Introduction

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 Master Plan every seven to 10 years, or as necessary, to address local changes at the airport. The last Master Plan for McKinney National Airport (TKI or Airport) was completed in 2006. More recently, an Airport Layout Plan (ALP) Update/Narrative Report was completed in 2012. The preparation of this Airport Master Plan is necessary as a timely reassessment of the development direction of TKI to meet the needs of the local economy and an ever-changing air transportation industry.

The Airport Master Plan has been undertaken to evaluate the Airport’s capabilities and role, 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 ultimate goal of the Master Plan is to provide guidelines for the Airport’s overall maintenance, development, and operation in an environmentally and fiscally responsible manner while adhering to appropriate FAA and Texas Department of Transportation – Aviation Division (TxDOT) standards.
An important outcome of the Airport Master Plan process is a recommended development plan that reserves sufficient areas for future facility needs. Such planning will protect development areas and ensure they will be readily available when required to meet future needs. The intended outcome of this study is a detailed on-airport land use concept which outlines specific uses for all areas of airport property, including strategies for revenue enhancement.

The City of McKinney (City) recognizes the importance of air transportation to the surrounding region. In doing so, the City Council of the City of McKinney has established a series of goals for the City to achieve, and one of which is to, “Maximize the Development Potential of the McKinney National Airport.” A series of strategies have been identified to help meet this goal and includes the following:

- Implement initiatives and strategies to attract and expand corporate and commercial aviation.
- Identify and implement land use regulations and policies which preserve and expand long-term operational success.
- Improve communication and marketing of the value of the McKinney National Airport to the City and region.
- Continually maintain national recognition for excellence in fixed base operations.

With a sound and realistic Master Plan in place, TKI can take steps to achieve these goals and strategies that have been set forth. Furthermore, the Airport will continue to remain an important link to the regional and national air transportation systems, as well as maintain the public and private investments in its facilities.

**STUDY OVERVIEW**

The City of McKinney is responsible for funding capital improvements at the Airport, as well as obtaining FAA and TxDOT development grants. In addition, the City oversees facility enhancements and infrastructure development conducted by private entities at the Airport. The Master Plan is intended to provide guidance for future development and justification for projects which the Airport may receive funding through an updated capital improvement program (CIP) to demonstrate the future investment required by the City of McKinney, as well as the FAA and TxDOT.

The Airport Master Plan will follow a systematic approach outlined by the FAA to identify existing and future airport needs in advance of the actual need for improvements. This is done to ensure that the City of McKinney and Airport administration can coordinate environmental reviews, project approvals, design, financing, and construction to minimize the negative effects of maintaining and operating inadequate or insufficient facilities. The intended result is a recommended development concept which outlines the proposed uses for all areas of the Airport.

The City of McKinney has contracted with the airport planning firm of Coffman Associates, Inc. to undertake the Airport Master Plan. 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*. 
MASTER PLAN GOALS AND OBJECTIVES

The primary objective of the Airport Master Plan is to develop and maintain a financially feasible, long term development program, which will satisfy aviation demand of the region, while also being compatible with area development, other transportation modes, and the environment. Accomplishing this objective requires an evaluation of the existing airport to decide what actions should be taken to maintain a safe, adequate, and reliable airport facility.

This Airport Master Plan is intended to provide guidance through an updated capital improvement and financial program to demonstrate the future investments required by the City of McKinney. The new planning study also provides justification for new priorities. The plan will be closely coordinated with other planning studies in the area and with aviation plans developed by the FAA and TxDOT. This study will also utilize historical planning efforts (2006 Master Plan and 2012 ALP Update/Narrative Report) that have been undertaken by TKI.

While the Master Plan must be developed per FAA and TxDOT requirements, it can also be prepared in a manner which makes it useful in strategic planning for the Airport. The FAA requires specific elements within a Master Plan. The elements, to be detailed in the following section, are guidelines which allow for a systematic and technical approach to reach the final recommended plan.

