

Appendix B - Airport Master Plan Process

Introduction

An airport master plan is a comprehensive study of an airport and usually describes the short-, medium-, and long-term development plans to meet aviation demand. The elements of the master planning process will vary in complexity and level of detail, depending on the size, function, issues, and problems of the individual airport. This appendix describes the master planning process used by KLJ Engineering, Inc., a process that is based on the FAA's Advisory Circular 150/5070-6B *Airport Master Plans*.

Master Plan Process Overview

Airport master plans are prepared to support the modernization or expansion of existing airports or the creation of a new airport. When completed, the master plan documents the airport sponsor's plan or strategy for the development of the airport. It provides the framework needed to guide future airport development that will cost-effectively satisfy aviation demand, while considering potential environmental and socioeconomic impacts.

The master plan process is intended to meet the following objectives:

1. Document the issues the proposed development will address.
2. Justify the proposed development through the technical, economic, and environmental investigation of concepts and alternatives.
3. Provide an effective graphic presentation of the development of the airport and anticipated land uses in the vicinity of the airport.
4. Establish a realistic schedule for the implementation of the development proposed in the plan, particularly the short-term capital improvement program.
5. Propose an achievable financial plan to support the implementation schedule.
6. Provide sufficient project definition and detail for subsequent environmental evaluations that may be required before the project is approved.
7. Present a plan that adequately addresses the issues and satisfies local, state, and Federal regulations.
8. Document policies and future aeronautical demand to support municipal or local decisions on spending, debt, land use controls, and other policies necessary to preserve the integrity of the airport and its surroundings.
9. Set the stage and establish the framework for a continuing planning process that monitors key conditions and permits changes in plan recommendations as required.

KLJ uses an interactive process to conduct master plan studies. This process involves a variety of stakeholders as appropriate, including the airport sponsor's organization, airport users and tenants, the FAA and state aeronautical organizations, other resource and governmental agencies, community groups, and the traveling public. See **Exhibit 1** for a flow chart depicting the master planning process used by KLJ.

The interactive process is the unique element of the KLJ process. The KLJ process focuses on making the master plan's data, analyses, findings, and recommendations more useful and more easily understood by the airport sponsor and interested organizations. This is accomplished through the use of state-of-the-art electronic and graphic technology to present the airport's existing conditions, identified requirements, alternatives and concepts, recommendations, and implementation plans in a visual (3-D if appropriate) format. This format enables the planner to help the sponsor more effectively understand the airport's needs and visualize the alternatives to implement those requirements. It shows the flexibility available to the sponsor by visually presenting the recommended improvements, displaying the effect of those improvements on the airfield and its operations, and showing the sponsor the varying options for implementing those improvement projects, thereby enhancing the sponsor's decision-making process.

Types of Master Plan Studies

The master planning process will vary with the size, complexity, and role of the studied airport and may include a variety of supporting studies. However, all master planning studies will fall within one of two basic types: Airport Master Plans or Airport Layout Plan (ALP) Updates.

Airport Master Plans - An airport master plan is a comprehensive study of the airport and typically describes short-, medium-, and long-term plans for airport development. Master planning studies that address major revisions are commonly referred to as "Master Plans," while those that change only parts of the existing document and require a relatively low level of effort tend to be known as "Master Plan Updates." In common usage, however, the distinction refers to the relative levels of effort and detail of master planning studies. In most cases, the master plan will include the following elements:

1. **Pre-planning** - The pre-planning process includes an Initial Needs Determination, Request for Proposal and Consultant Selection, Development of Study Design, Negotiation of Consultant Contract, and Application for Study Funding.
2. **Public Involvement** - Once the consultant team is under contract and has been issued a notice-to-proceed, establish a public involvement program and identify and document the key issues of various stakeholders.
3. **Environmental Considerations** - A clear understanding of the environmental requirements needed to move forward with each project in the recommended development program.
4. **Existing Conditions** - An inventory of pertinent data for use in subsequent plan elements.
5. **Aviation Forecasts** - Forecasts of aeronautical demand for short-, medium-, and long-term time frames.
6. **Facility Requirements** - Assess the ability of the existing airport, both airside and landside, to support the forecast demand. Identify the demand levels that

will trigger the need for facility additions or improvements and estimate the extent of new facilities that may be required to meet that demand. KLJ planners will use the latest technology to present identified requirements in a visual interactive process to assist the sponsor to fully understand the identified facility requirements.

