RW ARMSTRONG
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September 1, 2009

FORT WAYNE-ALLEN COUNTY AIRPORT AUTHORITY
FORT WAYNE INTERNATIONAL AIRPORT
FORT WAYNE, INDIANA

ADDENDUM No. 5

MASTER PLAN STUDY

SCOPE OF WORK

TASK 1: STUDY DESIGN

1.1: Project Definition

This work program serves as guideline for the Airport Master Plan Study (Study) at Fort Wayne International Airport (FWA) and has been developed as a result of a draft that was prepared for staff review at the Fort Wayne-Allen County Airport Authority (Authority). The program has been detailed and the level of effort and costs of accomplishing each component of this planning effort have been identified in Attachment A. The schedule for completing the work program has been included as Attachment B. Work activities under the Study Design task include the following:

- Discussions with Authority staff;
- Discussions with sub-consultants;
- Preparation of draft study design, budget, and schedule;
- Meeting with Authority and FAA staff to review draft study design, budget, and schedule; and
- Prepare final work program, budget, and schedule.

1.2: Organizational Meetings

Subsequent to finalizing the work program, establishing coordination procedures with the Authority staff and between sub-consultants will be required to define and clarify the mechanics of the work scope. This is typically a one-day set of "kick off" meetings. All study participants will meet for a full day at FWA. This will be followed by a meeting with Authority and the FAA staff to review the study organization and for a briefing on Authority/airport requirements, identification of outside coordination points, identification of data sources, and agreement of community involvement.

1.3: Develop Goals and Objectives

Study goals and objectives which reflect the needs and desires of the Authority will be determined at the outset of the Study. This task is most important for it is these goals and objectives that will shape the conclusions of the Study effort. Specific issues to be addressed in the Study will be identified and prioritized. These may include: key terminal building planning issues, such as functional, safety, security, aesthetic, and economic concerns; land use/economic development issues, such as infrastructure, access, and marketing strategies; noise and off-airport land use considerations; airfield planning issues, such as the need for a pavement management program and additional runway/taxiway improvements; and the future of viability and location of on-airport development, such as additional air cargo facilities, aircraft maintenance facilities, general aviation facilities, and commercial development.

Task 2: AIRPORT INVENTORY

2.1: Inventory Airport Facilities

A comprehensive inventory of various airfield facilities at FWA will be conducted. This inventory effort will include a review of runways, taxiways, aprons, lighting, landing aids, and navigational aids. Information will be gathered from discussions with Authority staff, review of existing drawings and photographs, and from on-site visual inspection.

2.1.1: Inventory Passenger Terminal Facilities

The purpose of this subtask is to review existing data and observe existing terminal building conditions to better understand current utilization and operational characteristics of the passenger terminal complex, that are located on the north side of the Airport. Existing space utilization and circulation flows will be documented.

The RW Armstrong Team will collect and review all available data related to passenger circulation, ticketing, baggage handling, gates, hold rooms, concessions, security screening, and aircraft parking aprons, administrative /office spaces, and other terminal activities. Included in this effort will be the collection and review of pertinent data, including record drawings, photography, terminal area plans, terminal building plans, terminal building space allocation data quantifying leaseholds by type and location, and aerial photography of the passenger terminal area. The RW Armstrong Team will also conduct a walk-through of the public and non-public areas of the entire terminal building to observe space utilization. Airline station managers will be interviewed to determine existing gate usage and operational procedures. Existing space for each terminal function will be catalogued. Summary and review of observations of terminal space utilization, interviews with airline station managers, and discussions with staff will be reviewed and compiled.

The Authority will provide a copy of all relevant, current terminal planning studies and current CADD record drawing floor plans of the passenger terminal building. In addition, the Authority will provide the names and telephone numbers of all airline station managers and other tenants of the building.

2.1.2: Inventory Access, Circulation, and Parking Facilities

The purpose of this subtask will be to inventory access, circulation, and parking components of FWA in order to document the physical layout, capacities, and interrelationships of the various components. The information gathered will also be used to define the operational characteristics of the components, such as curb length, ground transportation services, and rental car operations. It is obvious that convenient and efficient access routings and capacity are a constraint to future growth of FWA and its surrounding area. The RW Armstrong Team will conduct field observations, and will hold interviews with local transportation agencies to provide more detailed documentation of existing routings and capacity constrained areas. An overview of surrounding off-airport access routings will be conducted to document existing roadway conditions.

Available background reports, drawings, and statistical information on parking operations will be assembled. On-site observations will also be conducted to gain a full understanding of the landside system and how it functions.

In addition to general observations of the access, circulation, and parking system, specific observations will be conducted during peak times for each of the components to determine the level of service. Depending on data available, traffic counts may be made at specific key locations or more extensively throughout the Airport's roadway system. In addition, a visual survey of curbside operations will be made. A full month's worth of parking tickets from a busy month will also be reviewed to obtain further information on parking characteristics. Finally, interviews will be held with key airport staff, rental car operators, and other providers of ground transportation services.

2.1.3: Inventory Other On-Airport Facilities

The purpose of this subtask will be to update the on-airport facilities inventory to incorporate any new facilities that have been constructed since the completion of the last Master Plan. On-airport aviation-related facilities, including general aviation, military, and air cargo facilities will be documented. Information will be obtained from existing drawings and photographs, interviews of Authority staff, and on-site visual inspection.

2.2: Inventory Operations Data

2.2.1: Inventory Air Traffic Activity

Current data on passenger, cargo, and aircraft activities (air carrier, charter, cargo, general aviation, and military) at FWA will be collected to develop a profile of airport operations, including changes in use and levels of operations in recent years. Data sources will include but not be limited to: FAA's Air Traffic Statistics; Tower Airport Statistics Handbook; Statistical Handbook of Aviation; Form 5010 and Terminal Area Forecasts; FWA's monthly and annual activity summaries; and surveys of major passenger and cargo carriers at FWA, and Air Traffic Control Tower (ATCT) personnel.

2.2.2: Conduct Airfield Use Survey

An airfield use survey will be conducted to develop runway and taxiway use patterns from the perspective of use of the airfield facilities at FWA. Additionally, interviews with airline ground personnel and air traffic controllers will be conducted to establish airline and controller operating procedures and assumptions. These procedures and assumptions will provide the framework for the future airfield facility requirements. The following information, as available, will be collected for use in this effort: historical operations data; Automated Radar Terminal Systems (ARTS) radar tapes, control tower logs, Standard Operating Procedures, and airline flight schedules. The data collected in this task will be used to develop an overview of existing operating practices and procedures at the Airport.

2.2.3: Inventory On-Airport Employment

On-airport employment statistics, for use in planning employee-related facilities will be collected. The initial source of data will be Authority staff. This will be supplemented by interviews with airport tenants, where necessary.

2.3: Inventory Utilities and Support Systems

All utilities serving the Airport and the locations of all service lines on-airport will be identified. Included among the utility systems to be inventoried and catalogued are water, sewer, electric, gas, and telephone. Improvements, if any have recently occurred or are planned, to these utility systems will be documented. Existing data related to each of these utility systems will be assembled and reviewed.

Data on support systems such as sewage treatment and maintenance facilities will also be assembled. The primary source of the data will be airport records. Additional data required supplementing existing airport records, particularly in the east side area, the north side, and the west side of the airfield, will be identified. Supplemental on-site visual observations and, if authorized by the Authority, meetings with local utilities to obtain additional information will be conducted. The utility data will be digitized into CADD format (or other computer/GIS format) as a resource for the Authority's use.

The intent of this scope of work is to provide the location of underground utilities for the Authority in conjunction with the Master Plan development for FWA.

A. RW Armstrong will organize and conduct a kick-off meeting to discuss the underground utility survey at FWA.

B. Available record data for all existing utilities at FWA including storm and sanitary sewers, power, communications, airfield signage and lighting cables, water, natural gas, and Federal Aviation Administration (FAA) owned power and communications will be obtained and analyzed.

C. RW Armstrong will perform a utility survey to accurately locate underground utilities. Depths will be determined by record drawings or field survey data.

D. A Utility Base Map in AutoCAD Release 2009 or latest version available to the Authority will be developed. This task will also include providing the Authority with a GIS database with utility attributes compatible with ArcView 9.3 or latest version available to the Authority.

2.4: Inventory Airspace and Air Traffic Control Procedures

Information on the air traffic control (ATC) environment, aircraft operational procedures and airspace use, noise abatement procedures and other operating conditions, as appropriate, and for use in assessing the airspace capacity and potential conflicts in the Fort Wayne area, will be collected.

