# CHAPTER 1: INTRODUCTION

## Purpose and Scope

The information presented in this report represents the study findings for the 2015 Grand Forks International Airport Master Plan Update prepared for the Grand Forks Regional Airport Authority, the airport owner. Airport Master Plans are prepared in accordance with Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*. This project was funded in part by the FAA under grant number AIP 3-38-022-049-2015.

*GFK Airline Terminal*

This Airport Master Plan Update for the Grand Forks International Airport (GFK) will serve as an updated guide identifying future development necessary to accommodate existing and future aviation demands. The airport's current and forecasted safety, capacity and compatibility needs are addressed in this study. Many projects have been completed and new planning considerations have surfaced since the last Master Plan study was completed in 2008.

The scope of the study was developed by the Grand Forks Regional Airport Authority (Owner) and Kadrmas, Lee & Jackson (KLJ) in cooperation with FAA Airports District Office and North Dakota Aeronautics Commission officials to identify the specific needs and objectives of the airport owner. The scope includes work tasks with the purpose of documenting existing conditions, forecasting future aviation activity levels, identifying future facility requirements, formulating and evaluating development alternatives, preparing implementation plans and engaging the general public and other government agencies. Recommendations will be made for improvements that are triggered by safety requirements or demand thresholds.

The project received notice to proceed in August 2015 from the airport sponsor. The baseline project data is from inventory efforts completed in October 2015. Data from year 2014 was used to establish a baseline of existing airport information, with available 2015 data used to validate trends.

## Background

The Grand Forks International Airport/Mark Andrews Field was activated for public use in 1963, replacing an existing airport located closer to the city. GFK is located five miles northwest of the Grand Forks central business district. The airport is owned by the Grand Forks Regional Airport Authority and is part of the FAA's National Plan of Integrated Airports System (NPIAS). GFK is classified as a primary non-hub commercial service airport by FAA.

The airport has four (4) runways; Runway 17R/35L is the airfield's primary runway (7,351' x 150'), Runway 17L/35R (3,901' x 75'), Runway 9L/27R (4,206' x 100'), and Runway 9R/27L (3,300' x 60'). Currently, Runways 17R/35L and 9L/27R are both maintained by the airport for commercial aircraft usage, and operate under Federal Aviation Regulation (FAR) Part 139 standards as prescribed in the airport's most up-to-date Airport Certification Manual (ACM). The Grand Forks Regional Airport Authority owns approximately 1,770 acres of land dedicated for aeronautical use.

The airport serves a multitude of aviation activities such as scheduled commercial airline service from Delta Air Lines and Allegiant Airlines, unscheduled air charter, air cargo (regional hub), air ambulance base, business/corporate air traffic, flight training and other general aviation services. GFK is home to one of the world's largest pilot training facilities run by The University of North Dakota. From October

1, 2014 through September 30, 2015, there were 303,871 takeoffs and landings with 147 based aircraft according to the FAA. GFK enplaned over 146,000 people on commercial flights during this time.

# Planning Considerations

Planning considerations for an airport master plan are features, elements or events that should be evaluated because they have the potential to affect the airport facility over the long term.

## *Previous Planning Studies*

The last comprehensive Master Plan study for GFK was updated in 2008. An update to the airport's Terminal Area Plan (TAP) was completed in 2014 to help guide future development. Since the 2008 study there have been several improvements completed or in process at GFK:

- Construct Runway 9R/27L, Parallel Taxiway S, and Taxiway E
- Decommissioning of the old air carrier terminal building and parking area
- Construction of a new air carrier terminal building, aircraft apron and parking area
- Construction of a Fixed-Base Operator facility
- Construction of a new Snow Removal Equipment (SRE) Building
- Construction of a new Aircraft Rescue and Fire Fighting (ARFF) Building *(In-progress)*
- Demolition of Taxiway Delta and Construction of realigned taxiway

The FAA recommends that airports update their planning documents every 7 to 10 years. This ensures the airport is maintaining compliance with FAA design criteria. It also permits the airport to review and adjust their vision for the future. Because the last Airport Master Plan is about 8 years old, there is a need to update the document and examine changes experienced since the 2008 report. Master plan studies typically evaluate forecasted elements 20 years beyond the baseline year. This planning study's baseline year is 2014, and evaluates forecast elements through 2034.

## *Local Considerations*

The airport has several local considerations that need to be addressed in order to craft a usable plan for GFK. These can be grouped into three categories; 1) Safety/Standards, 2) Demand/Capacity and 3) Pavement/Preservation.

### SAFETY/STANDARDS

- **Land Use & Airspace Compatibility** – The airport owner is responsible for limiting development and height of objects near airports to maintain land use compatibility with airport operations. This helps provide a safe operating environment for those in the air and on the ground. Any proposed improvements to the runways will need to be compatible with current State and FAA standards. This study should provide the framework for the airport to meet compatibility standards. It is recommended the airport reevaluate current land use compatibility standards for long-term airport and community development.

- **Critical Design Aircraft** – Since the last master plan in 2008, the airport has experienced changes in aircraft types operating for scheduled passenger and air cargo operations. The current aircraft type(s) operating at GFK should be quantified to establish existing and estimate future FAA airport design criteria. The airfield geometric needs of these "critical design" aircraft should be evaluated to determine if and when any airfield improvements may be needed.

