CITY OF HAMMOND
HAMMOND NORTHSHORE REGIONAL AIRPORT
MASTER PLAN UPDATE
Work Authorization for Professional Services

	6
(Project Identification No.)	(Work Authorization No.)

It is agreed to undertake the following work in accordance with the provisions of our Prime Agreement for Professional Services dated July 19, 2012.

Description of Assignment:

This assignment includes a Master Plan Update for the Hammond Northshore Regional Airport with a compressive overview of the airport's needs over the next twenty years, and will include the identification, location, timing, and costs of proposed developments as necessary to meet future demand projections or to increase safety. In addition, the effort will result in the development of an Airport Layout Plan drawings set with meets both the FAA and LaDOTD criteria.

Attachment "A" defines the Scope of Services and Attachment "B" defines the fees for Basic and Special Services.

Basis of Compensation/Period of Services:

Basic Services: Lump Sum Payment of Two Hundred Forty One Thousand Nine Hundred Seventy Nine Dollars and Twenty Seven Cents ($241,979.27).

Special Services: Ground Survey Services to be based on actual hours worked, by discipline, times the agreed upon fee schedule, plus non-salary expenses. The estimated limit for Ground Surveying services is Eighteen Thousand Dollars and No Cents ($18,000.00). Aerial Survey, Mapping, and AGIS Upload/Attribution for a Lump Sum Payment of Fifty Five Thousand Dollars and No Cents ($55,000.00).

Agreed as to scope of services, time schedule, and budget:

For: **Hammond Northshore Regional Airport**	For: **Michael Baker International, Inc.**
Date: _____	Date: 7 SEPTEMBER 2017

Attachment: A: Scope of Services
B: Baker Fee Proposal

Attachment A

Scope of Work

Hammond Northshore Regional Airport (HDC)
Master Plan Update

Overview

The Hammond Northshore Regional Airport (HDC) is owned by the City of Hammond, Louisiana and is located near the intersection of U.S. Interstates 12 and 55. The Federal Aviation Administration (FAA) requested the preparation of a master plan update for the airport, which consists of conducting a detailed planning effort where the short-term and long-term needs of HDC are addressed, with a focus on identifying land/hangar development opportunities. The primary elements of the planning effort include an inventory, forecasts, facility requirements, alternatives, implementation plan, public involvement, and the preparation of an Airport Layout Plan (ALP) drawing set that conforms to FAA Standard Operating Procedure (SOP) 2.00, Standard Procedure for FAA Review and Approval of ALPs. The products of the master plan update will include a narrative report that documents the various elements of the study as well as an ALP drawing set that includes several technical drawings that must be approved by the FAA. Michael Baker International, Inc. (Baker) will conduct this effort for the City of Hammond.

HDC is identified as a national general aviation airport in the FAA's National Plan of Integrated Airport Systems (NPIAS) and is therefore eligible to receive FAA Airport Improvement Program (AIP) funds for certain projects. The FAA requires airport sponsors to agree to assurances in order to be eligible to receive AIP funds, one of which is to keep an up to date ALP at all times. The City of Hammond chose to conduct this master plan update to reevaluate the short-term and long-term needs for HDC and to produce an updated Capital Improvement Plan (CIP). The airport is located 33 nautical miles from the Louis Armstrong New Orleans International Airport (MSY) and currently has two paved runways—Runway 13-31 is 6,502 feet long and Runway 18-36 is 5,001 feet long. The study will include a land use analysis to determine what types of aviation and non-aviation development may be appropriate for HDC while considering the forecasts of aviation demand. The Hammond Comprehensive Plan will also be considered so development initiatives at HDC are consistent with the city's focus on the economy and transportation. According to the FAA Airport Master Record Form for HDC (FAA Form 5010-1), there are 181 fixed-wing aircraft based at HDC as well as three helicopters and 20 military aircraft. The airport reported 76,850 operations for the 12 month period ending on June 13, 2016. Those activity variables will be reevaluated as part of this study to determine the needs for both airfield facilities (e.g., runway length) and landside facilities (e.g., hangars).

The following tasks are incorporated into this effort:

- Task 1 – Project Initiation & Management
- Task 2 – Inventory of Existing Conditions
- Task 3 – Aviation Activity Forecasts
- Task 4 – Facility Requirements

- Task 5 – Airport Alternatives Analysis
- Task 6 – Alternatives Refinement
- Task 7 – Airport Layout Plan Drawing Set
- Task 8 – Implementation Plan
- Task 9 – Public Involvement/Meetings
- Task 10 – Documentation & Deliverables
- Task 11 – Airport Layout Plan Survey & Mapping Services

Key Issues

Specific issues to be evaluated as part of this master plan update are delineated below, and specific tasks were incorporated into this scope of services in an effort to address these considerations. This listing is not intended to be an exhaustive list of items that require consideration within the study but rather identifies major concerns or issues that should be addressed in support of the airport's long-term goals.

- Assess the operational efficiency, effectiveness, and safety of the airport.
- Evaluate the airport facility layout for conformance with FAA guidance and regulations.
- Evaluate and incorporate the aviation needs of both the community and users.
- Assess the needs of current tenants and requirements necessary to attract new tenants and/or to expand their facilities.
- Develop a plan that maximizes the use of existing hangars and supports new hangar development to meet future hangar demand.
- Address need for future land acquisition.
- Assist the airport in supporting aviation demand within the region.
- Identify existing and alternative funding sources for airport development.
- Identify areas of environmental concern and provide mitigation options for future development.
- Evaluate long-term development options for general aviation and airport support facilities.
- Review the airport's existing and ultimate runway length requirements to identify any improvements necessary to meet demand and/or to entice additional traffic to the airport in the future.
- Consider the maintenance, rehabilitation and reconstruction of airfield pavements over the 20-year planning period.
- Identify vertical obstructions and investigate the associated impacts and/or mitigation options.
- Collect additional survey data as necessary to meet the requirements of FAA AC 150/5300-18B for ALPs.

Technical References

A variety of technical references are commonly used during the development of a master plan report. The following list denotes some of the more commonly used reference materials:

- Airport Master Plans (AC 150/5070-6B)

- Airport Design (AC 150/5300-13A)
- General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards (AC 150/5300-18B)
- Runway Length Requirements for Airport Design (AC 150/5325-4B)
- FAA Memorandum issued on September 27, 2012 titled Interim Guidance on Land Uses Within a Runway Protection Zone (RPZ)
- National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions (FAA Order 5050.4B)
- Environmental Impacts: Policies and Procedures (FAA Order 1050.1F)
- Hazardous Wildlife Attractants On or Near an Airport (AC 150/5200-33B)
- Noise Control and Compatibility Planning for Airports (AC 150/5020-1)
- Airport Pavement Management Program (AC 150/5380-7B)
- Airport Capacity and Delay (AC 150/5060-5)
- Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs) (Standard Operation Procedure (SOP) 2.0)
- Standard Operating Procedure for FAA Review of Exhibit 'A' Airport Property Inventory Maps (SOP 3.0)

Detailed information with regard to the study is outlined in the following elements and tasks.

Task 1 – Project Initiation & Management

The project initiation element includes the development and revision of the scope and associated fee and also consists of necessary meeting participation (by phone) along with other coordination relevant to the scoping effort.

