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of Transportation
**Federal Aviation
Administration**

Advisory Circular

Consolidated AC includes Changes 1 and 2

Subject: Airport Master Plans

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Initiated by: APP-400 **Change:**

1. PURPOSE. This Advisory Circular (AC) provides guidance for the preparation of master plans for airports that range in size and function from small general aviation to large commercial service facilities. The intent of this AC is to foster a flexible approach to master planning that directs attention and resources to critical issues. The scope of each master plan must be tailored to the individual airport under evaluation.

2. CANCELLATION. This publication cancels Advisory Circular 150/5070-6A, *Airport Master Plans*, dated June 1985. Chapter 10 and Appendix F of this document cancel Chapter 1, Section 5, *Airport Layout Plan*; Appendix 6, Section 2, *Typical Airport Layout Plan*; and Appendix 7, *Airport Layout Plan Components and Preparation*, of Advisory Circular 150/5300-13, *Airport Design*, dated September 1989.

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PART I: THE PROCESS OF PREPARING MASTER PLAN STUDIES

Chapter 1 Introduction

101. PURPOSE AND APPLICATION

This Advisory Circular (AC) provides guidance for the preparation of master plans for all airports. Its intent is to foster the development and adoption of a flexible approach to master planning that devotes resources and attention to critical issues. Planners should tailor an individual master plan to the unique conditions at the study airport. As a result, master plans for individual airports will vary in what elements they include and in the level of detail.

An airport master plan is a comprehensive study of an airport and usually describes the short-, medium-, and long-term development plans to meet future aviation demand. The category of study that includes master plans and master plan updates can therefore be thought of as a continuum that varies by level of detail and associated effort.

The elements of a master planning process will vary in complexity and level of detail, depending on the size, function, issues, and problems of the individual airport. The technical steps described in this AC are generally applicable, although each step should be undertaken only to the extent necessary to produce a meaningful product for a specific airport. However, study elements for large and/or complex airports may involve unique technical analyses beyond those detailed in this AC. The sponsor, the sponsor's consultant, and FAA representatives must carefully prepare a scope of work that reflects the circumstances of the individual airport.

102. INTENDED USERS

This publication is intended primarily for use by members of the aviation community, especially those directly involved in preparing master plans: airport sponsors, airport staff, airport consultants, FAA representatives, and state aviation officials. It will also be useful to airport board members; municipal officials; state, regional, and local planning personnel; and the general public.

103. NEED FOR NEW GUIDANCE

Methods and techniques associated with airport master plan studies have evolved since the last version of this AC was published in 1985. This update incorporates current industry methods and procedures commonly employed in the preparation and documentation of master plan studies.

104. FUNCTION OF MASTER PLAN STUDIES

- a. Airport master plans are prepared to support the modernization or expansion of existing airports or the creation of a new airport. The master plan is the sponsor's strategy for the development of the airport.

- b. The goal of a master plan is to provide the framework needed to guide future airport development that will cost-effectively satisfy aviation demand, while considering potential environmental and socioeconomic impacts. The FAA strongly encourages that planners consider the possible environmental and socioeconomic costs associated with alternative development concepts, and the possible means of avoiding, minimizing, or mitigating impacts to sensitive resources at the appropriate level of detail for facilities planning.
- c. Each master plan should meet the following objectives:
 - 1) Document the issues that 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 deliberations 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. Such a process should monitor key conditions and permit changes in plan recommendations as required.

105. ORGANIZATION AND USE OF THE ADVISORY CIRCULAR

- a. **Structure of the Advisory Circular** – The Advisory Circular is presented in two parts:
 - 1) ***Part I – The Process of Preparing Master Plan Studies*** provides an introduction to the Advisory Circular, an overview of master plan studies, and a summary of the pre-planning process.
 - 2) ***Part II – Elements of Master Plan Studies*** provides a detailed discussion of the various elements of master plan studies, including the components of master plan technical reports and the plan drawings that accompany them.

