plan Grant  
 Not budgeted      Affected line item(s): 03-01-10-7124 – City Match

General fund assigned balance (after requested budget modification): \$ \_\_\_\_\_

Enterprise unrestricted net position (after requested budget modification): \$ \_\_\_\_\_

Director of Finance Signature: [Signature]

**Attachment(s):**

- Draft Amendment #1 for HDL
- HDL's Proposal dated July 24, 2015

**Summary statement:** Action Memorandum No. 14-026, approved by the City council on April 8, 2014, authorized a professional services agreement with Hattenburg, Dilley, and Linnell, LLC (HDL) for the Airport Master Plan. The original amount of the PSA was \$400,000.

The council accepted and appropriated a grant from the FAA on September 22, 2015 with Resolution No. 15-021 in the amount of up to \$251,000 to complete an aeronautical survey at the Buddy Woods Palmer Municipal Airport.

This legislation authorizes HDL to complete the work as part of Phase II of the Airport Master Plan.

There will be additional legislation accepting and appropriating an additional \$49K from the FAA to complete Phase III of the Airport Master Plan Project. HDL's attached proposal outlines Phase II and Phase III work.

**Administration recommendation:** Authorize action memorandum 16-003.

August 13, 2015

Mr. Jeff Combs  
Airport Manager, Palmer Municipal Airport  
231 W. Evergreen Avenue  
Palmer, Alaska 99645

Re: Proposal for Task 12 - Aeronautical Survey and  
Task 13 - Exhibit A Land Acquisition Research  
Phase II Planning Services  
Palmer Municipal Airport

Dear Mr. Combs:

Hattenburg Dilley & Linnell, LLC (HDL) has prepared and submits herewith this fee proposal additional Phase II planning services for Task 12 – Aeronautical Survey and Task 13 Exhibit A Land Acquisition Research for the Palmer Municipal Airport. Tasks 12 and 13 are continuations of existing planning work underway at the Palmer Municipal Airport.

### BACKGROUND

The Federal Aviation Administration (FAA) and the City of Palmer (City) wish to conduct an aeronautical survey at the Palmer Municipal Airport. The City has accepted federal funds and is obligated under federal grant assurances <sup>(1)</sup> to take a proactive role in protecting airspace and mitigating conflicts to the terminal airspace environment. The FAA uses the aeronautical survey work product to identify manmade and natural obstructions, airspace conflicts, and to update obstruction charts for existing and new instrument approach procedures. The FAA is currently considering terminating night instrument approach procedures until suspected obstructions can be mapped and verified by the City. The aeronautical survey will provide up-to-date obstruction mapping and imagery for planning, and the eventual preparation of an electronic Airport Layout Plan (eALP) in geospatial format. The aerial photography needs to be flown in "leaf-on" conditions before about September 10 to be able to properly map the vegetation obstructions to FAA standards.

Additionally, The Exhibit A – Airport Property Plan in the ALP needs significant additional land title research and analysis. The consultant originally anticipated that the City had an airport land title document for the airport. During the planning process, the consultant found that the title document does not exist and needs to be constructed from the City's historical records. The airport property consists of approximately 60 parcels of land, 30 utility and right-of-way easements, and 10 aviation easements that have been purchased or taken by condemnation since the original airport property was acquired in 1950.

Scott Hattenburg, PE

Lorie Dilley, PE/CPG

Dennis Linnell, PE

David Lundin, PE

3335 Arctic Boulevard	Suite 100	• Anchorage	Alaska	99503	• Phone: 907.564.2120	• Fax: 907.564.2122
202 W. Elmwood Avenue	Suite 1	• Palmer	Alaska	99645	• Phone: 907.746.5230	• Fax: 907.746.5231
105 Trading Bay	Unit 101	• Kenai	Alaska	99611	• Phone: 907.283.2051	• Fax: 907.564.2122

## SCOPE OF WORK

### TASK 12 – AERONAUTICAL SURVEY

HDL will accomplish five tasks consisting of planning, verifying geodetic control survey, aerial imagery and mapping, field data collection, and the aeronautical survey submittal in accordance with the FAA standards listed below and FAA Table 2-1 Survey Requirements Matrix (attached).