Task 1.1 – Project Scoping

A scope of services and man-hour estimate for the project will be developed in accordance with the current version of FAA Advisory Circular 150/5070-6B, Airport Master Plans. The scope will identify major tasks as well as delineate general elements of work to be conducted under each of the project activities. The fee estimate will define the estimated labor hours and associated costs for each task and element in the scope, as well as define anticipated costs that may include, but not be limited to, travel, lodging, meals, presentation materials, printing and graphics, and coordination costs for the scoping process which is anticipated to include a phone coordination meeting with the representatives of the airport and FAA. This task will also involve the development of a project timeline for each of the tasks delineated in the scope.

Task 1.2 – Technical Advisory Committee (TAC)

In accordance with FAA Advisory Circular 150/5070-6B, Airport Master Plans, Baker will work with the airport to establish a Technical Advisory Committee (TAC). Members of the TAC are well versed and technically knowledgeable with the airport's operations and will be tasked to provide constructive comments and suggestions regarding technical planning issues.

Task 1.3 – Project Management

This task includes the effort required for routine coordination throughout the study and for project management activities such as invoicing, scheduling, and providing written updates to the airport. As appropriate, Baker will produce monthly invoices for services rendered.

Task 2 – Inventory of Existing Conditions

The inventory of existing conditions will document the available facilities and conditions at HDC. It will consist of tables and graphics that provide a brief overview of the airfield, airspace, general aviation facilities, access and parking, the airport role and history, surrounding land uses, and known environmental factors. The goal will be to introduce the critical elements that will be investigated in later portions of the ALP update. Although previous studies will be reviewed for HDC, this effort will focus on taking a new look at the airport in accordance with the methodologies described in FAA AC 150/5070-6B, Airport Master Plans, and FAA AC 150-5300-13A, Airport Design. Both of those documents have evolved over time to include changing requirements, which often necessitates a complete reevaluation of the airport's short-term and long-term needs.

Task 2.1 – Review & Evaluation of Existing Documents

Existing documents including previous planning studies, design drawings, inspection reports, airfield pavement data, leases, obstruction charts, approach plates, and as-built drawings of structures on the airport will be obtained and analyzed for their content. Documents to be obtained and reviewed include, but may not be limited to:

- Previous Airport Master Plans
- Current Airport Layout Plan Drawings (digital preferred)
- FAA Terminal Area Forecasts (TAF)
- FAA 5010 Form (Airport Master Record)
- Area Socioeconomic Data
- As-Built Drawings of Airport Buildings and Facilities
- FAA Sectional Aeronautical Chart
- Airport Obstruction Chart
- Area Land Use and Zoning Information
- Historical Fuel Capacity and Demand Data
- Current Capital Improvement Program
- Airport Property Map
- Aeronautical Survey

It is noted that although these documents may be reviewed as part of the inventory effort, it is unlikely that a summary of each document will be provided; rather, these types of documents may be cited as necessary throughout the study.

Task 2.2 – Inventory of Physical Airport Facilities

The physical facilities inventory will consist of an on-site review of existing airport facilities with attention to their size, condition, use, configuration, and adequacy under current operating conditions. This information will be used to evaluate the effectiveness of the individual facility, and any interrelationships between developed uses on the airfield and how they may be affected by changes designed to improve airport operations and/or capacity. Additionally, the evaluation of existing facilities will serve as the basis for identifying any facilities that are in need of immediate attention, if any. The following represents the key elements to be addressed:

- Land Holdings
- Airfield Facilities
- Fixed Based Operator (FBO)/Aircraft Maintenance
- General Aviation Facilities
- Landside Facilities
- Support Facilities
- Airport Surface Access
- Weather Data

Task 2.3 – Airspace Environment

Airport traffic control facilities involved in and/or responsible for handling traffic into and out of the airport will be identified, and approach/departure procedures as they relate to the airport will be reviewed. An inventory of the local airspace will be undertaken with emphasis on the identification of the special operating requirements within different airspace classes, Military Operations Areas (MOAs), and Restricted Areas (RAs). The airport's existing approach procedures will also be identified as part of this task, as well as any relevant information about traffic patterns, noise abatement procedures, and critical obstructions.

Task 2.4 – Tenant Interviews

As part of the data gathering process, airport tenants will be interviewed either in person or by phone. The interview will solicit information such as a description of current facilities, levels of activity, including fuel data, if applicable, conducted from the airport, perceived airport needs, future plans, type of aircraft used, and anticipated fleet additions and changes in order to identify the existing and potential critical aircraft. A listing of airport tenants will be used to identify persons to interview as well as for follow-up discussions on an as-needed basis throughout the planning process.

Task 2.5 – Vicinity Land Use/Existing Land Use Controls

An evaluation and review of existing land use mapping, airport ownership (i.e., fee simple or easement), aerial photography, comprehensive plans, zoning controls, and other documentation pertaining to current and future land uses in the vicinity of the airport will be conducted. Existing land development code and zoning overlay districts will be reviewed to identify any potential incompatible land uses. As applicable, subdivision regulations, building codes, and other documentation pertaining to land use management in the vicinity of the airport will be reviewed. Attention will be paid to those requirements including height restrictions and building/zoning codes that could affect the future

development of the airport or adjacent parcels of land. This effort will essentially document areas where future airport expansion may be constrained due to local growth management policies and FAA guidance regarding compatible land uses around airports.

Task 2.6 – Natural Features Inventory

An inventory of natural resources including wetlands, streams, biotic communities, protected species, floodplains, coastal resources, farmlands, and land uses will be conducted in order to assess potential environmental impacts and to assist in the development of alternatives. The inventory will use existing information such as maps, previous environmental and planning studies, and the internet in order to obtain an overview of sensitive environmental resources within and adjacent to the airport. The FAA environmental checklist will also be used as a guide for identifying potential environmental features that may constrain airport development or otherwise require mitigation which may ultimately affect future development costs.

Task 3 – Aviation Activity Forecasts

The forecast element includes the review, sorting, documenting, and development of future forecasts of based aircraft and operational activity. In addition to forecast development, socioeconomic and other factors which have historically or that may impact future growth will be discussed. Once accepted by the TAC and airport management, this chapter will be submitted to the FAA for their review and approval. FAA approval of this element is necessary in order to complete subsequent elements and tasks.

Task 3.1 – Historical & Current Air Traffic Activity

Data on historical and current air traffic activity at the airport will be assembled and organized. Information concerning the level of activity associated with general aviation operations by local and itinerant categories, military operations, training operations including touch and go operations, fuel sales (in gallons), and based aircraft by type will be obtained as provided by the airport or as is available from FAA databases. Information concerning daily, monthly, and annual activity will be based upon historical data as well as information obtained from airport records, Airport Traffic Control Tower (ATCT) personnel, airport users, FBO, Louisiana Department of Transportation and Development (LaDOTD), and from available FAA sources. Existing records of general aviation activity at HDC to be compiled include:

- Annual operations
- Operations by activity (e.g., military, training including percent touch and go activity, corporate, etc.)
- Operations by category of aircraft (single engine, multi-engine, helicopter, etc.)
- Number of based aircraft by type (single-engine, multi-engine, etc.)
- Critical aircraft and associated operations
- Peak month, peak day, and peak hour operational activity

Task 3.2 – Factors and Opportunities Affecting Activity Levels

This task will analyze potential changes in local business and economic patterns, or in possible based operators at the airport to determine any potentially significant factors that could impact the level or type of activity at HDC. The FAA recommends evaluating multiple factors including rising/declining fuel prices and other local factors which have or could potentially affect general aviation activity and security requirements. As necessary, these factors will be considered during the development of forecasts.