Materials describing the airspace structure and ATC procedures applicable to aircraft arriving and departing FWA will be assembled. Information will be obtained from published maps and charts, FAA internal documents, and interviews with air traffic control tower (ATCT) personnel. The information will include, for example, descriptions of the various FWA airspace sectors, ATC procedures at other local airports, and the potential interactions with them.

2.5: Inventory Noise and Other Environmental Conditions and Concerns

The purpose of this task will be to collect and review information on noise and other environmental conditions and concerns for use in preliminary identification of potential airport concepts. With airport staff assistance, available studies, previous environmental analyses, reports and other documents that discuss and delineate environmental conditions at the Airport and its environs will be identified. These documents will be reviewed for factors relating to the natural environment (plant and animal life, topography, air and water quality, drainage, wetlands, etc.) and to the prevailing community environment (human settlement pattern, traffic conditions, noise levels, hazardous wastes, etc.). An exhibit that provides an overview of existing environmental conditions will be developed.

2.6: Inventory Financial Data

The purpose of this task will be to inventory the financial conditions, provisions and restrictions under which the Airport operates, and the historical and current financial conditions of the Authority, for use in developing the financing alternatives for the future development of FWA.

The current financial structure of the Authority and the capital financing used in the past will be described. This discussion is intended to provide the conditions and provisions for use in developing the capital alternatives for the development of FWA. The documents that govern and regulate the financial operation of the Airport will be analyzed. These documents include, but are not limited to the following:

- Outstanding Bond Ordinances
- Airline Agreements
- Agreement with Other Airport Tenants, Including Major Concessionaire Agreements
- Triennial Report
- Airport Budgets

- Airport Revenue and Special Facility Bond Official Statements
- Rates and Charges Studies and Ordinance
- Annual Audits
- Reserve for Deferred Maintenance
- PFC Collection Reports

Additionally, historical financial operations (past revenue sources, historical O&M expenses, and capital funding sources) at FWA will be reviewed to document the existing financial condition and restrictions pertaining to new debt of the Airport.

2.7: Passenger Surveys

The Authority is about to embark on a passenger surveying exercise. The survey form will include questions that are relevant to this Study and information and findings derived from this surveying effort will be utilized, as necessary. The surveys shall include questions that will provide pertinent information to establish mode split, point of origin for travel to the Airport, purpose of trip, parking/automobile use characteristics, general traveler characteristics (party size, luggage carried, frequency of travel, etc.), and specific additional information as may be required to support the Master Plan.

2.8: Airport Layout Plan Base Map

Airport facilities will be represented on the Airport Layout Plan (ALP) base map. Technical personnel will meet with Authority staff to agree on the procedures for preparation of the CADD records. Agreement on the materials to be digitized, the changes to be made, and the layering of the data will be discussed at that meeting. New base mapping of the airfield will be developed as a resource for this planning effort and for the future use of the Authority, in accordance with FAA AC 150/5300-18B. The most efficient methods of base map production will be identified, including a combination of aerial photography, field surveys, and review of existing documents. FAA AC 150/5300-17B will be utilized as a reference guide for any aerial photography that will be used.

In addition to informed coordination while the work is underway, a second meeting will be held at the completion of this work task to provide instruction for Authority staff and conversion assistance for any drawings produced under this project into the CADD program selected.

2.9: Prepare Working Paper No. 1

The purpose of this task will be to document results of Tasks 1 and 2 work elements to serve as the primary data reference for the study. The working papers will be distributed for review, and comments received will be incorporated into Study binder.

Task 3: FORECASTS OF AVIATION DEMAND

Forecasts of passenger, cargo, aircraft, surface transportation, and airport employment activity will be developed for the 5-year, 10-year, and 20-year planning horizons for FWA.

3.1: Develop Air Service Assumptions

The purpose of this effort is to develop two reasonable air service scenarios to serve as the basis for projecting aviation activity for future planning horizons. Current air service investigations and marketing programs will be the primary source of information. Two separate forecasting scenarios will be developed and will include: establishment and growth of low-cost airlines and scheduled charter air carriers; and growth of regional carriers.

3.2: Forecast Passenger and Aircraft Activity

Passenger activity at FWA has experienced some significant growth over the past several years. Prior to September 11, 2001, FWA's passenger activity peaked in 2000, when the Airport handled just over 352,366 annual enplanements (and just over 700,000 total passengers). As was the case at every airport across the country, the tragic events of September 11, 2001, had a significant impact on activity. FWA was no different in that its passenger boardings immediately dropped and 2002 activity levels were at their lowest point since 1992. However, the decrease in passenger traffic at FWA rebounded quicker than it did at most airports across the country. Passenger traffic at FWA has been on a steady increase until 2005, with 322,108 enplanements (and over 600,000 total passengers). After 2005, these numbers have seen a decrease to 280,652 annual enplanements in 2007. These decreases have continued into 2009, however all indications, on both, a national and regional level, are that passenger activity will experience a steady, but gradual increase over the next 15 – 20 years.

The FAA's Terminal Area Forecast (TAF) for FWA follow the above trend and suggests a "slower than normal" growth pattern in passenger activity through the year 2025. As such, it is felt that the TAF is a reasonable depiction of growth in FWA's passenger activity and will be utilized as the base case forecast for planning purposes in this Study. The RW Armstrong Team will need to extrapolate the TAF forecasts out to the year 2030 in order to provide a twenty-year planning horizon.

Local, state, and national aviation and socioeconomic forecasts that will be used to assist in developing the two forecast scenarios for FWA will be collected. It is however, important to note that in light of the recent decreases in passenger activity at FWA, any forecasting exercise needs to be tailored with some very specific considerations and procedures that will result in more realistic projections that can serve as a useful guide in planning for passenger-related improvements at FWA. For that reason, the RW Armstrong Team recommends that the master planning effort consider using "trigger-point" activity levels. This approach will allow the Authority to have the greatest amount of flexibility in its overall development program and in its ability to carefully monitor what improvements may be needed and when.

Historical aviation activity will be analyzed by demand component. Forecasts will reflect projected national and local economic conditions, airline service, air fares, changes in technology, future fleet mix requirements, federal requirements, hubbing characteristics, and service by low-cost/scheduled charter and regional airlines. Standard forecasting methodologies to develop the two forecast scenarios will be used in combination with judgmental assessments based mainly on discussions with the air carriers currently serving FWA and on air service assumptions developed in Tasks 3.1 and 3.2.

Forecasts of domestic, international, and charter air carrier activity, passenger originations and aircraft operational activity will be developed. Derivative forecasts of aircraft departures, operations, seat departures, and fleet mix will be developed based on the passenger forecasts and assumptions on aircraft size and load factors that have been derived in this exercise. Annual and peak-hour passenger and aircraft activity levels for air carriers (domestic, charter, and international) will be forecasted. A sound forecasting approach to projecting activity by regional airlines is especially important at this time, in that historically FWA has had limited activity of this nature, but the vast majority of commercial service at FWA is now provided by regional airlines.

The base case forecast will be refined, working closely with Authority staff. This will be used for the primary calculations of facility requirements. As mentioned, two other scenarios will be used to evaluate the extent of flexibility which must be built into subsequent plan development. The RW Armstrong Team has successfully accommodated uncertainty in previous forecasts by developing alternative scenarios which assume a variety of critical assumptions within the base case forecasting framework.

3.3: Forecast of Air Cargo Activity

This work element is intended to evaluate the changing national and global marketplace as a result of technological, economic, and political changes. Overall trends in the air cargo industry, including freight and mail, will be investigated. Specific trends and changes which will be addressed and included in this evaluation are as follows:

- Recent technological advances in telecommunications and transportation systems have created greater opportunities for the advancement of cargo movements via air transportation. These advances must be understood to appropriately respond with an adequate strategic plan and capital improvements program which addresses the concerns of the industry.

- Shifts in the world economy have resulted in the emergence of many new and powerful trading blocks. Understanding who these emerging powerhouses are or will be is crucial to the development of a strategic marketing plan. The most significant current and future international trading partners will be identified using international trade and commodity flow data that is readily available.

- Changes in the manufacturing process have greatly impacted the tendency to utilize air transportation over other modes of transportation and must be understood. These changes will be reviewed and described so that an adequate plan can be developed to address these changes and respond to these special needs. Special factors affecting the demand for air cargo service, including “just-in-time” manufacturing, foreign trade zones, and linkage with international air service will be considered.

- Changes in infrastructure and land needs have impacted the growth and development of this sector. These changes will be reviewed to understand what infrastructure, utilities and communication parameters are needed for today and the future air cargo facilities and what Fort Wayne International Airport has compared to other successful airports that have continued to bring in these businesses to their airports.