Specific goals and objectives to be considered in the Airport Master Plan include, but are not limited to, the following:

- Research factors likely to affect all air transportation demand segments in the City of McKinney, Collin County, and the Northeastern Dallas-Fort Worth Metroplex Region over the next 20 years. The analysis will include the development of forecasts of potential commercial airline passengers, air cargo shipments, general aviation activity, and military demand elements;

- Determine projected needs of TKI users for the next 20 years factoring in recent revisions to FAA airfield geometry design standards, global positioning system (GPS) and Next Generation (NexGen) approaches or other new technology, the impact of commercial and general aviation fleet transitions on design standards, and re-evaluate historic efforts to offer commercial service to the community. This analysis will also include considerations of military needs and usage;

- Determine the Airport’s current and future critical design aircraft;

- Recommend improvements which will satisfy the potential for future commercial airline and air cargo activity as well as increased general aviation needs, understanding the Airport is space constrained. Commercial airline passenger opportunities will consider recommendations to provide terminal building spaces, auto parking, and rental car facility developments;

- Analyze the existing airfield system to determine the existing and ultimate runway length required to satisfy the Airport’s critical aircraft both now and into the future;
• Demand capacity analysis to re-evaluate current plans for development of a future parallel runway;

• Analyze all opportunities and develop strategies for acquiring adjacent properties to serve long term aviation needs and to offer incompatible land use encroachments;

• Outline strategies to develop west-side Airport facilities to include redevelopment options as well as property acquisition opportunities;

• Consider opportunities for east-side development to include aviation, non-aviation, roadway, and utility infrastructure development options;

• Evaluate the highest and best uses of Airport property to include the potential to relocate hangar facilities as needed to present redevelopment opportunities;

• Produce accurate base maps of existing and proposed facilities and updated ALP drawings consistent with FAA and TxDOT standards;

• Review future use and zoning of Airport property, instrument approach areas, and nearby developments 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;

• Establish a schedule of development priorities and a program for improvements proposed in the Master Plan, consistent with TxDOT and FAA CIP planning; and

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

**MASTER PLAN TASKS**

The Master Plan for TKI specifically addresses the following tasks:

• Assist the City of McKinney, through a Planning Advisory Committee (PAC), a Technical Advisory Committee (TAC), and a series of Public Information Workshops, in determining a vision for the Airport;

• Conduct a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, identifying strengths, weaknesses, realistic markets, goals, resources, and strategies to move forward. This analysis will factor the strengths and weaknesses of TKI to include physical and operational features. The analysis will also present the same for competing airports in the region;
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 and TxDOT applicable design standards. The analysis will include an evaluation of the airfield geometry to address potential runway incursion hot spots and non-standard conditions;

Provide a landside development plan that identifies areas for accommodating the forecasted growth of aviation and aviation-related businesses 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, terminal facilities, aircraft storage hangar capacity and apron capacity, and airport support facilities;

Assess compatible land uses near the Airport; and

Prioritize preservation and rehabilitation recommendations in order of greatest overall positive impact.

BASELINE ASSUMPTIONS

A study such as this typically requires some baseline assumptions that will be used throughout the analysis. The baseline assumptions for this study include:

The Airport will continue to operate as a publicly-owned, general aviation reliever airport through the 20-year planning period;

TKI will continue to serve general aviation tenants, and itinerant and/or local aircraft operations by commercial, air taxi, general aviation, and military operators;

The commercial airline passenger and general aviation industries will grow through the planning period as projected by the FAA. Specifics of projected growth in the national commercial airline and general aviation industries are contained in Chapter Two of the Master Plan; 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

The Airport Master Plan is being prepared in a fashion pursuant to the scope of services that has been coordinated with the City of McKinney and TxDOT. The study has 10 specific elements that are intended
to assist in the identification of future facility needs and which provide the supporting rationale for their implementation. **Exhibit A** 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. A PAC and TAC are also formed and study material will be assembled in a workbook format. General background information will be established that includes outlining the goals and objectives to be accomplished during the Master Plan.

**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 – 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 TKI over a 20-year period. 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 – Facility Requirements** converts aviation demand needs into types and volumes of actual physical facilities required to meet existing and forecast demands in aviation activity. The critical design aircraft and physical planning criteria based upon AC 150/5300-13A, *Airport Design*, is also established in preparation of a needs assessment for airside and landside facilities.

**Element 5 – Airport 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 – Airport Plans/Land Use Compatibility** provides both a graphic and narrative description of the recommended plan for the use, development, and operation of the Airport. An environmental overview is provided to analyze potential environmental impacts of proposed Airport development projects and a waste audit and recycling plan is also conducted to identify opportunities for the Airport to be more sustainable in its approach to waste management. The official ALP drawings that are produced based on the recommended development concept and used by the FAA and TxDOT in determining grant eligibility will also be included.