1. AC 150/5300-16A, *General Guidance and Specification for Aeronautical Surveys: Establishment of Geodetic Control and Submission to the National Geodetic Survey,*
2. AC 150/5300-17C, *Standards for Using Remote Sensing Technologies in Airport Surveys, and*
3. AC 150/5300-18B Change 1, *General Guidance and Specifications for Submission of Aeronautical Surveys To NGS: Field Data Collection and Geographic Information System (GIS) Standards.*

Further, HDL has developed the following detailed scope of work to ensure each requirement within the three FAA standards is met.

#### Task 12.1 - Statement of Work, Geodetic Control Plan, and Imagery Plan to 16A and 17C Specifications

HDL will prepare a Statement of Work to be submitted by the airport owner for approval by FAA. This document briefly outlines the steps and work to be performed to complete the Aeronautical survey. Once the Statement of Work is approved, HDL and KMI will develop a geodetic survey control plan and an Imagery Plan. The plans will be submitted jointly via the AGIS website and will contain an Airport Summary Report, Station Information, Project Vector Diagram, a list of the instrument and software used, and the Quality Control Plan.

#### Task 12.2 - Verify Geodetic Survey Control Survey to 16A Specifications

Our preliminary research has confirmed that a Primary Airport Control Station (PACS) and Secondary Airport Control Stations (SACS) monuments already exist at the Palmer airport. Therefore, our Geodetic Survey Control Plan will be to verify the location and existence of each monument and confirm they meet the standards of AC 150/5300-16A. These monuments will provide for the control imagery as well as the ongoing and future surveys at the airport. GPS post-processed static survey methods will be used to locate the monuments.

HDL's survey group will locate 11 ground photo identification points needed by KMI to control the imagery. HDL will submit this survey control data to NGS for review and approval. On approval we will submit the survey control data along with the as built threshold information needed for KMI to develop the Object Identification Surfaces (OIS).

### Task 12.3: Imagery Acquisition to 17C Specifications

KMI will acquire 18 flight lines at 5,000' above mean ground elevation covering the entire project area to include all Object Identification Surfaces (OIS) as defined in AC 150/5300-18B, Sections 2.7.1.1 and 2.7.1.3. This imagery will be used for the OIS obstruction mapping and creation of 0.50' pixel orthophotos. The imagery will be acquired in accordance with the specifications outlined in FAA AC 150/5300-17C.

KMI is proposing to acquire LiDAR data covering the entire airport property. We will require 20 flight lines flown 2,000' above mean ground elevation to cover the entire airport property. The addition of the LiDAR data will expedite the identification of planimetric features and surface creation for generating the contour mapping to complete the ALP update. The 3D LiDAR data will also be beneficial in identifying tree obstructions for removal.

The imagery will be acquired with an 80% endlap and 50% sidelap. The imagery will be collected with a Leica RCD medium format 80 megapixel digital camera. The aerial photography will require 11 post photo ID points and a control point at the airport apron area for use as an ABGPS base point. The post photo ID points will be selected after the imagery has been acquired. In addition to the 11 post photo ID points HDL will survey 5 additional ID points to be withheld from KMI. These 5 points are provided to NGS to be used as a check on KMI's AT solution. Photography will be acquired at the earliest possible window in 2014 during full leaf on conditions with a minimum sun angle of 30°.

Airborne GPS (ABGPS) data will be collected during the photo mission using base stations established at the airport by HDL. The ABGPS data along with the 11 surveyed ground control points will be used to control the aerial photography during the Aero triangulation (AT) process. All exposures will be controlled by AT.

Every attempt possible will be made to adhere to all aspects of AC 150/5300-17C, however due to the unique conditions (daylight, cloud cover, and sun angle) encountered while performing these services at Alaskan airports the below modifications, if required, should be acceptable to maintain a realistic project schedule.

***Flight Line Navigation and Guidance.*** The use of patched flight lines and even re-flown lines will be acceptable as long as they are done to minimize visual differences in the imagery. Re-flights of portions of the imagery will be allowed on different days if necessary.

***Weather, Solar Angle, and Time of Year.*** Some cloud shadows will be acceptable in the imagery as long as it does not affect the ability of the photogrammetrist to evaluate the obstruction mapping data. Some clouds in the imagery will be allowed as long as they are outside the obstruction mapping area.

Approval of these modifications to standard were granted by FAA Headquarters, on 17 June, 2011 for the FAA Alaska Region, requiring no project specific review of the modification to standards.