Data from several existing sources will be obtained and reviewed, including information from the U.S. Department of Commerce, the Federal Aviation Administration, ESRI, and the State of Indiana. In addition, the RW Armstrong Team has several resources available within its team's structure to provide additional data.

The air cargo demand forecasts for FWA will include an identification of potential markets, both domestic and international; potential cargo tonnages; and potential industries and commodities which could be served by the Airport. The following analysis will be undertaken as part of this task:

- Potential markets for air cargo will be analyzed. Included will be projections of potential market share of existing air cargo activity within the central U.S. region. In addition, potential markets which are not served or under-served will be identified. These markets will include domestic and international origins and destinations. The advantages and disadvantages of the FWA with regard to opportunities for air cargo activity will be explored.

- Potential air cargo tonnages will be identified for FWA. These tonnages will be based on trends identified in the above work tasks. Tonnages will be further broken down into domestic and international cargo.

- Potential industries and commodities will be identified as likely candidates for shipment through FWA. These identified industries and commodities will allow the Authority to target their approach in the air cargo market.

3.4: Forecast of General Aviation Activity

The TAF forecasts of total based aircraft will be used as the base case for FWA's projections of aircraft based at the Airport. Once again, two forecast scenarios, based on both, national and regional growth trends, will be developed. Historical aviation activity will be analyzed and the potential effects of recent changes, such as growth in corporate aviation, the increasing popularity of fractional aircraft ownership, and other recent trends in general aviation, will be evaluated. System development, including the potential use of other airports in the general aviation study area, will be considered and a most probable scenario will be identified, working closely with Authority staff. In addition, the potential impact of the proposed new general aviation runway at Smith Field (SMD) on activity at FWA will also be considered. Peak hour and busy day general aviation activity will also be determined.

3.5: Forecast of Surface Transportation Activity

The purpose of this task will be to define the landside activity levels which will result from the forecast growth in air passenger activity. The incremental growth in originating and terminating air passenger activity for each of the horizon years will be used as the basis for developing projections of surface transportation and parking activity demands. Using techniques established by the RW Armstrong Team, as well as nationally accepted procedures, the growth in vehicular traffic in and out of the Airport, and traffic at key locations as well as curb side activity, will be forecasted. The procedures will recognize that not all modes or components will increase at the same rate, making allowance for the differences in available reserve capacity among the different modes. In addition to vehicular

activity and the growth in curb side activity, the growth in both rental car usage and parking - including hourly, daily, remote/economy, and employee - will also be projected.

3.6: Forecast of On-Airport Employment

The purpose of this task will be to forecast on-airport employment relative to projected aviation activity levels for use in planning employee-related facilities. The historic relationship between changes in airport traffic levels and on-airport employment levels collected in earlier tasks will be tracked. This relationship will be applied to the forecasted aviation activity levels developed in Task 3.2.

3.7: Forecast Review

The forecast horizon years will include 2015, 2020, 2025, and 2030. A preliminary forecast of all components covering the twenty-year planning period will be prepared for Authority review. The forecasts will then be revised, if necessary, and transmitted to the FAA for their review and approval. Following FAA approval, the final forecast will be prepared.

3.8: Prepare Working Paper No. 2

The purpose of this task will be to document assumptions and methodologies used in preparing activity forecasts, for review and to serve as the basis of later tasks in the study. Narratives describing the assumptions and methodologies used in preparing the study's forecasts will be prepared. The RW Armstrong Team will present historical and forecast information in tabular and/or graphical format.

Task 4: DEMAND/CAPACITY ANALYSIS AND FACILITY REQUIREMENTS

4.1: Determine Airfield Requirements

The purpose of this task will be to examine the adequacy of FWA's airfield, including runway length and strength, runway/taxiway geometry, navigational aids, airfield lighting, and safety/obstacle clearance areas and buffers, based on approved FAA forecasts.

4.1.1: Examine Taxiway Requirements

The purpose of this task will be to examine the adequacy of the existing taxiway system. The existing taxiway system will be examined to identify taxi routes between all runways and activity centers on the Airport. Deficiencies will be identified from this review and through consultation with FAA ATCT and airport staff. In addition, taxiway characteristics - pavement strength, width, separation from runways, obstacles, and turn geometry, will be reviewed.

4.1.2: Identify Navigational and Landing Aid Requirements

The purpose of this task will be to examine the adequacy of the existing navigational and landing aid facilities to accommodate current and forecast levels of demand. The existing complement of navigational and landing aid facilities and their adequacy and reliability will be reviewed. Additional/replacement facilities will be determined. The impact of new

technology, such as satellite navigation systems (GPS) on airfield operations and navaid requirements will also be analyzed.

4.2: Determine Gate and Terminal Space Requirements

The purpose of this analysis will be to establish peak demand factors to be used in evaluating existing and future terminal building capacity. Terminal building space requirements will be determined for 5-year, 10-year and 20-year planning horizons. Peak demand factors expressed in terms of facility area (or length) per passenger or other appropriate units will be determined. Factors will be selected considering level of service, FAA and industry standard planning factors, comparable airport factors, flexibility of facilities to meet alternative demands, and revenue versus non-revenue space ratio maximization.

Terminal building space requirements for terminal building components including ticket counter, airline ticket office space, outbound baggage make-up and screening, inbound baggage delivery, baggage claim, departure lounges, concessions, operations areas, rest rooms, circulation areas, security screening stations, Federal Inspection Services, airport administration offices, and mechanical and building support space will be calculated.

4.3: Determine Surface Transportation and Parking Requirements

The purpose of this task will be to establish the physical requirements of the landside system in terms of number of lanes, curb length requirements, and physical area to be devoted to parking (by category), rental cars, and ground transportation support. These values will define both the shortcomings of the existing system, as well as the facilities necessary to support the components of the landside at Fort Wayne International Airport.

The activity levels defined under Task 3.2 will be used to determine the minimum number of traffic lanes for key elements of the airport access and roadway system. These may be further tempered to allow for merging, the impact of lane drops, distance between decision points, or the need for additional lanes due to the number of decisions, and destination points along a given sector of the road.

Parking requirements will be determined for each category of parking, including hourly, daily, economy/remote, and employee. The requirements will also define the total number of entry lanes as well as exit toll lanes.

The determination of curb length requirements will be determined by typical analytical tools that are widely-accepted in the industry. Inputs into the analysis will be derived out of the passenger survey as well as an analysis of the operation of the existing curb side at FWA.

The surface transportation requirements will also include the number of rental car ready-car spaces and acreage required for storage and service areas for the rental car operations. The area for taxicab queuing as well as the layover of ground transportation vehicles will also be quantified. The results of any recent ground transportation studies will also be incorporated into the analysis, as appropriate.

4.4: Determine Air Cargo Requirements

The purpose of this task is to determine the adequacy of existing facilities to accommodate current and forecast cargo demand. Where available, existing expansion plans by UPS and FedEx and other cargo carriers operating at FWA will be incorporated into the analysis. Using the cargo forecasts, and the cargo market analysis, future requirements for the individualized types of air cargo facilities will be compared to the size of facilities currently provided, with particular emphasis placed on the Airtrade Center, with the shortcomings of each type of facility documented. This analysis will also include consideration of the optimal future location of "belly" cargo facilities which will not interfere with the orderly expansion of the passenger terminal facility. In addition, requirements for employee parking and truck docking facilities will also be established and compared to existing facilities. Current and anticipated deficiencies will be identified.

4.5: Determine Other Aviation-Related Facility Requirements

An analysis of the current general aviation facilities, military facilities, fueling facilities, ARFF facilities, hangar space, helicopter landing areas, and other aviation facilities will be made with respect to the service level provided for current operations. Based on collected inventory information and on interviews with users, planning factors for each facility will then be derived. Using forecasts derived for various aviation segments, future requirements for the individual facilities will be determined and compared to the size of facilities currently provided, with the shortcomings of each type of facility documented.

4.6: Prepare Working Paper No. 3

The purpose of task will be to document results of Task 4 for review and to serve as a reference for the remainder of the study. Narratives of the findings of the above tasks, with supporting tables, charts and other graphics, as appropriate, will be prepared for insertion into the Study binder.

TASK 5: Airport Development Concepts

5.1: Identify Approach and Criteria for Evaluation of Airport Development Concepts

The purpose of this task will be to establish the approach and criteria for evaluating airport development concepts in a working session with the Authority. It is anticipated that evaluation criteria will include at least the following factors:

- construction and operating costs;
- spatial organization;
- architectural image;
- flexibility to accommodate future demand fluctuations in the terminal area;
- technological and in airline operational changes;
- comfort and convenience of passengers in the terminal area;
- availability and location of public parking;
- ground access system support;
- driving distances and times;
- construction impacts, including ease of phasing and construction;

- level of concessions to maximize revenues;
- the opportunities which are created for aviation-related, revenue-producing developments on airport property;
- airfield delays and other operational factors; and
- environmental impacts.

