A master plan provides an evaluation of an airport’s aviation demand and an overview of the systematic development that will best meet those demands. The master plan establishes development objectives and provides for a 20-year planning period that details the rationale for various study elements, including airfield configuration, facility development, on-airport land use recommendations, and support facilities. It also serves as a strategic tool for establishing airport improvement priorities and justifying the need for federal and state funding assistance.

The Federal Aviation Administration (FAA) recommends that airports update their long-term planning documents every seven to 10 years, or as necessary to address local changes at the airport. The last master plan for Laughlin/Bullhead International Airport (IFP or Airport) was completed in 2009. The Mohave County Airport Authority (MCAA), the sponsor of the airport, has received a grant from the FAA to update the master plan. The FAA grant covers 92.41 percent of the fixed fee project cost, with the MCAA and the Arizona Department of Transportation – Aeronautics Group (ADOT) splitting a 7.59 percent match.

The master plan has been undertaken to evaluate the airports role and capabilities, to forecast future aviation demand, and to plan for the development of new or expanded facilities that may be required to meet that demand. The master plan will provide guidelines for the airport’s overall maintenance, development, and operation in an environmentally and fiscally responsible manner, while adhering to appropriate FAA and ADOT standards.

The master plan process will result in a 20-year plan that identifies development areas to ensure they will be readily available when required to meet forecast demand. The master plan is a 20-year vision for the airport that provides a list of capital improvement projects in order to achieve that vision.
STUDY OVERVIEW

The MCAA is responsible for funding capital improvements at the airport, as well as obtaining FAA and ADOT development grants. In addition, MCAA oversees facility enhancements and infrastructure development conducted by private entities at the airport. The master plan provides guidance for future development and justification of projects for which the airport may request grant funding.

The master plan follows a systematic approach outlined by the FAA to identify airport needs in advance of the actual need for improvements. This is done to ensure that the MCAA can coordinate financing, environmental reviews, project approvals, design, and construction for necessary airport improvements. While the airport may have many needs, the master plan focuses on those capital projects that will be eligible for FAA and ADOT grant funding.

The MCAA has contracted with the airport consulting firm of Coffman Associates, Inc. to undertake the master plan. Coffman Associates specializes in master planning and environmental studies. The study is prepared in accordance with FAA requirements, including Advisory Circular (AC) 150/5070-6B, Airport Master plans, and AC 150/5300-13A, Airport Design.

Coffman Associates is an airport consulting firm that specializes in master planning and environmental studies. Coffman Associates will lead the team, with support from the following firms:

- Meat & Hunt | Airport consulting engineer to provide engineering analysis as needed and to provide capital improvement program cost estimates;
- DKMG | Financial services including benefit/cost evaluations and a financial feasibility of future capital/maintenance programs;
- Woolpert | Aerial photography, ground survey, and GIS products to meet FAA 5300-18B requirements for Airports GIS data submittal; and,
- Quest Energy | Energy assessment of airport owned facilities to assess opportunities to improve energy efficiency.

The master plan is intended to be a proactive document which identifies and then plans for future facility needs well in advance of the actual need. This is done to ensure that the MCAA can coordinate development projects in a timely manner, prior to experiencing the detrimental effects of deteriorating or inadequate facilities.

The preparation of this master plan is evidence that the MCAA recognizes the importance of the airport to the surrounding region and the associated challenges inherent in providing for its unique operating and improvement needs. The cost of maintaining an airport is an investment which yields impressive benefits to the local community. With a sound and realistic master plan, the airport can maintain its role as an important link to the regional, state, and national air transportation systems. Moreover, the plan
aids in supporting decisions for directing limited and valuable resources for future airport development. Ultimately, the continued investments in the airport will allow the region to reap the economic benefits generated by historical investments.

**MASTER PLAN GOALS AND OBJECTIVES**

The primary objective of the Laughlin/Bullhead International Airport Master Plan is to develop and maintain a financially feasible, long-term development program, which satisfies aviation demand of the region; is compatible with community development, other transportation modes, as well as the environment; and enhances employment and revenue for the local area. Accomplishing this objective requires an evaluation of the existing airport to decide what actions should be taken to maintain a safe, adequate, and reliable facility. This master plan provides guidance through an updated capital improvement and financial program to demonstrate the future investments that may be required by the MCAA. The master plan also provides justification for any new priorities. The plan will be closely coordinated with other planning studies in the area and with aviation plans developed by the FAA and ADOT.