KMI's ability to complete this project in 2015 will be dependent on a number of factors out of

our control, including: suitable environmental conditions needed to obtain the imagery , agency approval of imagery plan and imagery, receipt of survey control and runway centerline profile from HDL. KMI will provide the following deliverables in accordance with the requirements of FAAAC 150/5300-17C and FAAAC 150/5300-18B:

1. Airport Imagery Plan
2. AP Acquisition Report
3. Tiled and overview Orthophoto - 0.5' pixel resolution
4. OIS drawing in CAD format
5. ALP Update CAD Drawing w/Topographic and Planimetric features (4' Contours)

Task 12.4: Field Data Collection to 18B Specifications

We will verify survey control and report any discrepancies. We will survey the centerline profile of the runway and confirm the threshold elevations, and controlling obstructions. We will also locate improvements within the airport boundary that were not located with the aerial mapping. Data will be submitted in accordance with 18B Geographic Information System (GIS) standards for FAA approval. This data will be submitted to our in-house engineers and KMI to confirm the obstructions and help to create the Airport Airspace Analysis Survey (AAAS). The AAAS, NAVAID, and obstruction data is submitted to FAA to determine approach procedures.

Task 12.5: Submission of Aeronautical Surveys to NGS to 18B Specifications

HDL will review the survey and obstruction identification surfaces for runways with and without vertical guidance. We will identify, classify and report the highest manmade and natural objects penetrating the surfaces. Our quality control program will include detailed independent checking of aerial mapping data sets and attributes to provide a completed submittal to the FAA. Upon submittal of the data to the FAA Airport GIS Data Portal, HDL will coordinate with FAA to monitor and track the status of the approach procedures. Our three-part quality assurance program consists of:

1. Trained staff: the GIS Manager is FAA IDLE Level 3 Trained for FAA Advisory Circulars 150/5300-16A, 150/5300-17C and 150/5300-18B. All surveyors collecting field data for this project will also receive this training. The GIS specialist will be Level 3 trained in accordance with AC 150/5300-18B.
2. Careful quality control, a licensed land surveyor will be on-site during all field data collection and the Geospatial Group Leader will be on-site at the beginning of the project.
3. Use of Autodesk Civil 3D and the ESRI Aeronautical Solution package, a set of state-of-the-art software tools specifically designed for aeronautical surveys. These tools will be used to develop the database schema and to provide internal quality and consistency checks on data and fieldwork. Final data will be submitted via the FAA Airport GIS Data Portal.

Upon submittal of the data to the FAA Airport GIS Data Portal, HDL will coordinate with FAA to monitor and track the status of the approach procedures. GIS Deliverables for this task will consist of the following:

1. Survey and Quality Control Plan.
2. Remote sensing Plan.
3. Image acquisition report.
4. Final Project Report.
5. Documentation of Airport Data Features:
  - a. digital photographs
  - b. field sketches
  - c. scanned field notes
  - d. QA/QC checklists
  - e. Raw observational data files:
    - i. Data collector files
    - ii. GPS receiver files
    - iii. CORS data downloaded
    - iv. IGS Precise Ephemerides files
    - v. Photogrammetric observation files
    - vi. Other field measurement device's digital raw data (range finder, scanner, etc.)
  - f. GPS processing files:
    - i. 3d-inverse files for validation of geodetic control
    - ii. OPUS solutions for geodetic control
    - iii. GPS process files for Airport Data Features
  - g. Completed FAA AGIS forms:
    - i. Runway profile and runway end forms
    - ii. Navigational aid abstract and sketches
    - iii. Interview with airport manager and Flight Service Station
    - iv. FAA deliverable checklist
    - v. Airport field survey checklist

- vi. Airport Airspace Analysis checklist
6. Final processing, adjustment or reduction files used to produce the final data.
7. Final data submittal to FAA in ESRI Shapefile formats.
8. Airport point of contact list for use by the independent verification and validation team.
9. Copies of the transmittal letters for all deliveries posted to the sponsor or FAA.

The Project Manager and a Licensed Land Surveyor will make an on-site visit to demonstrate how these deliverables can be accessed by the sponsor and how this data allows for the re-use of this survey data on future projects.