5.2: Passenger Terminal Concepts

The purpose of this section will be to develop alternative terminal development concepts for the existing terminal area to address terminal and ground transportation facility requirements and other planning issues for the 5-year, 10-year and 20-year horizons. The alternative concepts must accommodate future growth in air passenger activity and resolve aspects of the existing terminal design and/or landside system which have been previously deemed to be problematic or incapable of meeting future needs.

5.2.1: Identify Alternative Terminal Configurations

Alternative terminal concepts will be identified which are compatible with the landside options and the ground transportation system. To achieve this, terminal and landside areas must be developed in a joint manner with the goal of achieving the smoothest possible transfer between aircraft and ground transportation.

Based on previously determined facility requirements, concepts for expansion and modification of the existing terminal, and the ground transportation system will be generated. The concepts will be tested for the manner in which they can respond to alternative forecast scenarios and level of service to patrons. A working session and preliminary review of the concepts with airport staff will be held, and up to four of the concepts will be selected for further consideration and evaluation.

5.2.2: Refine Preliminary Terminal Concepts

The purpose of this subtask will be to develop the four terminal development concepts selected in Subtask 5.2.1 to a greater level of detail. The preliminary terminal development concepts will be analyzed in detail with additional attention to building footprint size and shape, passenger and vehicular circulation and parking, aircraft apron layout, roadway curb development, and other landside and airside interfaces.

5.2.3: Evaluate Terminal Concepts

The purpose of this task will be to evaluate the three terminal area concepts. This work will involve a matrix type comparison of the terminal concepts, using some of the criteria identified in Task 5.1. The evaluation will be conducted with airport staff in a workshop session, in which a list of evaluation factors will be compiled or finalized and the evaluation process established and implemented.

Ultimate terminal and concourse configurations will be optimized and evaluated with respect to a range of factors. The factors include:

- Adequate space between concourses for aircraft taxiing and parking, and for service vehicle lanes.
- Number and location of gates for projected airline activity.
- Acceptable walking distances for passengers.
- Ticketing, baggage facilities, and other main terminal facilities sized to support the number of associated gates and types of airline operations.
- Easy accessibility to parking facilities, whether by pedestrian walkways or people movers.
- Adequate space for retail development in the main terminal and on the concourses.
- Ability to accommodate international activity.
- Ability to offer flexibility with regard to new technological advances (CUTE, in-line baggage screening, security enhancements, etc.).
- Physical constructability through logical phasing and without undue disruption to operations.
- Flexibility for change in airline operations, fleet mix, and technology.

The output of the working session will be a recommended terminal concept for the existing terminal area.

5.3: Air Cargo Development

An overview and profile of the air cargo industry will be provided and will include the following air cargo business models:

- Integrated carriers
- All-Cargo Airlines
- Belly & Mixed Fleet Carriers
- Freight Forwarders
- Other Allied Services

For each sub-sector, the report will explore how entities already serve the community and larger region, focusing largely on the international carrier mix at regional gateways – primarily Chicago O'Hare (ORD) and Louisville (SDF); and secondarily Indianapolis (IND) - as well as the various domestic hub-and-spoke systems created by integrators and forwarders. This analysis will also include the location of entities and the infrastructure at ORD, SDF and IND to support these industries and how that compares to the Fort Wayne International Airport.

5.3.1: Regional Air Cargo Capacity

Whereas the first element emphasizes carrier services and operations, this element will focus on airside resources, including specifically cargo terminals already existing at Cincinnati, Dayton, Rockford, Wilmington (OH), Columbus, and Toledo. While international carrier composition at ORD and at SDF and to a lesser degree at IND will be analyzed, the airside resources of these two airports will be considered in this section.

Causal factors will be identified in the relative success of Alliance Airport in Fort Worth and Rickenbacker International Airport in Columbus, as well as international alternatives in Huntsville, Nashville and Indianapolis.

5.3.2: FWA Air Cargo Assessment

All preceding elements will be applied to the recent performance and current cargo operations and facilities at FWA. A comprehensive assessment will be completed showing:

- How FWA's cargo experience in the last decade compares with those of rival and comparable airports;
- The competitive strengths and weaknesses in terms of on-airport resources, demands and needs in this services area, and services of FWA versus regional rivals; and
- The commodity base that potentially would be leveraged to support new international service at FWA. Because FWA lacks international scheduled service, this element will focus on commodities and markets prominent at regional international gateways.

5.4: Integrate Other Aviation-Related Facilities

The purpose of this task will be to add aviation-related support functions to the preferred terminal concept for the existing terminal area. The conceptual land use plans will have generalized recommendations for the study area for the development of new aviation land uses, future expansion of existing airport facilities and aviation businesses, design features such as entrances and gateways, and general planning principles. Conceptual layouts of general locations, sizes and configurations of general aviation, aviation-related businesses, cargo, etc. will be developed. The layouts will reflect the facility requirements projected in task 5.3.2 as well as opportunities for other development, consistent with the goals and objectives (airline maintenance, air cargo, aviation-related manufacturing, for example) established in Task 1.3. The plan will take the initial form of a conceptual diagram to represent the location of future improvements, expansion of airport services as well as identify areas for future protection from outside development pressures surrounding FWA.

5.5: Detail Airfield Improvements

The purpose of this task will be to identify runway and taxiway improvements that will improve the overall aircraft flows between the runway system and the various functional areas (terminal, cargo, GA, military, etc.). Concepts addressing runway and taxiway requirements will be identified. Schematic concept drawings and narrative descriptions will be provided for each concept. Runway and taxiway concepts will be screened through qualitative analyses of the following:

- Operational effectiveness
- Environmental considerations
- Terminal/landside operational effectiveness
- Construction/phasing issues

The output of this analysis will be a recommended airfield layout for the existing terminal area and other developed areas on the airport.

5.6: Integrate Ground Access Improvements

In this task, the general feasibility and potential benefits of alternative ground access options will be evaluated. This task will review currently proposed access improvements and compare them to optimal access alternatives for the existing terminal area and other developed areas on the Airport. The purpose of this task will be to evaluate these options, and to make an initial assessment of the feasibility and desirability of each. The analysis will address:

- General description of the project, with potential alignments.
- Order-of-magnitude costs.
- Potential funding sources and assessment of probability of funding being available.
- Identification of benefits (e.g., travel time, user cost, convenience).
- Implementation factors.
- Non-airport traffic impacts.

A determination will be made with airport staff as to which of these improvements will be included as integral components of the overall airport development program. Access and circulation needs will also be evaluated for areas outside the terminal area.

5.7: Develop Preliminary Phasing Plan and Costs

The purpose of this task will be to develop construction phasing for the various development areas on the airport to meet both the projected need for future facilities and the airport's ability to finance construction costs of the facilities.

A phasing plan for facilities construction within the 5-year, 10-year and 20-year planning horizons will be prepared. Construction costs for the respective projects within each planning horizon, with specific years when the projects are projected to be needed will be estimated. The phasing plan will be developed to ensure operational viability of interim construction, and to take advantage of potential economies of scale.

5.7.1: Environmental Factors

The purpose of this task will be to identify environmental factors which could affect the feasibility of the development concepts for the Airport, and to confirm that potential impacts will not be critical or that they can be mitigated. In this task, both natural and community environmental factors will be examined. An exhibit will be prepared that catalogs the existing and potential environmental conditions that are possible under each alternative scenario.

5.7.2: Assess Preliminary Financial Feasibility

This task will provide a financial feasibility analysis for the development options being considered. This task will organize the relationship between capital and operating cost centers and revenue centers, optional allocations of costs and revenue between centers and optional uses of revenues by project type. Additional factors to be considered include the influence of FAA operational restrictions, AIP funds, revenue bond uses, passenger facility charges, airline financial issues and other sources of revenues.

5.8: Final Concept Development

The purpose of this task will be to evaluate each airport development concept to guide the selection of a preferred concept for the Airport's recommended improvement program. General factors in evaluating airside and landside components will include, overall passenger convenience, optimal use of available airport land, order-of-magnitude construction and operating costs, engineering feasibility, ease of phasing and construction, and environmental factors. In addition, airside factors will include taxi times and delays, safety, and ATC factors, including visibility of pavements from the ATCT; landside factors will include flexibility to accommodate future fluctuations in demand and changes in airline operations, comfort and passenger convenience (e.g., connection with surface transportation systems), and regional access and travel times.

5.8.1: Work Session with Authority Staff

The final evaluation process will include two meetings with the Authority staff, one to agree on criteria, and a second to review preliminary analysis and to identify where additional work is needed.