Specific objectives of the study include, but are not limited to, the following:

- To research factors likely to affect all air transportation demand segments in Bullhead City and Laughlin, as well as the Mohave County region over the next 20 years. The analysis will include the development of forecasts of passengers, operations (commercial, general aviation, and military), and based aircraft;

- To determine projected needs of airport users for the next 20 years factoring recent revisions to FAA airfield geometrical design standards, advancements in instrument approaches or other new technology, the impact of commercial and general aviation fleet transitions on design standards, and on-going efforts to improve passenger service to the community;

- To recommend improvements which will meet the future needs of passengers and other operators at the airport. This includes potential improvements to the terminal building complex and to the runway/taxiway/apron system;

- To analyze the existing airfield system to determine the existing and ultimate runway length required to satisfy the airport’s critical aircraft now and into the future;

- To produce accurate base maps of existing and proposed facilities and an updated Airport Layout Plan (ALP) drawing set consistent with the FAA’s Standard Operating Procedure (SOP) No. 2.0. The digital Geographic Information System (GIS) data will be submitted into FAA’s Airport GIS, or AGIS, system, as required;

- To review future land use and zoning of airport property, instrument approach areas, and nearby development to ensure flight safety and land use compatibility. This will involve the development of new noise exposure contours, application of current land use compatibility guidelines, review of local
land use controls and plans, and analysis of land use management techniques;

- To establish a schedule of development priorities consistent with the FAA’s capital improvement planning; and,

- Consider sustainability efforts, specifically waste and recycling improvements as part of FAA’s updated standards.

**MASTER PLAN ISSUES**

The IFP Master plan specifically addresses the following issues:

- Assist the MCAA, through the Planning Advisory Committee (PAC), and a series of Public Information Workshops, in determining a vision for the airport;

- Prepare a detailed evaluation of existing and future passenger and general aviation demand for IFP;

- Based on the realistic evaluation of the facility in terms of configuration, condition, amenities, location, competition, and forecasted aviation demand, establish goals and priorities for the airport to meet that vision;

- Identify airfield alternatives based on goals and opportunities, as well as FAA applicable design standards. The analysis will include an evaluation of the airfield geometry to address potential runway incursion hot spots and/or non-standard conditions;

- Provide a landside development plan that identifies areas for accommodating the forecasted growth of aviation and aviation-related business and, if appropriate, areas for non-aviation revenue-producing opportunities. Consideration will be given to the potential for new or expanded aviation facilities, including but not limited to passenger terminal facilities, aircraft storage hangar capacity and ramp capacity, and airport support facilities, including aircraft rescue and firefighting (ARFF) equipment storage;

- Assess compatible land use near the Airport;

- Prioritize preservation and rehabilitation recommendations in order of greatest overall positive impact; and,

- Identify elements of an ongoing maintenance plan.
BASELINE ASSUMPTIONS

A study such as this typically requires several baseline assumptions that are used throughout this analysis. The baseline assumptions for this study are as follows:

- IFP will continue to operate as a commercial service airport through the 20-year planning period;
- The airport will continue to accommodate a range of aviation activities including, passenger service, general aviation, air taxi, and military operations;
- The aviation industry will grow through the planning period as projected by the FAA. Specifics of projected growth are contained in Chapter Two of the master plan;
- The socioeconomic characteristics of the region will generally grow as forecast (see Chapter Two); and,
- A federal and state airport improvement program will be in place through the planning period to assist in funding capital development needs.

MASTER PLAN ELEMENTS AND PROCESS

This master plan has been prepared in a systematic fashion following FAA guidelines and industry-accepted standards and practices. The study has ten specific elements that are intended to assist in the evaluation of future facility needs and provide the supporting rationale for their implementation. Exhibit iA provides a graphical depiction of the elements and process involved with the study.

Element 1 – Initiation includes the development of the scope of services, schedule, and study website. Potential members will be identified and asked to serve on a Planning Advisory Committee (PAC) to assist the consulting team throughout the process. Study material will be assembled in a workbook format and provided to the PAC for review and comment. General background information that includes outlining the goals and objectives to be accomplished during the master plan will be established. Baseline assumptions and specific master plan issues will be outlined.

Element 2 – Inventory is focused on collecting and assembling relevant data pertaining to the airport and the area it serves. Information is collected on existing airport facilities and operations. Local economic and demographic data is collected to define the local growth trends, and environmental information is gathered to identify potential environmental sensitivities that might affect future improvements. Planning studies which may have relevance to the master plan are also collected.

Element 3 – Aviation Demand Forecasts examines the potential aviation demand at the airport. The analysis utilizes local socioeconomic information, as well as national air transportation trends to quantify the levels of aviation activity which can reasonably be expected to occur at IFP over a 20-year period. An existing and ultimate critical design aircraft are determined, based upon AC 150/5000-17, Critical
PROJECT WORK ELEMENTS

INVENTORY
- Airport facilities
- Airspace and air traffic control
- Area socioeconomic data
- Local planning and land use
- Airport access and parking, utilities, and aerial photography

FORECASTS
- Based aircraft and fleet mix
- Annual operations
- Passenger enplanements

FACILITY REQUIREMENTS
- Taxiways
- Airfield capacity
- Hangar facilities
- Design categories
- Runway length and strength
- Support facilities
- Terminal building
- Aprons
- Navigational aids

AIRPORT ALTERNATIVES
- Evaluate development scenarios (airside, landside, support)