Task 3.3 – General Aviation Forecasts

The study will include activity forecasts based upon socioeconomic projections, past trends, and also on past forecasts developed by the state and/or FAA. This review will result in either the re-validation of a past forecast or the establishment of new forecasts. According to the FAA's June 2008 Review and Approval of Aviation Forecasts guidance, total operations and based aircraft forecasts are considered consistent with the TAF if they differ by less than 10 percent in the five-year forecast period and 15 percent in the 10-year forecast period. The latest FAA forecast data is available on the FAA's website at https://aspm.faa.gov/main/taf.asp. Forecasts developed which are not consistent with the TAF will need to be submitted to FAA Headquarters for review and approval. Unless conclusive evidence exists to the contrary, a forecast of based aircraft and total operations will be selected which is consistent with the TAF. Once identified, the selected forecast will be used to provide a timetable for facility improvements, recommended development, and phasing for capital improvements. Forecasts of general aviation activity will be prepared for the 5, 10, and 20-year planning horizons and will provide individual projections of the following:

- Annual General Aviation Operations (Local vs. Itinerant)
- Annual Military Operations (Local vs. Itinerant)
- Annual Instrument Operations
- Total Annual Aircraft Operations
- Annual Operational Fleet Mix
- Based Aircraft Totals
- Based Aircraft Fleet Mix

Task 3.4 – Aircraft Peaking Analysis

A key factor in determining the demand for future facilities involves the analysis of the airport's operational peaking characteristics. This relates to those times of the day, month, and/or year when the activity level of aircraft operations or the number of pilots/GA passengers exceeds average values. These peaks are key elements in determining the sizing of airside and landside facilities. The items to be assessed will include:

- Average peak month for operations and GA pilots/passengers
- Average peak day pilots/passengers and operations
- Average day pilots/passengers and operations
- Average peak hour operations and pilots/passengers

After the TAC and airport management have both reviewed and approved the developed forecasts, they will be forwarded to the FAA for their review and approval. Once approved, Task 4 will be initiated.

Task 4 – Facility Requirements

The facility requirements will assess both the aviation and non-aviation components of HDC including the runways and taxiways, aircraft storage facilities, supporting infrastructure, and undeveloped properties. The facility requirements will include a detailed level of effort because several FAA standards have changed in recent years and it will be necessary to fully evaluate every feature of the airport for compliance with the revised FAA standards. The facility requirements also dictate what types of alternatives and recommendations should be investigated for HDC.

Task 4.1 – Airfield Capacity

Based on the forecast developed under Task 3, a capacity assessment will be performed to determine existing and future airfield capacity related to existing and anticipated changes in operations and fleet mix as defined within the aviation activity forecasts. The result of the capacity assessment will be expressed in terms of hourly and annual service volume of the airfield. Per Chapter 2 of AC 150/5060-5, Airport Capacity and Delay, Capacity and Delay Calculations for Long Range Planning will be implemented in order to determine HDC's annual service volume and hourly capacity.

Task 4.2 – Critical Aircraft Identification

Using information generated through the FAA's inventory of IFR flight data and review of the airport's historic activity and based aircraft, a critical aircraft will be identified. The critical aircraft represents either a single aircraft or family of aircraft that equals or exceeds 500 annual operations or that is currently based at the airport. Further, using forecast operations and fleet mix information developed in Task 3, the future critical aircraft or family of aircraft will be determined. Once established, the critical aircraft information will be used to determine existing and future airfield facility requirements and will dictate the sizing of taxiways/taxilanes and determine pavement strength requirements.

Task 4.3 – Runway Length Analysis

The takeoff and landing runway length requirements for HDC will be reviewed in comparison to the criteria prescribed in FAA Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design. This review will evaluate the airport's existing and future fleet mix and activity in order to confirm that the airport has sufficient length to accommodate anticipated demand through the 20-year planning period. Once confirmed, no additional analysis regarding runway length will be conducted in this task.

Task 4.4 – Airfield Facility Requirements

Using the results of the airfield capacity analysis (Task 4.1), as well as other relevant information and airfield planning criteria, a preliminary listing of airfield facility requirements necessary to meet projected levels of demand for the 5, 10, and 20-year timeframes will be determined and prepared. These facility requirements will be based upon FAA planning criteria, and the aviation activity forecasts

for the airport, as well as the knowledge and expertise of Baker, airport management, and TAC members. Airfield facility needs to be assessed include:

- Runways, taxiways/taxilanes, and connectors (length, width, size and/or strength)
- Lighting and marking
- Aircraft parking aprons (size and strength)
- Navigational aids (electronic and visual)

Airfield facility needs will be identified in terms of linear feet, strength, etc. and will be compared to existing facilities to identify excess or deficient facility capacity or capability. The output of the aviation forecasts will be accounted for in the analysis of airfield facility needs, particularly as it relates to runway length and dimensional layout requirements, taxiway development needs and overall airfield lighting needs.

Task 4.5 – General Aviation Facilities

Using the results of previous tasks and accepted planning criteria, the master plan will determine and prepare a preliminary listing of general aviation facility requirements necessary to meet both current and projected levels of demand for the 5, 10, and 20-year planning horizons. General aviation facility requirements to be assessed include:

- Aircraft apron and parking areas
- Aircraft storage hangars (T-hangars and box hangars)
- Conventional hangars
- Fixed Base Operator (FBO) facilities
- Access and vehicle parking areas

Facility requirements will be expressed in terms of gross area, linear measurement or other basic units, and will be compared to existing facilities to identify excess or deficient capacity by facility on the airfield. This assessment will quantify future development items needed to maintain an adequate level of service, function, and operation at the airport.

Task 4.6 – Airport Support Facilities

Using information provided by existing studies, and aviation planning criteria established under preceding tasks, a set of facility requirements will be developed which documents the airport facilities necessary to support the airfield (e.g., ATCT), terminal/FBO area, general aviation areas and their related activity. Requirements for facilities such as aircraft fueling, airport maintenance, ground access, and vehicular parking will be developed under this task, as needed.

Task 4.7 – Land Acquisition Requirements

During this Task, Baker will review the airport's facilities in comparison to FAA standards to identify additional property (adjacent parcels) and/or avigation easements that may be required for inclusion into the airport property envelope. This identification of additional property may be necessary in order

to ensure land use compatibility and control of the Runway Protection Zones (RPZs), to meet standards for Object Free Areas (OFAs), to allow for expansion and growth of existing facilities or to allocate land for the anticipation of future aviation-related commercial activities which are expected in the future.

Task 4.8 – Recycling

According to AC 150/5070-6B, Airport Master Plans, practices should be considered that would enhance the airport's overall sustainability such as recycling. As part of this effort, the airport's current recycling practices will be documented and the FAA's policies on airport recycling, reuse, and waste reduction will be identified as a reference for HDC management.

Task 5 – Airport Alternatives Analyses

This element includes the development of graphical alternatives which depict methods to either resolve deficiencies or to construct new facilities as necessary to meet future demand expectations. The alternatives include potential improvements to both airside and landside facilities and also include a review of land use compatibility, including uses within RPZs. These alternatives will be presented to the TAC members for their input in order to identify a "selected" alternative.