5.8.2: Select Concept

Final evaluations will be conducted in accordance with the agreed procedure, and reflecting input from the Authority staff. Evaluation factors will be finalized and the final evaluation process implemented. The output of this subtask will be a recommended airport development concept.

5.9: Prepare Working Paper No. 4

The purpose of this task will be to document results of Task 5 for review and to serve as a reference for the remainder of the study. Narrative of the findings of Task 5 work efforts, with supporting tables, charts and other graphics will be prepared, as appropriate.

TASK 6: SAFETY REVIEW OF ALTERNATIVES

6.1: Alternative Identification

6.1.1: Attend Alternative Identification Meeting

Members of the RW Armstrong Team will participate in the alternative identification portion of the Master Plan process. As alternatives are generated from the facility requirements portion of the process, hazards associated with those alternatives will be discussed. This task includes attendance of two team members at one internal alternative identification meeting.

6.1.2: Prepare Alternative Hazard Documentation

The RW Armstrong Team will document identified potential hazards associated with selected alternatives. Up to ten alternatives are expected to be studied. This information may then be used during the alternative review process to identify the preferred alternative. The hazards identified for each alternative will be provided to members of

the Master Plan team for comment or questions in advance of the alternative review meeting. The deliverable will be a list of identified hazards presented in matrix format along with each alternative.

6.1.3: Prepare Alternative Risk Documentation

The RW Armstrong Team will identify the risks associated with each alternative's hazards. The Team will determine the likelihood and severity of each risk through internal analysis and panel discussions with key stakeholders of the alternatives. No less than three stakeholders will be invited to participate on the review panel, they include representatives from FAA Air Traffic division (local control tower), a chief pilot from a commercial airline operating at FWA, and the Director of Operations or other Authority representatives from the airfield operations division. A briefing paper will accompany a risk matrix that explains the risks and how they were derived from the hazards identified in Task 6.1.2.The risk matrix and associated briefing paper will be provided to the Master Plan team in advance of the alternative review meeting.

6.1.4: Attend Alternative Review Meeting

The RW Armstrong Team will attend the alternative review meeting with up to two team members and will present the hazards, risks, and risk analysis for each alternative considered. This information may then be used by the Master Plan team to assist in selection of the preferred alternative.

6.2: Safety Risk Management Documentation (SRMD) of Preferred Alternative

6.2.1: Conduct SRMD of Preferred Alternative

After the Master Plan team has identified the preferred alternative and prior to it being incorporated into the Airport Layout Plan, the RW Armstrong Team will facilitate a review of the preferred alternative's hazards, risks, the likelihood and severity of each risk, and the agreed mitigations for each hazard (if applicable). This review panel will include pertinent stakeholders of the preferred alternative. At a minimum, representatives from FAA Air Traffic division (local control tower), a chief pilot from a commercial airline operating at FWA, and the Director of Operations or other Authority representatives from the airfield operations division, and other stakeholders will be asked to participate on this panel. The review is intended to verify the results of the alternative's hazards, risks, likelihood, and severity analysis conducted by the RW Armstrong Team. The panel will determine each risk's high, medium, or low matrix value (risk analysis).

As a result of the risk analysis, the panel will identify hazards with high matrix value and medium matrix value risks that can be mitigated to a lower level. (NOTE: a high risk matrix value is an unacceptable risk and must be mitigated to a medium. In addition, mitigation will not be implemented until confirmed during design.)

For scheduling/budgeting purposes, preferred alternative SRMD panel review will require at least one full day.

6.2.2: Provide Final Deliverable for Use in Master Plan Document

The RW Armstrong Team will prepare an SRMD to document the safety review conducted under Task 6.2.1. The deliverable will be in a format that is consistent with the Master Plan document, including exhibits, and matrix for the hazards, risks, and safety review of the preferred alternative. The report will articulate the reasoning behind a particular risk being identified in the medium or high category of likelihood and/or severity.

6.3: Prepare Working Paper No. 5

The RW Armstrong Team will prepare a working paper to document the preliminary safety review conducted in Task 6. The deliverable will be in a format that is consistent with the Master Plan document, including exhibits, and matrix for the hazards, risks, and safety review of the preferred alternative. The report will articulate the reasoning behind a particular risk being identified in the medium or high category of likelihood and/or severity.

TASK 7: ENVIRONMENTAL OVERVIEW

The overall objective of this work effort is to conduct an environmental overview analysis to identify any potential problem areas on or near FWA. The environmental overview will consider the full range of typical environmental concerns associated with the development of the Airport and identify those which may warrant further analysis. Previous environmental evaluations conducted for FWA will be utilized to the greatest extent possible. The entire range of potential environmental concerns identified in FAA Order 5050.4B, the "Airport Environmental Handbook," will be considered.

7.1: Environmental Study

Potential environmental issues will be considered in this work element, including the following:

- Noise impacts;
- Social impacts;
- Induced socioeconomic impacts;
- Air quality;
- Water quality;
- DOT 4(f) lands;
- Historic, architectural, archaeological and cultural resources;
- Wetlands;
- Biotic communities;
- Endangered and threatened species of flora and fauna;
- Floodplains;
- Wild and scenic rivers;
- Coastal zone management;
- Coastal barriers;
- Farmland;
- Energy supply and natural resources;

- Light emissions;
- Solid waste impacts; and
- Construction impacts.

All projects recommended and determined to meet purpose and need justification in the first five years of the planning horizon will be identified as being "Categorically Excluded" or in need of further evaluation in compliance with the National Environmental Policy Act of 1969 (NEPA). If further analysis is indicated, the RW Armstrong Team will identify the necessary steps and agency coordination that is required as part of this environmental review process. In addition, if it is determined that an Environmental Assessment is needed, this work will performed as an optional task assignment, at the Authority's direction.

7.2: Prepare Working Paper No. 6

The purpose of this task will be to document results of the Task 7 environmental work effort for review and to serve as a reference for the remainder of the study. Narrative of the findings of the Task 7 efforts, with supporting tables, charts and other graphics will be prepared, as appropriate.

TASK 8: AIRPORT LANDSIDE DEVELOPMENT PLAN

Fort Wayne International Airport has an abundance of surplus land that is available for development for both aviation and non-aviation related type uses. In order for the Authority to fully understand the usefulness of this surplus land and how to successfully attract tenants to establish operations on the Airport, a comprehensive Airport Landside Development Plan is needed. Since the Authority's ability to develop a sound financial plan to fund recommended capital improvements is rather limited, a clear and concise landside development plan is needed to identify additional revenue-generating opportunities by utilizing the surplus airport land. This development plan is considered to be a critical component of Task 10, Financial Plan, and is supported by FAA AC 150/5070-6B with regard to revenue enhancement and financial feasibility. In addition, this landside development plan is structured to follow the guidance provided by the FAA in the following documents:

- FAA Order 5100.38C, Airport Improvement Program Handbook, June 28, 2005, with regard to on-airport land use planning for aeronautical use of FWA's surplus land;
- FAA Order 5190.6A, Airport's Compliance Handbook; October 1, 1989; with regard to concurrent use of surplus airport property, as stated in Section 5, Use of Airport Property; and
- United States Code, Title 49 – Transportation, Subtitle VII – Aviation Programs, Part B – Airport Development and Noise, Chapter 471 – Airport Development, Subchapter I – Airport Improvement, Section 47101 – Policies, which states in part: "that airports should be as self-sustaining as possible under the circumstances existing at each particular airport and in establishing new fees, rates, and charges, and generating revenues from all sources, airport owners and operators should not seek to create revenue surpluses that exceed the amounts to be used for airport system purposes and for other purposes for which airport

revenues may be spent under section 47107(b)(1) of this title, including reasonable reserves and other funds to facilitate financing and cover contingencies".

8.1: Review Existing Planning Information and On-Going Studies

Existing reports and studies pertaining to airport, land use, and transportation-related development will be compiled and reviewed by the RW Armstrong Team. Such studies will provide essential background and reference information to enhance understanding of existing and projected airport and off-airport development activities, as well as provide insight into relevant planning issues and constraints. Included among these previous and on-going planning efforts are the existing Airport Master Plan, on-airport development studies, the Aviation Association of Indiana Economic Impact Study and other relevant planning efforts. A brief description of all recommendations, issues, or concerns presented in the various existing or on-going airport, land use, and transportation planning studies will be described.