RECOMMENDED MASTER PLAN CONCEPT/ENVIRONMENTAL REVIEW
- Detailed master plan facility and land use plans
- Review evaluation of NEPA environmental categories
- Noise exposure

FINANCIAL PLAN/CAPITAL IMPROVEMENTS
- Airport development schedule (CIP)
- Cost estimates
- Funding sources

AIRPORT LAYOUT PLANS/LAND USE COMPATIBILITY
- Airport layout plan
- Landside drawing
- Recycling plan
- Airspace/approach drawings
- On-airport land use plan
- Property map
- Land use plan

FINAL DOCUMENTATION/DELIVERABLES
- Draft Master Plan Report
- Master Plan/ALP Approvals
- Final Master Plan Report
- Electronic Documentation
Aircraft and Regular Use Determination, to identify planning design standards. The results of this effort are used to determine the types and sizes of facilities which will be required to meet the projected aviation demand at the airport through the planning period.

Element 4 – Demand-Capacity and Facility Requirements determines the available capacities of various facilities at the airport, whether they conform with FAA standards, and what facility updates or new facilities will be needed to comply with FAA requirements and/or projected 20-year demand.

Element 5 – Airport Development Alternatives considers a variety of solutions to accommodate projected airside and landside facility needs through the long-term planning period. An analysis is completed to identify the strengths and weaknesses of each proposed development alternative with the intention of determining a single direction for development.

Element 6 – Master Plan Concept/CIP/Financial Plan presents the 20-year vision for the airport. A list of potential capital projects is presented to achieve that vision. A financial plan is presented to identify potential sources of funding to accomplish the projects.

Element 7 – Airport Plans will be prepared for the Laughlin/Bullhead International Airport in a format that complies with the FAA’s current guidelines for the preparation of an airport layout plan as defined by the FAA Airports ARP SOP 2.00 Standard Procedure for FAA Review and Approval of Airport Layout Plans (October 1, 2013). The plans will be readily acceptable to the FAA and can be utilized by the airport staff in implementation. Airports requesting FAA funding must have a current and approved ALP on file.

Element 8 – Environmental Evaluations provide the MCAA, community, and public officials with proper guidance regarding NEPA environmental documentation for the future development as outlined in the master plan.

Element 9 – Sustainability Plan includes a recycling plan and an energy assessment. The recycling plan explores existing recycling efforts at the airport and outlines opportunities to improve the diversion of waste from landfills. The energy assessment focuses on measures to improve energy efficiencies throughout the airport and identifies the potential for on-site renewable energy generation.

Element 10 – Public Coordination and Communication includes meeting with PAC members to review working papers and to discuss study findings, and meeting with FAA, ADOT, and MCAA to discuss status reports on the study and presentations of final recommendations. The working papers prepared for the master plan will be presented to the general public in public workshops. Each working paper (draft chapter) will be hosted on a dedicated web site until the draft final master plan is prepared.

COORDINATION

The Laughlin/Bullhead International Airport Master plan is of interest to many within the local community and region. As a component of the state and national aviation systems, IFP is also of importance to both state and federal agencies responsible for overseeing the air transportation system.
To assist in the development of the master plan, the MCAA has assembled a PAC consisting of a group of stakeholders, including government representatives, airport users and tenants, and local community leaders to act in an advisory role in the development of the master plan. Members of the PAC meet four (4) times at designated points during the planning process to review study materials and provide comments to help ensure a realistic and viable plan is developed. **Table IA** provides a list of entities represented on the PAC.

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<tr>
<td>Planning Advisory Committee - Representing Entities</td>
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<tr>
<td>Laughlin/Bullhead International Airport Master Plan</td>
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<td>Airport Administration</td>
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<td>Mohave County Airport Authority</td>
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<tr>
<td>Federal Aviation Administration</td>
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<td>Arizona Department of Aviation - Aeronautics Group</td>
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<td>Bullhead City - Planning Representative</td>
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<td>Laughlin - Town Manager</td>
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<td>Mohave County Economic Development</td>
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<td>Airline Representative</td>
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<td>Fixed Base Operator (FBO) Representative</td>
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<td>Airport Traffic Control Tower</td>
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<td>Arizona Military Airspace Working Group</td>
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<td>Arizona State Land Department</td>
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<td>Arizona Pilots Association</td>
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<td>Aircraft Owners and Pilots Association (AOPA)</td>
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<td>Airport Hangar Tenant</td>
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<td>Local Real Estate Developer</td>
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Draft working paper materials were prepared at various milestones in the planning process. The working paper process allows for timely input and review during each step within the master plan to ensure that all issues are fully addressed as the recommended program develops.

A series of open-house Public Information Workshops were also conducted as part of the study coordination effort. These workshops are designed to allow all interested persons to become informed and provide input concerning the master plan process. Notices of meeting times and locations were advertised through local media outlets. All draft reports and meeting materials were made available to the public on a project website: [http://laughlinbullhead.airportstudy.com](http://laughlinbullhead.airportstudy.com).