Task 5.1 – Identify Potential Airfield Alternatives

A primary goal of this study is to update the most recent airport planning efforts completed for the airport. Since the previous ALP was completed, aeronautical demand at the airport and FAA design guidance has changed. As a result, this study will use the updated airport facility requirements established in preceding tasks to review the recommended airport development concept from the previous ALP and evaluate another preliminary airfield development alternative with the purpose of developing the most viable option.

On the basis of the airport facility requirements established in preceding elements, a maximum of three (3) preliminary airfield development alternatives will be developed for this study. These alternatives may include such items as runway improvements, taxiway improvements, as well as actions to address possible design related deficiencies on the airport. The preliminary development concepts will show necessary runway and taxiway development during the 20-year planning period as well as required changes to infrastructure to accommodate each airfield option evaluated. This element will be conducted simultaneously with the following elements and will result in a series of overall concepts for the current airport site and adjacent properties. Airfield alternatives will be analyzed based on their ability to satisfy the identified facility requirements, environmental considerations, engineering factors, cost, phasing, political viability, and ease of implementation.

Task 5.2 – Landside Land Use Evaluation

As part of the alternatives analysis, Baker will evaluate the highest and best use of existing airport property. An overview of adjacent parcels will also be reviewed to identify property that might be required as a result of potential future development, FAA requirements and/or compatible land use.

During this element, Baker will consider the highest and best use of property needed to accommodate the future development of the airport. The purpose of this element is to support the airport's efforts

to maximize development to meet demand or will generate revenue for future airport activities. As a result, the existing characteristics of the airport's landside facilities will be reviewed, including:

- Proximity of areas to nearby facilities and compatible uses
- Ownership of adjacent properties
- Overall site circulation and external access
- On-site parking needs
- Availability of utilities
- Site preparation and environmental impacts

This task will focus on verifying baseline data and identifying any recent landside improvement projects since the previous master plan.

Task 5.3 – Identify Potential Landside Alternatives

The landside alternatives analysis will show hangar, apron, general aviation terminal area, and other landside developments necessary to accommodate demand expected over the 20-year planning period. The landside alternatives will be evaluated on the basis of their efficiency in meeting identified facility requirements, engineering factors, ease of implementation, costs, phasing, airside and landside accessibility, and environmental considerations leading to the selection of the option or combination of options which best satisfy the identified need.

Based upon the established themes, Baker will, in conjunction with the TAC, develop up to three (3) landside scenarios. These alternatives will be coordinated and presented to the airport staff and TAC as necessary for review and comment.

During the TAC meeting (Alternatives Workshop), the team will review the scenarios along with the benefits and drawbacks of each in an effort to collectively identify preferred design and planning elements. The preferred alternative may include elements from some, all, or a mixture of the various alternatives presented.

Task 5.4 – Identify Potential Airport Support Facilities

Based on the ultimate airfield configuration and other changes proposed in the master plan update, there may be a need to consider the relocation of existing support facilities or identify sites for new support facilities at the airport. This may include fuel farm, maintenance facilities, access, etc. This analysis will identify the key airport support facilities at HDC and define alternatives to address these and other issues that may arise in the planning process. Airport support facility alternatives will be evaluated on the basis of their efficiency in meeting identified facility requirements, engineering factors, impact on other airport development options, ease of implementation, costs, phasing, airside and landside accessibility and environmental considerations leading to the selection of the options best satisfying the identified need. The graphical depictions of support facility alternative(s) may be included in the landside alternative graphics or produced separately depending upon the number and location of support facilities required.

Task 5.5 – Determine Preliminary Impacts & Development Costs

Using labor and materials price data from recent construction projects and/or available cost schedules, preliminary order of magnitude cost estimates associated with the airport development alternatives will be prepared for purposes of comparison. Cost estimates at this point would be limited to 2017 dollars and to only those analyses required to effectively evaluate potential development scenarios.

Task 6 – Alternatives Refinement

This task includes the refinement and consolidation of the previously identified preferred development scenario for approaches, airfield development, landside development, and support facility development. This effort also includes a more in-depth discussion of environmental impacts, regulatory requirements, and mitigation measures. In addition, a more detailed list of capital improvement projects is documented in this element. The refined alternative will ultimately be utilized as the foundation for development of the ALP drawing set.

Task 6.1 – Refined Alternative Analysis

Based on input from airport staff or the TAC, as well as any comments from the public, refinements to the analysis of alternatives will be made to address any issues raised or direction received during the review process. This task may result in the revision of options or the combination of individual alternatives into a new preferred development alternative for implementation. This task will identify the rationale for the refinement of the alternative, and each refinement will be discussed and reviewed using similar criteria to that used to evaluate the initial set of alternatives. Please note that once the preferred development alternative is selected it will not be modified unless coordinated between the airport and Baker as an addendum to this scope or under a separate scope of services.

Task 6.2 – Environmental Action Plan

In accordance with FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, the developments depicted on the refined alternative will be discussed in detail in regards to the following information:

- Potential environmental impacts to natural resources
- Environmental documentation and level of analysis required based on FAA Order 1050.F. For example - categorical exclusion, an environmental assessment, or an environmental impact statement level of documentation
- Anticipated state and federal regulatory requirements
- Potential mitigation measures or options for associated environmental impacts for the proposed project

Task 6.3 – Noise Contours & Land Use Compatibility

Noise contours will be generated using the Aviation Environmental Design Tool (AEDT) to depict the 65, 70, and 75 DNL levels. Noise exposure contours will be prepared for the base year and a future year level of activity (20-year planning horizon). For illustrative purposes, the noise contours developed

will be overlaid onto the digital drawing base and/or the aerial photography. A description of the results will be provided along with any land use impacts identified. When comparing existing and planned land uses of the study, recommendations will be made to ensure that compatibility exists. Suggestions for improvement to, or the refinement of existing land use management techniques, that have been previously identified, will be considered to mitigate the impact of future development on the airport.

Task 6.4 – Identify Capital Improvements

Based upon the findings identified in previous tasks, a list of capital improvements including environmental, design, land acquisition, mitigation, support facilities, etc. will be identified. This will allow both Baker and the airport to obtain a "snapshot" of all proposed projects in conjunction with anticipated order of magnitude costs in 2017 dollars. It is important to note that these costs will differ to some degree with the costs provided in the financial feasibility section of the study, but their use is primarily to identify all potential projects associated with the preferred development option.

Task 7 – Airport Layout Plan Drawing Set

An approved ALP serves as the blueprint for future airport development and is legally required for the airport to receive financial assistance under the terms of the Airport and Airway Improvement Act of 1982 (AIP), as amended. Using the recommended development options of the refined alternatives task and the standards outlined in FAA AC 150/5300-13A, Airport Design, the current ALP drawing set will be updated. Development of ultimate airfield facilities will be based on short, intermediate, and long-term requirements which incorporate both airside and landside improvements. To provide an accurate base for the development of the ALP, available rectified aerial photography and digital mapping information will be used. All components of the ALP drawing set described herein will be developed in accordance with the provisions of AC 150/5070-6B, Airport Master Plans, and FAA ARP SOP 2.0, Standard Operating Procedure for FAA Review and Approval of Airport Layout Plans.