8.2: Inventory Socioeconomic, Land Use, and Community Data

Data on population, the local economy, existing land use, and land use planning and zoning regulations for use in subsequent analysis, including forecasting and land use and growth risk analysis will be obtained. The primary source of the land use and population data will be the Fort Wayne-Allen County Airport Authority, updated by other sources including Woods and Poole Economics Inc., ESRI, U.S. Census data, and local sources. Socioeconomic data will be secured from local government agencies through interviews and correspondence. Information on historic resources in the study area will be obtained through the State Historic Preservation Office and local agencies. Information on local land use planning policies and regulations will be gathered through interviews with local agencies.

Aerial photographs of the study area will also be compiled to provide an up-to-date source of land use data in and surrounding the Airport which could pose opportunities or threats for aviation development. The existing land use inventory will be developed through interpretation of aerial photographs supplemented by windshield surveys and existing land use information from local sources, including data and maps available through local agencies.

8.3: Existing Land Use Review

The RW Armstrong Team will complete an existing land use study for land within the planning area and adjacent lands. Using current data, aerial photography analyses, and site investigations, general land use areas will be classified, and the amount of land devoted to each of the land use categories will be quantified. This review will also identify any existing and proposed land use regulations that impact development of the site. This could include municipal zoning regulations, Airport development standards, and private covenants.

The RW Armstrong Team will identify deficiencies and/or surpluses in the amount of developable land for each economic development category, and prepare future land use needs. An opportunities and constraints map will be created that illustrates where

potential new aviation and non-aviation expansion could occur based on constraints such as APZ's and height restrictions. This map will be created through the RW Armstrong Team identifying existing attributes of the Airport, trends in GA/corporate aviation, MRO (maintenance, repair, and overhaul) industry, air cargo and facilities (e.g. Airtrade Center), and other airports in the area, that drive current and forecasted airport usage. Additionally, non-aviation related development that could provide a stream of revenue based at the Airport will also be analyzed. Based on this opportunities and constraints analysis, appropriate and compatible specific land uses will be identified and others identified that should not be permitted to develop on or around the Airport.

8.4: Determine Commercial Development Potential

This task will focus on the preparation of alternative development plans for the Airport that result from the evaluation undertaken in Task 2.6. These schemes will include: 1) generalized land use for the Airport; 2) existing development to be preserved and protected, improved and upgraded, or removed; and 3) locations for new development and redevelopment, such as the James E. Kelley Commerce Aerocentre and the Airtrade Center. This analysis will include a general indication of the types and quantities of uses in each location, taking into consideration scale, character, coordinated pedestrian and vehicular circulation, parking locations, and improved relationships with the surrounding communities and commercial areas.

8.5: Profile Commercial Development Areas

Both traditional and non-traditional land uses that provide economic benefit to the Authority and the Airport, as well as improve the function and efficiency of the Airport, will be identified. The objective of the profile is to determine the mix of land uses that optimizes total revenue of the Airport, providing for the integration of the Airport into the region, physically and economically, but at the same time, retains the flexibility required by the Airport to insure future development flexibility.

Utilizing a highest and best use analysis, the needs, assets, liabilities and operating characteristics for both existing and emerging industries whose presence at FWA would be desirable will be identified. The activities proposed will include immediate possibilities, generally assumed to be related to activities already established in the area surrounding the Airport. Additional activities appropriate for each phase of the master planning exercise will be proposed. Each proposal will be evaluated for the degree to which it contributes to the overall airport and economic activity complex.

In order to compile the needed information on potential industrial/commercial development, all pertinent economic development studies that have produced with regard to the Fort Wayne/Allen County community and northeastern Indiana will be obtained and reviewed. Meetings will be held with airport staff, local/regional planning staff, and local/regional economic developers. The purpose of this effort will be to identify what lands should be included in the real estate development analysis. Pertinent information on these lands will also be documented, including location, size, topography, availability of utilities, soils, adjacent uses, access, etc.

Additionally, a general, qualitative examination between Fort Wayne/Allen County Development Program and up to three (3) similar airports will be conducted to identify

reasonable outcomes that could be realized through appropriate development. Review criteria will include:

- Development of surplus property
- Methodology of tenant acquisition
- Infrastructure and airport services in place for businesses

8.6: Airport Tenant Surveys

In coordination with the Authority, a survey of existing airport tenants will be utilized to collect a variety of data required to accomplish individual tasks outlined above. Information provided by the survey will include, but not be limited to the following: current and projected uses of airport facilities; need for upgrading airport services and facilities and what potential improvements could include; employee data; future facilities requirements; projected requirements for potential indirect impact data; and related commercial requirements.

8.7: Prepare Working Paper No. 7

The purpose of this task will be to describe a commercial and/or industrial development concept and site plan for Airport-owned property based on land use analysis and market assessment results. A narrative description of findings from Task 8, with supporting tables, charts, and diagrams will be prepared and incorporated into the Master Plan Technical Report and finally in the Airport Layout Plan (ALP).

TASK 9: AIRPORT PLANS

9.1: Refine Selected Airport Development Concept

The purpose of this task will be to adjust the airport development concept selected in Task 5.3, to reflect comments from previous Working Papers and to incorporate findings of the refined financial analysis in Task 9. The output of this task will be an adjusted airport development concept for use as the basis for preparing the Airport Layout Plan (ALP) and other Master Plan drawings.

9.2: Refine Phasing Plan and Costs

The purpose of this task will be to refine the phasing plan and costs consistent with the refined development concept (task 8.1). The phasing plan for facilities construction within the 5-year, 10-year and 20-year planning horizons developed in Task 5 for the preferred airport development concept will be adjusted as appropriate. The focus will be to identify those projects the Authority can implement immediately. Construction costs will be estimated for the respective projects within each planning horizon, with specific years when the developments are projected to be needed. This task will also include an update of the Airport's five-year CIP.

9.3: Alternative Development Overlays

Development has progressed to the point where only a few options for the new development on the Airport are available. However, other vacant and new areas have become available for development. There has never been a better time for the Authority to consider the many on-airport development opportunities that are and will be presenting themselves. This task of the master planning exercise will focus on the establishment of development plans for four areas:

- East Quadrant
- West Quadrant
- North Quadrant (Existing terminal area)
- South Quadrant

For each area, a preferred development plan will be identified based on the baseline forecast. In addition, up to two contingency plans will be developed for each area, in the event that a demand for particular market segment evolves more quickly (cargo vs. general aviation, for example) than assumed in the baseline forecast. To the extent possible, the preferred development option and the contingency plans will share common infrastructure plans to gain the best return on these investments. These contingency plans will be created into a detailed site plan for each of the four areas illustrating taxiway access, new structures, transportation access facilities, parking, egress/ingress and any other site improvements needed.

9.4: Multiple Scenario and Alternative Development Overlays

While the facilities included on the master plan should ideally result in a single, fixed development path, actual market conditions will make this highly unlikely. As one area is developed due to an immediate need (e.g., cargo instead of general aviation); the master plan will have to change to accommodate the displaced area (e.g., general aviation). A "multiple scenarios" methodology is recommended to prepare the Authority for addressing these variations. A development program will be identified that meets anticipated demands but preserves for the Authority a range of options should actual demand require different development in a specific area. A multiple-scenario format will be designed to assist the Authority in making future development decisions. This multiple scenario approach will graphically integrate all potential airport projects and identify interrelationships between project types. In order to provide guidance on which scenario to use based on actual market conditions, standards will be created that will contain criteria and standards to address development of specific plots under various conditions. Other issues will need to be considered including the extension of airfield access, creation of development standards, and administrative matters (impacts on existing service agreements and Intergovernmental Agreements), limitation of height and security fencing and other parameters. RW Armstrong will identify these key follow-up issues and present a written list of recommended actions to the Authority.

9.5: Airport Layout Plan

The existing Airport Layout Plan (ALP) for the airport is in a digitized (AutoCAD) format. The RW Armstrong Team will work with the Authority in re-layering the drawings to provide for better utilization and to make better use of cross-referencing and blocks to

manage the drawing size. The ALP set will be developed by the RW Armstrong Team after consultation with Authority staff, the FAA, and the Indiana DOT on these issues, and in compliance with FAA AC 150/5070-6B, Airport Master Plans (July 29, 2005) and the FAA Advisory Circulars listed below. The ALP sheets will be prepared in accordance with the FAA Great Lakes Region ALP Checklist. The specific ALP sheets to be prepared are described in subtasks 9.5.1 - 9.5.7.

1. RW Armstrong will perform necessary professional engineering, surveying, planning, and project management services required to complete the ALP survey. The Survey will be conducted in accordance with the applicable sections of the following documents:

    - FAA Advisory Circular 150/5300-13, "Airport Design"
    - FAA Advisory Circular 150/5300-17B, "General Guidance and Specifications for Aeronautical Survey Airport Imagery Acquisition and Submission to the National Geodetic Survey"
    - FAA Advisory Circular 150/5300-18B, "General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards"

2. Data collected and associated deliverables will be submitted in the formats specified in the appropriate Advisory Circulars. Collected data will be submitted to the FWACAA at the completion of the project.