- b. As noted above, Part II of the AC details the individual elements of a master plan study. Although they are presented in the order found in a typical master plan report, issues in some chapters may have a direct bearing on those in other chapters. Environmental and financial feasibility considerations, for example, must be considered throughout the process. These cross-linkages are explicitly identified in the relevant chapters of Part II.
- c. The AC includes several appendices of supplemental materials. Appendix A presents a glossary of terms that are commonly used in airport master planning. Appendix B provides a list of useful reference materials, including other advisory circulars, FAA orders, appropriate Code of Federal Regulations, Transportation Security Regulations, security-related publications, FAA reports, and general airport publications. Appendix C provides a listing of potential stakeholders in the public involvement program of the master planning process. Appendix D provides a discussion of environmental factors in airport master planning. Appendix E provides guidance on the site selection process. Appendix F shows the general guidelines in preparing the airport layout plan drawing set.

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Chapter 2 Content of Master Planning Studies

201. TAILORING STUDIES TO THE NEEDS OF INDIVIDUAL AIRPORTS

The guidance in this AC covers planning requirements for all airports, regardless of size, complexity, or role. However, each master plan study must focus on the specific needs of the airport for which a plan is being prepared and the scope of a study must be tailored to the individual airport. Therefore, in a given study certain master planning elements may be emphasized while others may not be considered at all. Although the FAA does not require airports to prepare master plans, it strongly recommends that they do so.

The intent of this AC is to foster a flexible approach in the preparation of airport master plans, enabling planners to focus their resources and effort on critical issues. As a scope of work is developed, the planners and airport sponsors must make decisions regarding two key questions: (1) what type of study should be conducted, and (2) what level of detail should be assigned to the individual elements of the study?

202. TYPES OF MASTER PLANNING STUDIES

- a. The master planning process will vary with the size, complexity, and role of the study 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.
- b. **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.
 - 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.
 - 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. 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.
 - 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.
- c. **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.

203. LEVEL OF STUDY DETAIL

Although almost every master plan includes the full list of elements discussed above, the complexity of the individual elements will vary, depending on an airport's size, function, and particular issues and problems. Each element should be analyzed only to the extent required to produce a meaningful product for that particular airport. The planning process should consider the facility planning needed to enable a seamless transition to subsequent projects.

The scoping process used by the airport sponsor, the sponsor's consultant, and the FAA to develop a work program for the planning study should determine the appropriate level of detail for each study element. The availability of planning information from Federal, state and local organizations may eliminate the need to develop similar information in a study effort. Chapter 3 contains additional information on the scoping process, while Part II provides greater detail on the various elements of an airport master plan.

204. PRODUCTS OF THE MASTER PLANNING PROCESS

- a. The products of the master planning process 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. 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.
 - 2) *A Summary Report* is useful in bringing together pertinent facts, conclusions and recommendations for public review.
 - 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.
 - 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.
- b. The master plan technical report, summary report, and airport layout plan may be produced as paper versions and/or in an electronic format, as determined by the airport sponsor and the FAA. The electronic format will ease distribution of the final reports after the initial printing is exhausted.
- c. It is again emphasized here that the level of complexity of each of these products should be determined during the development of the study design. The airport sponsor and the FAA have the flexibility to assess the level of detail that is appropriate for the individual airport and may identify other deliverables that should be produced to support the study effort.

205. MASTER PLAN REVIEWS BY THE FAA

- a. The recommendations contained in an airport master plan represent the views, policies and development plans of the airport sponsor and do not necessarily represent the views of the FAA. Acceptance of the master plan by the FAA does not constitute a commitment on the part of the United States to participate in any development depicted in the plan, nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public law. The FAA reviews all elements of the master plan to ensure that sound planning techniques have been applied. However, the FAA only approves the following elements of airport master plans:
 - 1) **Forecasts of Demand** – The master plan forecast should be reviewed to ensure that the underlying assumptions and forecast methodologies are appropriate. Paragraph 704.h of this guidance should be used to determine consistency of the master plan forecast levels and the Terminal Area Forecast (TAF). Inconsistencies between the master plan forecast and TAF must be resolved, and the forecast approved, before proceeding with subsequent planning work.
 - 2) **Airport Layout Plan** – All airport development at Federally-obligated airports must be done in accordance with an FAA- and sponsor-approved ALP. Furthermore, proposed development must be shown on an approved ALP to be eligible for Airport Improvement Program (AIP) funding. FAA approval of the ALP indicates that the existing facilities and proposed development depicted on the ALP conforms to the FAA airport design standards in effect at the time of the approval or that an approved modification to standard has been issued. Such approval also indicates that the FAA finds the proposed development to be safe and efficient.