Task 7.1 – Title Sheet

A title sheet will be created which will include the name of each sheet and associated sheet numbers along with the federal and state project numbers, wind roses, client name, along with vicinity and location maps.

Task 7.2 – Airport Layout Plan Sheet

The ALP will be updated to reflect the recommended development of future needs as identified in this study. Information on this portion of the ALP set will include, but not be limited to, the physical layout of the airport and of the physical facilities developed thereon. Also to be incorporated on the ALP sheet will be the building and facilities data, RPZs, taxiway systems, navigational aid critical areas, building elevations, topography, roads and parking areas, wind rose/wind coverage, declared distances table, and the airport boundary.

Existing and proposed modifications to FAA design standards will be identified and delineated in table format along with either the waiver allowing the modification or the proposed method of addressing the modification. A table listing any existing modifications (existing and proposed) along with their

proposed disposition will be incorporated onto the ALP and in the narrative chapter. The scale of the drawing will be determined in accordance with the FAA checklist or as needed to provide a clearly legible drawing. Information that cannot be included on the ALP sheet due to sheet size and scaling limitations shall be incorporated onto a separate Airport Layout Plan Data sheet. This may include Airport Data, Runway Data, Wind Roses, notes, etc.

Task 7.3 – Terminal Area Plan

The terminal area plan for the airport will be updated to reflect existing and recommended development of future general aviation needs as identified in this study. The terminal concept will focus on flexibility for future expansion. The plan will include recommendations for access and parking, buildings, hangars, FBO facilities, and entrance roads, as well as necessary security access to the airfield.

Task 7.4 – Airport Airspace Drawings

The Airport Airspace Drawings will depict all obstacle clearance surfaces associated with the ultimate airport configuration, and approaches will be generated and superimposed on mapping. Fifty (50) foot contour intervals will be shown for all sloping imaginary surfaces. These sheets will depict objects that violate the obstacle clearance surfaces that have not been identified on the ALP or approach sheets. The top elevation of each obstruction will be identified on each sheet as will the disposition of the obstruction. The dimensions of the approach surfaces and transitional surfaces will be charted. The Airport Airspace drawings will depict, in plan and profile view, the full length of all approach surfaces.

Task 7.5 – Inner Portion of Approach Surface Drawings

An Inner Portion of the Approach Surface Drawing will be prepared for each runway end (four runway ends) depicting the area out to where the approach surface reaches a 100-foot height above the runway end. The drawings will depict the airport property, location of roadways, structures, natural ground elevations and other man-made or natural features within the limits of inner portion of the approach surface. The drawings will also detail objects that penetrate approach surfaces or violate obstacle clearance criteria. Obstructions will be listed numerically in an obstruction table for each approach with data describing the obstruction type, top elevation, amount of penetration, and proposed dispositions. Additionally, the drawings will depict the configuration of required safety areas off each runway end. Plan views will be superimposed on aerial photos or above a detailed line drawing.

Task 7.6 – Runway Departure Surfaces Drawings

These drawings depicts the applicable departure surfaces as defined in Chapter 3 of FAA AC 150/5300-13A. The surfaces are shown for runway end(s) designated primarily for instrument departures. The Runway Departure Surfaces Drawing will depict the plan and profile views of the departure surfaces for each runway end that is designated primarily for instrument departures. The drawing will also detail objects that penetrate departure surfaces or violate obstacle clearance criteria. Obstructions will be listed numerically in an obstruction table for each departure surface with data describing the obstruction type, top elevation, allowable elevation, amount of penetration, and proposed dispositions. Plan views will be superimposed on aerial photos for base maps.

Task 7.7 – Land Use Plan

A land use plan for the area within the boundaries of the airport will be updated, based on the identified overall development concepts and property data. Included in the drawing will be the identification of existing and future aviation related, non-aviation related, environmental and conservation, industrial, commercial, or other uses as required. Information developed in earlier tasks will be incorporated into this drawing. This sheet will also depict the existing and future noise contours and will help to guide the long-term development of the airport.

Task 7.8 – Exhibit "A" Property Inventory Map Update

Baker will review land records of the airport and adjoining lands. This will include reports to identify existing easements. Baker will use this information to prepare an Exhibit "A" Airport Property Map in accordance with FAA's SOP 3.00, FAA Review of Exhibit "A" Airport Property Inventory Maps that will depict the following:

- Airport parcel lines and parcel lines of adjoining parcels
- Surveyed ties to runway section lines
- Parcel numbers, recording information
- Type of interest held (e.g. fee simple, easement, etc.)
- Year acquired
- Acreage
- Reference to Public Land Records
- Easements
- A property table listing the above parcel information
- Existing and proposed airport features such as runways, taxiways, aprons, terminal buildings, hangars, runway protection zones, building restriction lines, and NAVAIDS
- Runway stationing (ends)

A complete boundary survey of the airport property and adjoining properties is not included. Baker will utilize the mapping created for this study and the parcel map for the Exhibit "A" base map. Baker will complete FAA's Exhibit "A" checklist and incorporate the Exhibit "A" Property Inventory Map into the ALP deliverables.

Task 7.9 – Final Airport Layout Plan Drawing Set

Baker will revise the ALP drawing set to reflect final review comments received from the City of Hammond, LaDOTD, and FAA as appropriate. After obtaining final comments and approval from LaDOTD and FAA, Baker will present the final report and drawing set to the airport for acceptance.

Task 8 - Implementation Plan

This element includes the phasing, quantities, refined costs, and funding options for each project which is necessary in order to achieve the developments shown on the ALP drawing set. In addition, the airport's finances are analyzed in order to demonstrate the potential financial impacts and funding requirements associated with the proposed development plan.

Task 8.1 – Refine Airport Development Phasing Schedule

An initial development schedule will be prepared based upon the demand requirements. A priority system will be developed and adopted for use in this study which will consider the urgency of need, ease of implementation, logic of sequence, and economic viability that meets demand as well as the objectives of the airport. Recommended airport development over the 20-year planning period will be classified in three general development phases. These phases represent the short-, intermediate-, and long-term planning periods.

Particular focus will be given to detailing estimated costs for development projects which fall within the short and intermediate planning periods (2017-2026). Development costs will be shown on a year-to-year basis for the first ten (10) years and prepared at a level of detail consistent with master planning. However, those projects shown in the long-term planning period (2027-2036) will be grouped together collectively as long-term planning projects. These projects will be listed in tabular format with an associated cost estimate; however, they will not include a year by year phasing breakdown. Projects relating to capacity enhancement will be highlighted in the phased development plan. Development phasing will provide a general understanding of the financial requirements by phase over the 20-year planning period.

Task 8.2 – Refine Airport Development Cost Estimates

Based upon the selected development concepts, cost estimates will be created for each airport development project. Cost estimates will be based on a variety of sources, including actual project estimates, published engineering indices, government agencies, and similar airport construction projects in the area. In addition to the actual construction costs, financial consideration must be given to the engineering and design work, plus minor construction items and contingencies, which have not been specifically enumerated. For planning purposes, the base construction cost will be increased to reflect the anticipated engineering, testing, survey, and inspection costs, as well as to account for unknown factors.

Task 8.3 – Funding Analysis

A detailed funding plan for the recommended capital improvements identified in the study will be developed with an emphasis on the short-term (five years) planning period. Proposed projects will be evaluated to determine eligibility for funding by the FAA Airport Improvement Program, LaDOTD, and other alternative funding sources including third party funding, bonds, loans, etc.