7. **Alternatives Development and Evaluation** - Identify options to meet projected facility requirements and alternative configurations for each major component. Assess the expected performance of each alternative against a wide range of evaluation criteria, including its operational, environmental, and financial impacts. A recommended development alternative will emerge from this process and will be further refined in subsequent tasks. This element should aid in developing the purpose and need for subsequent environmental documents. KLJ planners will present the identified alternatives, using the latest technology, in a visual interactive process to assist the sponsor to fully understand the studied alternatives and their effect on the airport.
8. **Airport Layout Plans** - One of the key products of a master plan is a set of drawings that provides a graphic representation of the long-term development plan for an airport. The primary drawing in this set is the Airport Layout Plan (ALP). Other drawings may also be included, depending on the size and complexity of the individual airport.
9. **Facilities Implementation Plan** - Provides a summary description of the recommended improvements and associated costs. The schedule of improvements depends, in large part, on the levels of demand that trigger the need for expansion of existing facilities. KLJ planners will use the latest technology to present the recommended improvements in a visual interactive process to assist the sponsor to fully understand the recommended improvements, potential phasing of the development, and available flexibility in implementation of the recommended improvements.
10. **Financial Feasibility Analysis** - Identify the financial plan for the airport, describe how the sponsor will finance the projects recommended in the master plan, and demonstrate the financial feasibility of the program.

Airport Layout Plan Updates - An update of the airport layout plan (ALP) drawing set should be an element of any master plan study. In fact, keeping the ALP current is a legal requirement for airports that receive Federal assistance. An update of the ALP drawing set will reflect actual or planned modifications to the airport and significant off-airport development. An accompanying ALP Narrative Report should explain and document those changes and contain at least the following elements:

1. Basic aeronautical forecasts.
2. Basis for the proposed items of development.
3. Rationale for unusual design features and/or modifications to FAA Airport Design Standards.

4. Summary of the various stages of airport development and layout sketches of the major items of development in each stage.

An ALP drawing set update is an appropriate alternative to a full master plan whenever the fundamental assumptions of the previous master plan have not changed. If there have not been any major changes in airport activity or improvements that have had unanticipated consequences, a master plan update is not necessary. Another situation where only an ALP update would be appropriate is the examination of a single development item, such as runway safety area improvements. As indicated above, an ALP update will typically involve fewer elements than a full master plan study, including only the aviation demand forecasts, an assessment of facility requirements, a facility implementation and financing plan, and an airport layout plan drawing set. If additional steps are required to complete the ALP update, a full master plan study is probably a better choice.

Products of the Master Planning Process

The products of the master planning process, often referred to as deliverables, will vary with the complexity of the effort. Master plans can include the following deliverables:

1. **A Technical Report** contains the results of the analyses conducted during the development of the master plan and is normally considered as the “Airport Master Plan” when referring to a specific document. For complex studies, interim reports may be produced to facilitate coordination with various government agencies, tenants, users, the general public, and other interested parties. At the conclusion of the study, the interim reports are assembled into the final technical report. In addition to typical studies, such as obstruction analysis, noise modeling, and forecasting, there may also be a need for special studies, such as land use planning (including wildlife assessments), airline service analysis, economic impact studies, and terminal studies. Technical reports by KLJ are prepared in the following format:
 - a. Narrative chapters. The narrative chapters do not contain all of the accumulated data in the master plan study, as has been the historical practice for many master plans. Instead, the narrative chapters summarize the collected data, analyses, and conclusions/recommendations to provide a more concise document for the reader, rather than overwhelm the reader with data. If the reader desires more detailed information on a specific subject, the narrative will refer the reader to a specific appendix.
 - b. Appendices. The appendices contain all of the data, analyses, findings, recommendations, etc., on specific subjects. Each appendix deals with a specific subject and presents all available information on the subject.
 - c. Hyperlinks. Designed for electronic media, hyperlinks will take the reader from a key word or phrase in the master plan narrative to a specific point in the appropriate appendix. This concept allows the reader to focus on high level data and conclusions in the narrative, yet provides immediate access to more complete data if desired.
 - d. Media. In addition to the standard printed format, KLJ presents the master plan technical report in several new formats:

- i. CD or DVD. This format allows the reader to use existing computer technology to read the narrative report and then use hyperlinks to move to specific points in the appendices for additional information.
 - ii. Tablet. With this format, all of the technical report narratives and appendices are contained on an electronic tablet. In addition to other airport information, this format makes the technical report portable and allows the user instant access to all of the master plan information.
2. **A Summary Report** is useful in bringing together pertinent facts, conclusions, and recommendations for public review. Such a report, often referred to as the Executive Summary, is an excellent place to highlight the economic benefits that flow from the airport to the communities it serves.
3. **An Airport Layout Plan Drawing Set** contains a graphical representation of the proposed development in the master plan and is typically produced as a separate set of full-sized drawings. In addition, the ALP drawing set is typically included in the Technical Report in reduced form. KLJ can provide the ALP information in the following formats:
 - a. Standard CAD
 - b. GIS/EALP
 - c. Other (e.g., Google Earth 3-D presentation)
4. **A Web Page** - Many airport sponsors maintain a public access web page with general information about the governmental unit involved and specific information regarding the airport or airports operated by the sponsor. The Internet provides an excellent forum for the distribution of information on the progress of the study and its final findings and recommendations.
5. **Public Information Kit** - Throughout the master plan study, airport sponsor representatives may be asked to speak to community associations, civic clubs, and other organizations with an active interest in the airport. Visual aids such as models, summary brochures, or computer presentations are excellent tools to use at these events to maintain support for the airport development program.

Exhibit 1 – KLJ Master Plan Process Flowchart