3. RW Armstrong and their Subconsultants will participate in a Task 9 kick-off meeting held at the Airport. RW Armstrong will prepare a summary of the meeting and distribute the summary to all attendees.

4. RW Armstrong will submit weekly project status reports to the FWACAA and the FAA Airport Surveying-GIS Program office. The reports will contain progress updates and any significant issues with the project, including deviations from the planned schedule.

5. RW Armstrong through their Subconsultants will tie the airport survey to the National Spatial Reference System (NSRS) using a (select one) permanent or temporary connection processed according to AC 150/5300-16A. RW Armstrong will utilize existing Primary Airport Control Station (PACS) and Secondary Airport Control Station (SACS) monuments as the basis for the horizontal and vertical control needed for the survey. If these monuments have been destroyed, RW Armstrong can reestablish the PACS and/or SACS monuments as an additional service if approved by the DPC.

6. RW Armstrong will submit Survey, Quality Control, and Imagery Plans to the FAA Airport Survey-GIS Program Office for review and approval by the FAA Airport Surveying-GIS Program Office prior to commencing field work. In addition, Geodetic Recovery and Final Survey reports in accordance with AC 5300-18B.

7. Available topographic information, along with existing Airport Layout Plans, existing Obstruction Survey Charts, USGS Quad Maps, Instrument Approach Procedure Plates, and other related drawings will be reviewed to assist with the survey.

8. Using a Subconsultant, RW Armstrong will acquire aerial imagery, recover existing geodetic control, and conduct ground surveys as needed to collect the obstacle data, planimetric mapping, and topographically information prescribed in AC 5300-18B. The imagery will be submitted to the NGS for approval prior to submission of final survey deliverables. The imagery will be collected within 6 months of starting the field survey.

9. Runway ends and thresholds will be documented. If these features are not currently monumented, monuments will be installed and documented.

9.5.1: Update Title Sheet

The title sheet will include the title of the project, location and vicinity maps, and a sheet index.

9.5.2: Update Data Sheet

The data sheet will include wind roses, wind coverage tables, airport data tables and runway data tables.

9.5.3: Update Airport Layout Plan

The ALP will be updated in accordance with the above-referenced FAA Advisory Circulars and will only depict the improvements that are needed as determined by the approved forecasts and through the facility requirements analysis over the twenty-year planning horizon. Given the land area of the Airport, the scale will likely be the 1 inch=600 foot scale similar to the current ALP. For this reason, much of the detail usually found on an ALP will be depicted in a series of terminal area plans at a 1 inch=200 foot scale. The ALP will only depict existing and future airport development projects in schematic form. The ALP will include basic information such as topographic detail, runway data, RPZ data, safety areas, property lines, and the airport reference point. The ALP will also include approval blocks and title and revision blocks.

1. Utilizing the aerial imagery and ground survey techniques the following items will be collected (or validated if previously known) and documented during the survey:

    - Runway ends and threshold of each runway
    - Length and Widths of each runway
    - Position and type of runway markings
    - Clearways and stopways
    - Runway/Taxiway intersections
    - Runway true azimuths
    - Helicopter touchdown lift of area (TLOF)
    - Helicopter final approach and takeoff area (FATO)
    - Air Traffic Control Tower (ATCT) cab floor elevation
    - Planimetric mapping within the airport property lines
    - Position and type of runway markings

2. Runway ends and thresholds monumentation will be validated. Any runway or threshold ends found without monuments will be monumented and documented.

3. The aerial imagery will be utilized to collect and report natural and manmade features within the Airport property. Using a Subconsultant, a digital terrain model (DTM) will be developed suitable to provide two-foot (2') contour intervals.

4. The aerial imagery will be utilized to validate existing airport mapping. Corrections and revisions will be made to the existing mapping as needed to show all features existing at the time of the survey. All bridges, piers, culverts, streets, roads, sidewalks, wooded areas etc. will be collected and documented.

5. The aerial imagery will be utilized to collect elevations of roadways at the intersections of the Runway Protection Zone (RPZ) and extended centerlines of each runway.

6. The aerial imagery will be utilized to validate the locations of airfield lighting (runway/taxiway edge, centerline, and TDZ lighting).

7. The aerial imagery will be utilized to provide spot elevations within the Airport property lines to supplement the contours as needed to accurately depict the topography within the survey limits.

8. Location and elevations of lakes, rivers, streams, and drainage courses will be collected and documents.

9. Overhead utilities, including power poles, guy wires, anchors, and vaults will be collected and documented.

9.5.4: Update Terminal Area Plans

The terminal area plans will be updated in accordance with the above-referenced FAA Advisory Circulars. Terminal area plans will be developed for the air carrier passenger terminal facilities, general aviation facilities, and other facilities. Details not depicted on the ALP will be depicted on the individual terminal area plans. These plan sheets will include existing and future building data tables, known elevations of structures, taxiway details, and a legend.

9.5.5: Update Runway Approach/RPZ and Airspace Plan and Height Zoning Map

These plans will be prepared in accordance with the above-referenced FAA Advisory Circulars. These plans will take into consideration the State of Indiana's height restriction guidelines for airports. Survey work to verify existing obstructions or identify future obstructions will be conducted, if requested. Any survey work that is required will be conducted in accordance with FAA Advisory Circulars 150/5300-16A, 17B, and 18B.

1. RW Armstrong and their Subconsultants will conduct an Airport Airspace Analysis for runway 5-23, 14-32 and 9-27 using the standards established for Vertically Guided instrument approach procedures. The aerial imagery will be utilized to evaluate and locate obstacles within the Obstruction Identification Surfaces (OIS) as

defined in AC 5300-18B for Vertically Guided Runways.

2. The following runway data will be collected during the survey:

   - Centerline profile grades and 10 foot offsets at 10 foot intervals for each runway
   - Threshold and displaced threshold coordinates and elevations for each runway
   - Touchdown zone elevations for each runway

3. The following Navigational Aid data, including appropriate perpendicular points will be collected during the survey:

   - Glide slope, localizer, Distance Measuring Equipment (DME), inner marker and outer marker associated with the Runway 5 ILS
   - Glide slope, localizer, locator outer marker (LOM) and DME associated with the Runway 32 ILS
   - Airport Surveillance Radar (ASR)
   - Fort Wayne (FWA) VORTAC

4. The following visual navaids will be collected during the survey and provided to the FAA in the required format:

   - Airport Rotating Beacon coordinates and elevation
   - VGSI lights on all runways
   - Approach lighting and REIL's

5. The obstruction data obtained during the survey will be evaluated and the required obstructions will be selected and submitted to the FAA in accordance with AC 150/5300-18B, Chapter 2, *Survey Specifications and Standards.*

6. RW Armstrong will perform a ground quality control (QC) survey to assess and verify the potential obstructions identified from the aerial imagery. This survey will be conducted by personnel familiar with Aeronautical Survey requirements, as well as, Part 77, TERPs, and FAA Advisory Circulars.

7. Any potential obstructions identified by the survey that may adversely affect existing or future instrument approach procedures will be brought to the FWACAA attention to determine if the potential obstructions can be mitigated by lowering or removing prior to submission of the data to the FAA. If the obstructions are removed, RW Armstrong will field verify that the obstruction(s) has/have been mitigated.

8. RW Armstrong will submit all deliverables to the FWACAA and the FAA through the FAA's Airport Surveying-GIS program's website.

9. A digital color orthophoto of the surveyed area will be provided to the FWACAA on a DVD.

9.5.6: Develop On-Airport Land Use Plan

This plan will be prepared in accordance with the above-referenced FAA Advisory Circulars. The land uses will be depicted by general use categories. This plan will be a key study

product, since it will identify recommended uses for all areas under airport control, including both aeronautical and commercial areas.

9.5.7: Develop Off-Airport Land Use Plan

The Off-Airport Land Use Plan will prepared in accordance with the appropriate FAA Advisory Circulars and will be depict land areas that are adjacent to and in general proximity to the Airport. It will identify the general land uses of these areas. In addition, three (3) sets of noise exposure contours, using the latest version of the FAA's Integrated Noise Model (INM Version 7.0A) will be developed and superimposed on a land use base map.