Task 8.4 – Prepare Five Year Financial Plan

If available, the past five (5) years of the airport's historical expenses will be reviewed in order to identify historical trends. The airport budget process will also be reviewed and documented. Order of magnitude estimate of airport revenues will be generated as it relates to the traffic forecasted in the study and the improvements completed within the five-year planning period. A financially feasible cash flow analysis will provide an estimate of future revenues and expenses to assess the airport's financial self-sufficiency in connection with the projects recommended in the study.

Historical operating revenues and expenses and budgets will be analyzed during the first five years in order to determine if the estimated local participation funding allocation can be met. Potential revenue sources including revenue generated from leasing available land for aviation and non-aviation use as well as fuel flowage fees, hangar and building leases, etc. will also be identified. In an effort to determine the likelihood of the airport to be financially self-sufficient, a forecast of airport's operating revenues and expenses will document a year to year financial net balance as well as a cumulative balance over the forecast period.

Task 9 – Public Involvement/Meetings

The following approach facilitates a process of maximum public input with minimum public conflict. The public involvement components will provide an opportunity for public input, Airport Authority Board and City Council meetings to gain valuable insight into the master planning process, a public information meeting to ensure information is imparted and solicited from the general public, project updates, and other meetings as necessary to share the information developed during the master plan process.

Task 9.1 – Public Information Meeting

A Public Information Meeting will be conducted in an "open house" format with interactive informational stations staffed by key members of the planning team. The primary goal of this meeting is to inform the public and interested stakeholders about the status of the project and to solicit public comment during the project's implementation. Baker will coordinate the meeting logistics and facilitate the public meeting as appropriate. One (1) such meeting has been budgeted over the course of the study. This meeting will be held following the development of preliminary alternatives concepts.

Comment cards will be developed and used at the meeting to give the attendees an opportunity to provide input on the information being shared by the project team at the public information meeting. Color graphic displays employing a combination of presentation boards and/or PowerPoint, and pertinent handout material necessary to describe the evaluations and findings of interim submittals of the master plan study, will be prepared for the meeting, as appropriate. Advertising for this meeting will be accomplished by the City of Hammond and may be accomplished using press releases and direct mailings to interested public groups within the local area.

Task 9.2 – Technical Advisory Committee (TAC) Meetings

Four (4) TAC meetings have been budgeted over the course of the study. The TAC meetings will be held at key points during the master planning process typically in conjunction with the distribution of associated working papers. Estimated timing of the TAC meetings are as follows:

- Meeting 1 – Inventory and Forecast (Working Paper 1)
- Meeting 2 – Facility Requirements (Working Paper 2)
- Meeting 3 – Preliminary Alternative Development Workshop (Working Paper 3)
- Meeting 4 – Final Alternative, Preliminary ALP and CIP Discussion (Working Paper 4)

Color graphic displays employing a PowerPoint format, and pertinent handout material necessary to describe the evaluations and findings of interim submittals of the master plan study, will be prepared for each of the TAC meetings. Each member of the TAC will be provided with a three-ring notebook (20 notebooks total) to use for filing draft working papers. TAC meetings will be conducted to review the materials prepared in the working papers, as well as to establish revisions. Comments received during these meetings will be considered in preparing the final report documents.

Task 9.3 – Coordination Meetings

To respond to issues that will arise over the course of the planning study, as well as to brief airport representatives and representatives of the FAA, two (2) project coordination meetings (outside of other meetings, sessions, or briefings) have been budgeted. Coordination meetings are seen as key opportunities to allow for the discussion between the airport and Baker at one of several key milestones in the project. Typically, coordination meetings will be conducted during working paper milestones; however, the coordination meetings under this task can be changed at any time or during any portion of the project upon the airport's request.

Task 9.4 – Airport Authority Board

Baker will present four (4) master plan briefings to the Airport Authority Board throughout the study. Baker will also provide report and briefing materials and visuals for the briefing. Other briefings, as appropriate, may be arranged if scheduled in conjunction with other meetings detailed in this scope of services.

Task 9.5 – City Council Briefing

Baker will present one (1) master plan briefing to City Council and will provide report and briefing materials and visuals for the briefing. Other briefings, as appropriate, may be arranged if scheduled in conjunction with other meetings detailed in this scope of services.

Task 9.6 – Website Information Upload & Dissemination

This scope and associated fee does not include provisions for the creation and maintenance of a master plan website; however, electronic files will be provided for incorporation into the city's website. The .pdf files provided will include meeting presentations, working paper deliverables, and draft and final copies of the narrative report and ALP set.

Task 10 – Documentation and Deliverables

As part of this project, four working paper meetings will be conducted at key points during the development of the master plan update. This task includes the efforts associated with producing the various meeting data, presentation materials and deliverables as required to disseminate information or to submit plans to the airport and/or FAA for their review and approval.

Task 10.1 – Working Paper 1

The first working paper will discuss the issues and information obtained during the inventory phase of the project, as well as the findings of the analyses conducted for the aviation activity forecast task. This working paper will present, in narrative and graphic format, information relating to airport facilities, the access system serving the airport, environmental features affecting the current airport property and tracts immediately adjacent to the airport, airspace and obstruction considerations, and data related to land use compatibility. Also, the draft working paper will address the historic and current activity levels, factors impacting HDC, and the findings of the analytical portions of the forecast process. As noted in Task 3, Aviation Activity Forecasts, forecasts must be submitted to FAA for review and approval. If the aviation activity forecasts exceed 10% within the initial 10-year forecast period, forecasts will need to be submitted to FAA Headquarters for final approval. This task includes the preparation of a PowerPoint presentation and also includes time for shipping and packaging of meeting materials.

Task 10.2 – Working Paper 2

Working Paper 2 will document the information and evaluations of the capacity assessment process and the facility requirements. This working paper will present, in narrative and graphic format, information regarding existing airport capacity, runway length needs, and required facilities necessary to meet future levels of activity. This task includes the preparation of a PowerPoint presentation and also includes time for shipping and packaging of meeting materials.

Task 10.3 – Working Paper 3

The third working paper will document the analyses and findings of the preliminary alternatives analysis. This working paper will focus on the alternatives developed to address the development options associated with the airfield, general aviation terminal area, and all other airport facilities and uses as well as considering the interrelationships between airport uses and the impacts that development of individual facilities have on the other facilities and alternatives for other airport uses. As such, this working paper will present, in narrative and graphic format, a chapter which compares the various development alternatives explored for HDC. This task includes the preparation of a PowerPoint presentation and graphical board exhibits (as required) and also includes time for shipping, and packaging of meeting materials. The public involvement meeting is typically scheduled in conjunction with this working paper meeting.

Task 10.4 – Working Paper 4

Working Paper 4 will document the analyses and findings of the refined alternatives analysis, Airport Layout Plan, and the Implementation Plan/Financial Feasibility Analysis. As such, this working paper will present, in narrative and graphic format, refinements to the Airport Alternatives chapter, information regarding the ALP drawings, and the results of the financial planning analyses conducted as part of the previous elements. This task includes the preparation of a PowerPoint presentation and graphical board exhibits (as required) and also includes time for shipping, and packaging of meeting materials.