**Element 7 – Financial Plan/Development Program** provides a proposed capital needs program which defines the schedules, costs, and funding sources for the recommended development projects.
MASTER PLAN WORK FLOW

STUDY INITIATION
- Scope of Service
- Establish PAC/TAC
- Goals and Objectives

INVENTORY
- Airport Facilities
- Airspace and Air Traffic Activity
- Airport Access and Parking, Utilities, and Aerial Photography
- Area Socioeconomic Data
- Local Planning and Land Use

FORECASTS
- Based Aircraft and Fleet Mix
- Annual Operations
- Commercial Passenger Enplanements

FACILITY REQUIREMENTS
- Design Categories
- Runway Length and Strength
- Support Facilities
- Taxiways
- Airfield Capacity
- Hangar Facilities
- Terminal Building
- Aprons
- Navigational Aids

AIRPORT ALTERNATIVES
- Evaluate Development Scenarios
  - Airside
  - Landside
  - Support

AIRPORT PLANS/LAND USE COMPATIBILITY
- Master Plan Concept
- ALP Drawing Set
- Land Use Management
- Environmental Overview
- Sustainability Initiatives

FINANCIAL PLAN/DEVELOPMENT PROGRAM
- Detailed Master Plan Facility and Land Use Plans
- Airport Development Schedule
- Cost Estimates
- Funding Sources

Introduction - DRAFT
Element 8 – Final Reports and Approvals provide documents which depict the findings of the study effort and present the study and its recommendations to appropriate local organizations. The final document incorporates the revisions to previous working papers prepared under earlier elements into a usable Master Plan document.

**STUDY PARTICIPATION**

The Airport Master Plan is of interest to many within the local community and region. This includes local citizens, local businesses, community organizations, City officials, Airport users, Airport tenants, and aviation organizations. As a component of the regional, state, and national aviation systems, the Master Plan is of importance to both state and federal agencies responsible for overseeing the air transportation system.

To assist in the development of the Airport Master Plan, the City of McKinney has identified two different groups to act in an advisory role in the development of the Master Plan. The PAC is comprised primarily of Airport users and Airport stakeholders with a vested interest in the future development of TKI. The TAC is made up of local governmental agencies and representatives of adjacent communities. Members of the PAC and TAC will meet four (4) times at designated points during the planning process to review study materials and provide comments to help ensure that a realistic and viable plan is developed.

Draft working paper materials will be 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 are also conducted as part of the study coordination effort. These workshops are designed to allow any and all interested persons to become informed and provide input concerning the Master Plan process. Notices of meeting times and locations are advertised through local media outlets. Draft working papers and other information related to the Master Plan are available to the public via a website dedicated to the study at: [http://mckinney.airportstudy.com](http://mckinney.airportstudy.com).

**SWOT ANALYSIS**

A SWOT analysis is a strategic business planning technique used to identify Strengths, Weaknesses, Opportunities, and Threats associated with an action or plan. The SWOT analysis involves identifying an action, objective, or element, and then identifying the internal and external forces that are positively and negatively impacting that action, objective, or element in a given environment. For this study, the SWOT analysis factors are being applied to TKI within the confines of the Master Plan. As a result, it provides a continuous vision and direction for the development of the Master Plan.
SWOT DEFINITIONS

As previously discussed, this particular SWOT analysis groups information into two categories:

- **Internal** – attributes of the Airport and market area that may be considered strengths or weaknesses to the action, objective, or element.
- **External** – attributes of the aviation industry that may pose as opportunities or threats to the action, objective, or element.

The SWOT further categorizes information into one of the following:

- **Strengths** – internal attributes of the Airport that are helpful to achieving the action, objective, or element.
- **Weaknesses** – internal attributes of the Airport that are harmful to achieving the action, objective, or element.
- **Opportunities** – external attributes of the industry that are helpful to achieving the action, objective, or element.
- **Threats** – external attributes of the industry that are harmful to achieving the action, objective, or element.