9.5.8: Develop Exhibit "A" Property Map

An Exhibit "A" Property Map (Exhibit "A"), dated October 28, 2003, is on file with the Federal Aviation Administration (FAA) for the contiguous parcels that comprise Fort Wayne International Airport (FWA). There is a desire and need to update the existing Exhibit "A". The current Exhibit "A" contains approximately 85 parcels and approximately 15 additional parcels have been acquired since 2003. The goals for this Exhibit "A" updated include:

- Create data tables that include the necessary information for compliance with FAA guidance. This may include: parcel/tax identification number; property address; FWA's interest in the property; acreage; type instrument; date recorded; book and page number; acquisition or sale price where available; purpose of acquisition/release; percentage participation of all entities and Federal grant number (if applicable); copies of all deeds not already in the possession of FWA, and identify all utility easements, right-of-ways, and any infringements on FWA's property.

- Ensure that all easement documents are current and appropriately organized. (a title company will be used to verify all deeds are captured).

- All data tables will be compatible with the FWA GIS.

The project will be accomplished in four phases. They are:

- Phase One: Initial project coordination

- Phase Two: Data collection

- Phase Three: Prepare data tables and Exhibit "A" map (draft)

- Phase Four: Prepare final documents and project closeout

A draft Exhibit "A" will be provided to FWA staff for review and comment. Following FWA staff concurrence, a final Exhibit "A" will be provided electronically (on CD) along with up to four hard copies. An optional narrative report may be requested by FWA staff. The narrative would include a detailed account of the process that was followed, any difficulties, and any recommendations that are appropriate for consideration.

A retracement boundary survey for each of the fifteen (15) "metes and bounds" parcels acquired by the Fort Wayne–Allen County Airport Authority (FWACAA) at FWA since 2003 will be performed. The aforementioned surveys will be performed in accordance with the minimum survey standards outlined in Title 865, Article 1, Rule 12 of the Indiana Administrative Code. The horizontal control and coordinate system utilized for the aforementioned surveys will be based upon the FWA Horizontal and Vertical Control plan in effect at the time said surveys are performed.

9.6: Prepare Working Paper No. 8

The purpose of this task will be to describe the recommended airport development plan. A condensed report explaining the reasoning behind and important features of the ALP will be prepared. The report will include a reduced ALP set as part of the document.

TASK 10: FINANCIAL PLAN

FAA AC 150/5070-6B provides guidance to airport sponsors and planners on how to develop a comprehensive Financial Feasibility Analysis. The purpose of this task is to utilize that guidance to provide the Authority with the financial tools and means to fund capital improvements that are recommended in this Master Plan Study. As previously mentioned, a critical component of a sound Financial Plan is the ability of the Authority to implement a landside development program on surplus land that will provide it with additional revenue opportunities to supplement other financing options that are available to the Authority.

10.1: Refine Financial Plan

This element of the Master Plan revisits the range of financial assumptions which will ultimately impact facility and funding requirements. Initial assumptions and project objectives are revised to reflect changes in passenger and cargo forecasts, and collateral development alternatives. Elements to be refined include:

- the types of facilities to be built or rehabilitated;
- the total costs of these facilities;
- the timing of cash flows associated with the construction of planned facilities; and
- financing sources and terms.

The estimated demand on airport operating revenues and the impact on rates and charges will be identified and analyzed. Recommended strategies for completing and funding the proposed projects will be presented. The preferred alternative will reflect a financial management structure in combination with a physical plan which accomplishes the Authority's objectives for strategic growth, economic development, air and ground

transportation services, and environmental mitigation. The following components of the financial analysis will be conducted:

- Sources & Uses of Funds analysis: Use of design cost and phasing in determining both the costs and the different sources of funding for the recommendations including any portion that must be financed through bonds. Analysis of varying the application of sources of funding for optimal financing.
- Revenue forecasting analysis: Projecting amount and timing of additional revenues from increased facilities, landside development on surplus land, and from activity forecasts. Our financial models are designed to calculate both revenues at breakeven and at specified percentages above breakeven and to simultaneously calculate the required tier of rates (short-term, long term, economy/premium) required to achieve the desired level of revenue.
- O&M expense projections: Required for net revenue calculations.
- Cash flow analysis: Projections with calculations of cost escalations, project internal rates of return, net present values, and the effects of economic and financial constraints on project viability.
- Debt service analysis: Calculation of par amounts required for construction and or refinancing; calculation of required reserve funds, capitalized interest, and covered debt service.

10.2: Prepare Working Paper No. 9

The purpose of this task will be to document results of Task 10 elements for review and later incorporate into the Master Plan Technical Report. Narrative description of the findings of Task 10, with supporting tables, charts and graphics will be prepared.

TASK 11: DOCUMENTATION

11.1: Master Plan Technical Report

11.1.1: Revisions to Master Plan Working Papers

The purpose of this task will be to revise the master plan working papers provided in the previous tasks for incorporation into the Master Plan Technical Report binder. The working papers will be revised to reflect comments received during the coordination process.

11.1.2: Prepare Draft Master Plan Technical Report

The purpose of this task will be to provide the Authority and FAA with the opportunity for a final review prior to publication of the final report. Twenty copies of a draft Master Plan Technical Report, including color exhibits where appropriate, will be prepared and submitted for Authority and FAA review. The draft report will be amended as necessary based on this review and the comments provided.

11.1.3: Publish Master Plan Technical Report

The Master Plan Technical Report will be published in an electronic format and 50 hard copies will be provided to the Authority. Graphic/drafting of final camera-ready art and text will be prepared. Reproduction of the document with offset lithographic printing and laser color copy process will be completed as appropriate.

11.2: Executive Summary Report and Public Information Brochure

An executive summary of the FWA Master Plan will be prepared for placement at the front of the Master Plan binder. The text will be formatted to allow for separate reproduction and distribution. It will include an overview of the analysis and findings, and a description of the recommendations. Graphics and maps will be provided to facilitate understanding by a wide range of potential readers.

A glossy, offset-printed Public Information Brochure, for wider circulation, will be prepared for public consumption. This document will be clear, concise and attentive. It is anticipated that a minimum of 500 copies will be printed. The final number will be determined by the Authority.

TASK 12: PUBLIC INVOLVEMENT

12.1: Public Outreach Program

Up to three public meetings, designed to inform the general public of study progress and findings as the study proceeds, and to provide the opportunity for public comment on the program, will be held. The public meetings may be structured either as "open-house" type gatherings, workshops, or more formal meetings as the situation demands. The intent is to involve both the local community affected by airport development and the larger regional community more concerned with air service and economic development issues. The activities will include:

- Issue meeting notices to the news media, as agreed to by the Authority.
- Make meeting arrangements.
- Prepare presentation materials and handouts.
- Attend meetings.
- Prepare record of meetings.
- Identify items for which follow-up activities are required.

In addition to the public meetings, discussed above, another effective means to keep the public informed on master planning issues and findings is to devote a page on the Authority's web site to the Master Plan Study. The RW Armstrong Team will assist the staff in providing material and updates to be included on the web site.

12.2: Technical Advisory Committee Meetings

A Technical Advisory Committee (TAC) will be formed to provide guidance and advice on technical issues to the Authority and to the RW Armstrong Team. It will consist of technical level representatives of the Authority, airlines, airport tenants, utility companies, FAA,

Indiana DOT, other key agencies and interest groups. The consultant's responsibility in this task is to provide logistical support to a program of up to five meetings of this committee through the study program. It is anticipated that meetings of the committee will be held as part of coordinated series of meetings at key decision points in the study program, including at study initiation, the end of facility requirements phase, and during the concepts phase. The work to be accomplished will consist of:

- Hold meetings with the Authority to determine membership of the Committee.
- Prepare draft letter of appointment/invitation for Authority action.
- Issue meeting notices.
- Make required meeting arrangements.
- Prepare presentations, handouts and briefing papers for meetings.
- Attend meetings and provide technical contributions.
- Prepare summaries of meetings for the files.
- Identify for the Authority items which require follow-up actions.

12.3: Meetings on Technical Issues

In addition to the Technical Advisory Committee, individual meetings will be held with the signatory airlines, FAA, Indiana DOT, and other agencies as required by specific analysis.

12.4: Briefings for Elected and Government Officials

In the course of the study, it is anticipated that the need will occur to brief elected or government officials on areas of special concern or interest to them, ahead of broader public discussions and announcements. This task covers preparation for and attendance at three such briefings. Activities will include:

- Preparation of presentation materials and briefing papers.
- Attend three briefings.
- Follow up on issues raised at the briefing.

12.5: Briefings for Special Interest Groups

As with elected officials, it is anticipated that briefings may be desirable for special interest groups, future airlines, chambers of commerce and others on items of special concern or interest to them. These may be held ahead of broader public discussions and announcements. This task covers preparation for and attendance at three such briefings. Activities will include:

- Preparation of presentation materials and briefing papers.
- Attendance at three briefings.
- Follow up on issues raised at the briefing.