Task 10.5 – Project Deliverables

Master Plan Working Papers – A maximum of twenty (20) copies of each draft working paper will be prepared with supporting graphic exhibits and tables for distribution to the representatives of the TAC for their review. Comments received will be incorporated before submitting the final draft submittal to FAA and LaDOTD for their initial review. This task includes the effort to print and copy reports and also includes the effort to assemble and distribute each working paper deliverable.

Working papers will be distributed to allow approximately seven days or additional time as agreed by Baker and the airport for review by members of the TAC and airport staff.

Draft Narrative Report Submittals – Review comments received during the study process will be incorporated as appropriate into the draft working papers, which will be combined to create the draft narrative report. This report will include the corrections and improvements made during the draft working papers. Four (4) draft copies of the complete draft narrative will be prepared and provided as follows: one (1) to FAA; one (1) to LaDOTD, and two (2) to the airport staff for final review.

Draft ALP Circulation Submittal – A total of nine (9) draft copies of the ALP set and associated ARP SOP 2.0 Airport Layout Plan Checklist will be distributed for initial review as follows: five (5) copies to the FAA; two (2) copies to LaDOTD, and two (2) copies will be provided to airport staff for review.

Final Narrative Report Submittals - After receiving and addressing final FAA and LaDOTD comments, Baker will submit a total of 15 copies as follows: 11 hardcopies of the narrative report to the airport, two (2) hardcopies to LADOTD, and two (2) hardcopies to FAA. Digital copies of the master plan report will also be prepared and delivered to the FAA, LADOTD and the airport. The report text, tables and graphics will be provided using Microsoft Word, Excel, and Adobe Acrobat.

Final Airport Layout Plan Drawing Set Deliverables – After receiving and addressing final FAA and LaDOTD comments, 15 copies of the final ALP drawing set will be sent to FAA for final approval/signature and then for distribution to the airport, LaDOTD, and Baker. The signed copies will be distributed as follows: five (5) copies will be retained by the FAA, six (6) copies will be sent to the airport, two (2) copies will be sent to the LaDOTD, and two (2) copies will be sent to Baker.

Project Closeout Digital Deliverables – At project closeout, digital copies of the final Airport Master Plan Update Narrative Report and ALP Drawing Set will be delivered to the FAA, LaDOTD and the airport. The report text, tables and graphics will be provided using Microsoft Word, Excel, Adobe PDF, and AutoCad Drawing Format. A total of three (3) CDs or DVDs which contain the digital drawing files and scanned images of all master plan documentation will be created and distributed as follows: one (1) copy of each will be distributed to the FAA (1), LaDOTD (1), and to the airport (1).

Task 11 – Airport Layout Plan Survey & Mapping Services

The project will be done in compliance with AGIS policies and will include an airport airspace analysis for vertically-guided operations for existing Runways 13-31 and 18-36. The ACs identified below detail the data collection requirements and accuracies for the project and the verification process by the FAA and National Geodetic Survey (NGS).

- AC 150/5300-16A, General Guidance and Specifications for Aeronautical Surveys: Establishment of Geodetic Control and Submission to the National Geodetic Survey.
- AC 150/5300-17C, Standards for Using Remote Sensing Technologies in Airport Surveys.
- 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.

Task 11.1 – Survey & Mapping Elements

The purpose of this task is to accomplish an FAA Airport Airspace Analysis Survey for all surfaces defined in FAA Advisory Circular 150/5300-18B: Section 2.7.1.1 Runways with vertical guidance. In addition, FAR Part 77 Surface obstruction data out to 20,000 feet from each runway end will be provided. Baker will be required to provide a spreadsheet identifying the applicable dimensions and slopes for FAR Part 77 Surfaces.

For this project, new vertical stereo digital imagery will be acquired at a physical image scale of 1"= 4,328' of the obstruction surface areas and 1"= 1,122' of the airport property. The aerial imagery will cover all of the VG Airspace Analysis surfaces using an Ultracam Eagle Digital Aerial Mapping System, or comparable, during leaf-on conditions.

From the 1"= 4,328' imagery, the following will be produced:

- Limited landmark feature planimetric mapping
- Color digital orthophotos with a 1.0' pixel resolution
- Identification and mapping of obstruction obstacles for all of the VG surfaces

From the 1"=1,122' imagery, the following will be produced:

- 100 scale mapping with 2' contours of the existing airport property (902 acres)
- Identification and mapping of obstruction obstacles for the VGRPS, VGPCS & VGPS surfaces

As part of this task, the preparation and submittal of the Statement of Work (SOW) will be conducted as well as a Survey and Quality Control Plan, Imagery Acquisition Plan, Imagery Acquisition Report, Final Project Report and all associated data files as required for submission to the FAA AGIS online database.

Quality Standards

The project has been designed to conform to the National Map Accuracy Standards for 1"=100' scale planimetric feature collection, two foot contours and six and twelve inch orthophoto production. In addition, the photogrammetric mapping will meet all FAA and NGS standards. Reasonable care will be exercised and the project will conform to the standards of practice ordinarily used by the photogrammetric profession.

Project Area

The project area encompasses all of Hammond Northshore Regional Airport (HDC) inclusive of the obstruction surfaces as defined in AC 150/5300-18B.

Control Surveying

The aerial photography will be completed with ABGPS control which will be used for the base control for the geo-referencing of the aerial imagery. The ABGPS data will be processed using COR stations and reference it to the project control datums:

- Horizontal: North American Datum of 1983/2011 (NAD 83(2011)), in the LA State Plane Coordinate System, South zone in US survey feet.
- Vertical: North American Vertical Datum of 1988 (NAVD 88)

The following on-site ground control surveys will be completed:

- Geodetic control validation of the existing airport PACS and SACS stations or establish temporary airport control according to the guidelines established in AC 150/5300-16A.
- Establishing all necessary photo-identifiable ground control and FAA mandated check-points required to validate the ABGPS and IMU control. Information on the specific locations of the required control and check points will be provided.
- Collection of all the airport runway end positions.
- Collection of vertical profiles for all runways.
- Collection of the position, elevation, and where required the appropriate navigational aid perpendicular point of all electronic and visual navigational aids (NAVAIDS) located on the airport and associated with any current instrument approach servicing the airport.
- Full field-collected attribution of all airport features.
- All other tasks, not specifically listed above, as outlined in FAA AC-18B, Table 2-1 "Survey Requirements Matrix for Airport Layout Plan."

Photogrammetric Mapping

The features normally shown on 1"=100' scale mapping within the mapping limits identified in the RFP will be collected (see exhibit).

A Digital Terrain Model (DTM) will be built by collecting masspoints and breaklines. These DTM elements will be used to construct a triangulated irregular network (TIN) surface from which 2' contours will be interpolated. Contours will be dashed in areas where the ground is obscured by trees, dense

brush, deep shadows or other obstructing features. Dashed contours indicate a lower level of accuracy. Additional field surveys should be performed in areas of dashed contours prior to design. All contours will be continuous polylines. The final data will be delivered in ESRI Shapefile format (FAA) and AutoCAD format (Baker).

Orthophoto Mapping

The control solution and imagery will be used to generate a Digital Elevation Model (DEM) of the VG surfaces. The imagery will be processed into color digital orthophotos using the aforementioned DEM to rectify the images. Orthophotos for the entire project area will be developed with a 1.0' pixel resolution and for the airport property, with a 0.5' pixel resolution. Orthos will be delivered in a GeoTIFF file format.