SWOT ANALYSIS EXERCISE

The SWOT analysis for TKI is based upon information gathered, including kick-off PAC and TAC meetings that were conducted in November 2016. As previously discussed, the PAC and TAC are diversified groups of stakeholders, community leaders, and governmental agencies that represent several interests in the Airport. A SWOT analysis was conducted with these groups to identify key factors that might be addressed in the Master Plan. A summary of the results from the SWOT analysis exercise is shown in Table A. These results were used to frame the subjective or judgmental processing of the data presented in the Master Plan.
<table>
<thead>
<tr>
<th>INTERNAL (attributes of the Airport market area)</th>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
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<tbody>
<tr>
<td>• Runway length</td>
<td>• Communicating the value and role of the Airport</td>
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<tr>
<td>• Availability of developable land on and adjacent to the Airport with ability to expand</td>
<td>• Limited hours of operation for the Airport Traffic Control Tower</td>
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<tr>
<td>• Proximity to corporate markets that rely on business aviation</td>
<td>• Single runway operations</td>
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<tr>
<td>• Proximity to highway infrastructure</td>
<td>• Runway length</td>
<td></td>
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<tr>
<td>• Ease of airspace (edge of Class B airspace)</td>
<td>• Lack of de-icing capabilities</td>
<td></td>
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<tr>
<td>• Airport traffic control tower</td>
<td>• Hangar availability (based and transient aircraft)</td>
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<tr>
<td>• Available precision instrument approach procedures to the runway</td>
<td>• Fire station – not directly associated with Airport operations</td>
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<tr>
<td>• Professional Airport staff – administration and FBO</td>
<td>• Lack of extensive aircraft maintenance facilities</td>
<td></td>
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<tr>
<td>• Aviation services offered – customs, FBO, air medical, air charter, corporate, flight training, maintenance, aircraft sales and management</td>
<td>• Road structure to/from the Airport</td>
<td></td>
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<tr>
<td>• Support from the City and TxDOT</td>
<td>• Age/condition of Airport infrastructure (hangars)</td>
<td></td>
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<tr>
<td>• Great working relationships with the FAA and TxDOT</td>
<td>• High fuel prices associated with the FBO</td>
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<tr>
<td>• Educational activities offered (flight training)</td>
<td>• Lack of affordable housing in the City</td>
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<tr>
<td>• Economic impact to the City and surrounding region ($44 million impact on local economy)</td>
<td>• Lack of control associated with adjacent land uses</td>
<td></td>
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<tr>
<td>• Ability to incorporate a regional economic draw</td>
<td>• Proper location of landside infrastructure (high-activity services vs. low-activity services)</td>
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<tr>
<td>• Airport maintenance personnel (cleanliness/ upkeep of Airport property)</td>
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<table>
<thead>
<tr>
<th>EXTERNAL (attributes of the industry)</th>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Education potential (flight training)</td>
<td>• Adjacent residential land uses (noise)</td>
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<tr>
<td>• Scheduled charter/commercial service</td>
<td>• Competition at other airports in the Dallas-Fort Worth Metroplex (hangar development)</td>
<td></td>
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<tr>
<td>• Location of Airport in relationship to City (no direct overflights)</td>
<td>• Impacts of worldwide events (oil industry)</td>
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<tr>
<td>• Ability to increase tenant base</td>
<td>• Loss of farming income to support Airport revenues</td>
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<tr>
<td>• Ability to boost local tax base</td>
<td>• Encroachment around the Airport and compatibility with aviation activities</td>
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<tr>
<td>• Diversified economy that serves the local area</td>
<td>• Future funding availability (competitive nature of federal/state funds; contract tower program)</td>
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<tr>
<td>• Land acquisition potential</td>
<td></td>
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<tr>
<td>• Multitude of aviation services that can be offered at the Airport</td>
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<tr>
<td>• Roadway access improvements</td>
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<tr>
<td>• Better communication of the value of the Airport</td>
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<tr>
<td>• Capture aviation demand in the Dallas-Fort Worth Metroplex</td>
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<tr>
<td>• UAS/drone market</td>
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<td></td>
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<tr>
<td>• Connection to mass transit system</td>
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<tr>
<td>• Continue to maintain positive communication with adjacent cities/towns</td>
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<td></td>
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<tr>
<td>• Growth associated with the City and north Dallas area</td>
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<tr>
<td>• Hangar waiting list (demand for more based aircraft)</td>
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<tr>
<td>• Texas Air Shuttle</td>
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