Once AGIS submissions have been accepted we will compile all data submitted to AGIS (for FAA and NGS review) on an external hard drive and deliver to the Palmer Municipal Airport for their future use.

Task 12 Assumptions:

1. HDL will receive an NTP on or before September 1, 2015.
2. Weather and cloud-free conditions will allow for imagery to be collected in Fall 2015.
3. NGS and FAA will accept modified survey and imagery plans as described in Tasks 12.2 and 12.3 above.
4. There will be no substantive changes in FAA's or NGS's established processes during the contract period.

**TASK 13 – EXHIBIT A LAND RESEARCH**

HDL will research the City's historical records for acquisition information for the approximate 60 parcels of land, 30 utility and right-of-way easements, and 10 aviation easements that make up the current airport property. The consultant will research, review, compile and systemically organize the City's airport land acquisition records into a binder that includes the airport parcel description, deeds, grantor, type of interest, type of easement, acreage, type of conveyance instrument, FAA grant number, date and type of land use change, public land references, and encumbrances. The land acquisition binder will be organized as a supporting document to the Exhibit A Airport Property Map. The land acquisition document will be reviewed by HDL's right-of-way specialist, Jim Sharp, to identify any title discrepancies that may be of concern. The land acquisition document will then be turned over to the City and its attorney to provide the legal opinion of title. The cost of the legal review is not a part of this estimate.

Task 13 Assumptions:

1. The City will provide access to all it airport land acquisition records

2. Title reports for the all the parcels is not included, but can be provided at additional cost if needed.
3. The City's attorney will provide the legal opinion of title.

### SCHEDULE

Task 1 can begin work as soon as written notice to proceed is received. We will begin work on the survey and imagery plans immediately for approval this fall. We anticipate survey control and photogrammetry to be performed fall 2015, with the final as built survey and approved submittal to the FAA GIS database in the fall of 2016. Task 2 will be completed within 90 days of NTP.

### EXPERIENCE

Tor Anderzen, PE/Senior Aviation Engineer, recently joined HDL and brings 10 years of experience with aviation design and aeronautical surveys. Tuck Maakestad, PLS and his team of 6 survey staff recently joined HDL. Tuck has managed the successful completion of over 25 aeronautical surveys in Alaska. HDL's team has the availability and experience to expeditiously and efficiently perform this work. We have teamed with Kodiak Mapping, Inc. (KMI) whose office is located in Palmer to provide the aerial photography, mapping and obstruction identification. KMI is one of the leading photogrammetric consultants in the state that specializes in aeronautical surveys.

### COST

We propose to perform the Task 1-5 work on a time-and-materials basis for a not-to-exceed amount of **\$277,152** using our published hourly rates. Reimbursable expenses on COP-approved expenses would be at cost plus 10%. Attached is a detailed cost breakdown dated August 5, 2015.

RE: Palmer Aeronautical Survey  
Date: July 24, 2015  
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We appreciate the opportunity to be of service to the City of Palmer on this very exciting project. If you have any questions please contact me at 564-2120 or at [shattenburg@hdlalaska.com](mailto:shattenburg@hdlalaska.com).

Sincerely,

Hattenburg Dilley & Linnell, LLC



Mark Swenson for: Scott Hattenburg, PE/Principal

Attachments: Fee Estimate dated August 5, 2015  
Table 2-1 Survey Requirements  
Exhibit A: KMI Cost Estimate  
KMI Subcontractor Estimate (2 pages)

(1) Title 49, USC, Subtitle VII, [www.faa.gov/airports/aip/grant\\_assurances](http://www.faa.gov/airports/aip/grant_assurances), Airport Grant Assurances: 5. Preserving Rights and Powers, 19. Operation & Maintenance and 20. Hazard Removal and Mitigation).