VG Obstruction Surveys

For the VG Obstructions Surfaces, the following requirements of the AC 150/5300-18B will be adhered to:

- 2.7.1.2 Analysis of Runways 13/31 and 18/36 with Vertically Guided Operations (Surfaces include the VGRPS, VGPCS, VGAS, VGPS, VGATS, VGHS and VGCS)

The specific types and quantities of obstructions for each surface are outlined and clearly defined for the particular surface in each circular section. Any obstructions that meet the requirement of the circular, but are of a nature that elevations at the highest point of the obstruction are virtually impossible to read through photogrammetric methods (cell tower, electrical tower, etc.), will be identified and relayed to the surveyor to initiate field surveyed elevations for the obstruction.

The obstruction delivery will include the limited landmark planimetric feature collection.

The final data will be delivered in ESRI Shapefile format.

Deliverables

All data collected and associated required deliverable in the formats specified in the appropriate advisory circulars to the FAA Office of Airports, Airports Surveying-GIS Program. All data submissions to the FAA will be through the program's web site at http://airports-gis.faa.gov.

The AC 150/5300-17C project data deliveries that will not be submitted through the web site will be delivered on external hard drives or DVDs.

The 18B deliverables that will be uploaded to the AGIS website include:

- Statement of Work, Imagery Plan and Survey and Quality Control Plan
- Image Delivery
- Digital limited landmark detail outside the airport
- Color digital orthophotos with a 1.0' pixel resolution (GeoTIFF format)

- Obstruction survey data (that covers VG surfaces)
- Surveyed centerline profile on VG runways
- NAVAID data
- Planimetric data and two foot contours to 18B specs (Shapefile format)
- Photogrammetrically derived and surveyed attributes in defined format
- FGDC compliant metadata
- Final Report

Other than the 18B delivery, the following items will also be delivered:

- Planimetric data and two foot contours to 18B specs in Civil 3D *(or other)* format
- Color digital orthophotos with a 1.0' pixel resolution in GeoTIFF (project area)
- Color digital orhtophotos with a 0.5' pixel resolution in GeoTIFF (airport property)
- 2 color enlargements (30"x40") covering the airport and surrounding area (mounted/laminated/framed)

In addition to the above, Part 77 deliverables will include:

- Obstruction survey data for Runways 13/31 and 18/36 in Microstation/Excel/CSV file format (first 20,000 feet beyond each runway)

All digital files will be delivered on external hard drive or CD/DVD.

Task 11.2 – Coordination & File Integration

Baker will work with subconsultants to complete the efforts associated with this task. Baker will need to coordinate, collect data, and transmit data between the airport and subconsultants to fulfill the required survey elements. Baker will also review the obstacle data, imagery, and base mapping collected as part of this task and incorporate the information into the project files—this includes any necessary data conversions, spatial adjustments, and revisions to previously-developed exhibits in the master plan update with the updated survey and imagery files. Baker will also assist with coordinating AGIS uploads between the airport, subconsultants, and FAA.

ATTACHMENT B - FEE ESTIMATE
HAMMOND NORTHSHORE REGIONAL AIRPORT
HAMMOND, LOUISIANA

DIRECT LABOR RATES	$72.51	$45.04	$31.69	$52.53	$33.99	$43.91	$66.60	$40.90	$20.60		FACTOR	2.95
TASK	HOURS										TOTAL DIRECT LABOR	BURDENED COST
	PROJECT MANAGER	SR. PLANNER	PLANNER	SR. ENGINEER	ENGINEER	SR. DESIGNER	SR. SCIENTIST	SCIENTIST II	ADMIN	TOTAL		
1 - PROJECT INITIATION & MANAGEMENT	24								4	28	$1,822.69	$5,376.93
2 - INVENTORY OF EXISTING CONDITIONS	16	32	56			40	12	40		196	$8,567.95	$25,275.46
3 - AVIATION ACTIVITY FORECASTS	8	80	32						2	122	$5,238.83	$15,454.54
4 - FACILITY REQUIREMENTS	12	40	80			24		16	2	174	$6,956.70	$20,522.27
5 - AIRPORT ALTERNATIVES ANALYSES	8	40	40	6	16	50			2	162	$6,745.16	$19,898.22
6 - ALTERNATIVES REFINEMENT	4	24	24			16	12	40		120	$5,269.48	$15,544.97
7 - AIRPORT LAYOUT PLAN DRAWING SET	8	40	40			240				328	$14,187.63	$41,853.51
8 - IMPLEMENTATION PLAN	8	80	16	16	32	16				168	$7,321.24	$21,597.66
9 - PUBLIC INVOLVEMENT/MEETINGS	40	84		80		12				216	$11,413.31	$33,669.25
10 - DOCUMENTATION & DELIVERABLES	16	40	60			40			8	164	$6,784.61	$20,014.60
11 - AIRPORT LAYOUT PLAN SURVEY & MAPPING SERVICES	2	16				24				42	$1,919.51	$5,662.55
TOTAL LABOR	146	476	348	102	48	462	24	96	18	1,720	**$76,227.11**	**$224,869.97**
TOTAL SUBCONSULTANT EXPENSES												**$73,000.00**
TOTAL DIRECT EXPENSES												**$17,109.30**
TOTAL LABOR + EXPENSES												**$314,979.27**

SUBCONSULTANT EXPENSES	COST	NOTES
QUANTUM SPATIAL	$55,000.00	AERIAL SURVEY, MAPPING, & AGIS UPLOAD/ATTRIBUTION
FORTE & TABLADA	$18,000.00	GROUND SURVEY
TOTAL SUBCONSULTANT EXPENSES	**$73,000.00**	

DIRECT EXPENSES	COST	UNIT COST	UNITS	NOTES
COPIES (MIXED)	$3,000.00	$0.30	10,000	WP1 (20), WP2 (20), WP3 (20), WP4 (20), DRAFT REPORT (4), FINAL REPORT (15), MEETING MATERIALS, HANDOUTS, MISC. PRODUCTION
BINDERS	$350.00	$10.00	35	
30" x 42" (8.75 x $0.25 per sq. ft.)	$876.00	$2.19	400	DRAFT ALP (9), FINAL ALP (15)
30" x 42" COLOR (8.75 x $2.00 per sq. ft.)	$525.00	$17.50	30	
FOAM BOARD 1/4 (8.75 x $3.95 per sq. ft.)	$518.40	$34.56	15	
LAMINATION (8.75 x $2.75 per sq. ft.)	$360.90	$24.06	15	
HAND FOLDING (per sheet)	$34.00	$0.17	200	
POSTAGE	$250.00	$250.00	1	
AIRCRAFT ACTIVITY DATA	$250.00	$250.00	1	
TRAVEL	**COST**	**UNIT COST**	**UNITS**	
TRAVEL - FLIGHTS	$5,400.00	$450.00	12	2 PEOPLE PER TRIP
TRAVEL - PER DIEM	$1,298.00	$59.00	22	2 PEOPLE PER TRIP
TRAVEL - HOTEL	$2,100.00	$175.00	12	2 PEOPLE PER TRIP
TRAVEL - CAR RENTAL/FUEL	$1,275.00	$75.00	17	
PARKING	$440.00	$20.00	22	2 PEOPLE PER TRIP
MILEAGE	$432.00	$0.54	800	
TOTAL DIRECT EXPENSES	**$17,109.30**			