*RE: Palmer Aeronautical Survey*  
*Date: July 24, 2015*  
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**Project: Palmer Airport Master Plan - Additional Services**  
**Engineer: Hattenburg Dilley & Linnell**

Fee Summary by Task  
7/28/2015

<u>Task</u>	<u>ACTIVITY</u>	<u>LABOR</u>	<u>REIMB</u>	<u>SUB CONTRACT</u>	<u>TOTAL</u>
12	Aeronautical Survey	118,830	0	108,962	227,792
13	Exhibit A Land Research	46,610	0	2,750	49,360
		<b>118,830</b>	<b>0</b>	<b>108,962</b>	<b>277,152</b>

Project: **Palmer Municipal Airport Master Plan**  
 Engineer: **HATTENBURG DILLEY & LINNELL**  
**Aeronautical Survey**

Date Prepared: 07/28/15

ACTIVITY	QTY	RATE	LABOR	REIMB	SUB CONTR	SUB TOTAL	TOTAL
<b>Aeronautical Survey.....</b>							<b>\$217,886</b>
<u>Survey-Imagery Plan Spec. 17C</u>							<b>\$1,980</b>
Project Manager	4 hrs	@ 170	680				
Survey Manager	8 hrs	@ 140	1,120				
Survey Technician	2 hrs	@ 90	180				
<u>Geodetic Survey Control Plan. 16A</u>							<b>\$280</b>
Project Manager	0 hrs	@ 170	0				
Survey Manager	2 hrs	@ 140	280				
<u>Geodetic Survey Control Spec. 16A</u>							<b>\$14,660</b>
Project Manager	2 hrs	@ 170	340				
Survey Manager	4 hrs	@ 140	560				
Project Surveyor	16 hrs	@ 100	1,600				
2-Man Survey Crew	32 hrs	@ 205	6,560				
2-Man Survey Crew (OT)	16 hrs	@ 260	4,160				
Survey Technician	16 hrs	@ 90	1,440				
<u>Airport Obstruction Map Spec. 17C</u>							<b>\$94,056</b>
See attached KMI estimate					94,056		
<u>Survey Data Collection Spec 18B</u>							<b>\$51,990</b>
Project Manager	24 hrs	@ 170	4,080				
Survey Manager	24 hrs	@ 140	3,360				
Project Surveyor	90 hrs	@ 100	9,000				
Airport Engineer	40 hrs	@ 135	5,400				
2-Man Survey Crew	90 hrs	@ 205	18,450				
2-Man Survey Crew (OT)	20 hrs	@ 285	5,700				
Survey Technician	60 hrs	@ 100	6,000				
<u>Attribution and Submission to FAA Spec. 18B</u>							<b>\$54,920</b>
Project Manager	20 hrs	@ 170	3,400				
Airport Engineer	32 hrs	@ 135	4,320				
Survey Manager	40 hrs	@ 140	5,600				
GIS Manager	120 hrs	@ 125	15,000				
GIS Specialist	160 hrs	@ 135	21,600				
IT Manager		@ 140	0				
IT Technician		@ 285	0				
ESRI Airports Solution Software	1 allow.	@ 5,000			5,000		
<b>Subtotal</b>			<b>118,830</b>	<b>0</b>	<b>99,056</b>		<b>217,886</b>
10% Markup				<b>0</b>	<b>9,906</b>		<b>\$9,906</b>
<b>TASK 12 TOTAL</b>			<b>118,830</b>	<b>0</b>	<b>108,962</b>		<b>\$227,792</b>

**Project: Palmer Municipal Airport Master Plan**  
**Engineer: HATTENBURG DILLEY & LINNELL**  
**Exhibit A Land Research**

Date Prepared: 07/28/15

TASK	ACTIVITY	QTY	RATE	LABOR	REIMB	SUB CONTR	SUB TOTAL	TOTAL
<b>2.0</b>	<b>Exhibit A Land Research.....</b>							<b>\$49,360</b>
	<i>Reconstruct Airport Land Acquisition Document</i>						<b>\$44,450</b>	
	Principal Engineer	42 hrs	@ 175	7,350				
	Senior Aviation Engineer	20 hrs	@ 125	2,500				
	Engineering Assistant	400 hrs	@ 70	28,000				
	Senior Right of Way Agent	40 hrs	@ 165	6,600				
	Drafting Technician	24 hrs	@ \$90	\$2,160				
	Photoreprographics and Minor Title Reports	1 ea	@ 2,500			2,500		
	<b>Subtotal</b>			<b>46,610</b>	<b>0</b>	<b>2,500</b>		<b>44,450</b>
	<b>10% Markup</b>				<b>0</b>	<b>250</b>		<b>\$250</b>
	<b>TASK 12 TOTAL</b>			<b>46,610</b>	<b>0</b>	<b>2,750</b>		<b>\$49,360</b>