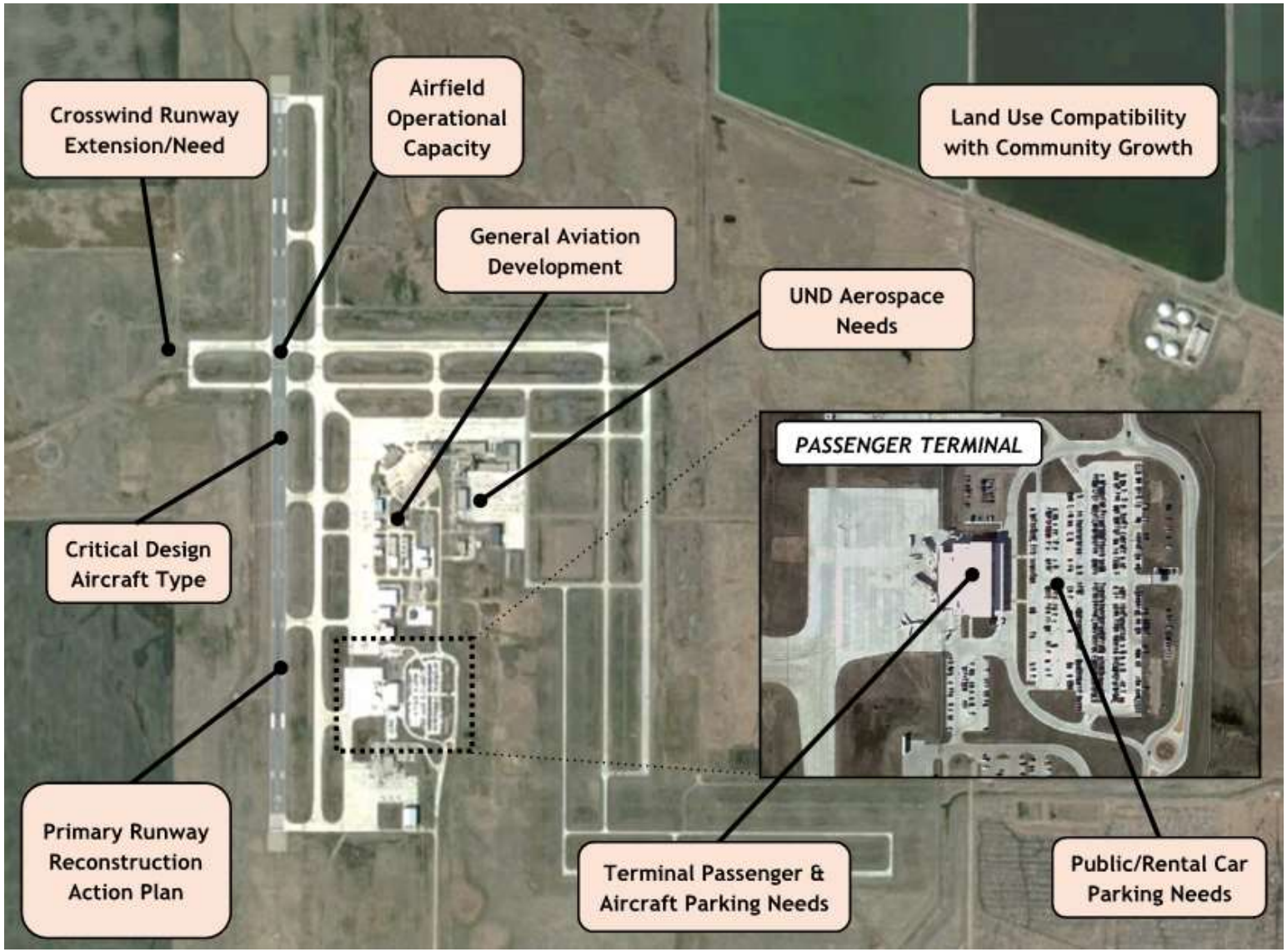
## DEMAND/CAPACITY

- **Airport Capacity Analysis –**Since the last airport master plan was conducted in 2008, the airport is experiencing significant operational growth that has put strain on terminal facilities, runways/taxiways and airspace. It is important the airport evaluate their current runway/taxiway configuration and quantify capacity needs over the next 20 years to meet aeronautical demands.
- **Runway 9L/27R Extension** – Currently, Runway 9L/27R is classified as a runway providing secondary air carrier service during high-crosswind conditions limiting the use of Runway 17R/35L. However, the existing runway length cannot accommodate air carrier and regional aircraft now serving GFK. As such, the master plan study will evaluate the feasibility of a runway extension to Runway 9L/27R and triggers for its development.
- **Passenger Terminal Area** – The passenger terminal was constructed in 2011. From the notable growth numbers, GFK is noticing constraints on the size of the terminal to meet existing passenger and airline demand. Existing automobile parking and car rental facilities are also becoming more constrained as demand grows.
- **General Aviation Development** – As the airport is configured today, the majority of the general aviation hangar structures are deteriorating and are nearing the end of their useful life. Moreover, the airport has limited areas to expand hangar development. While GFK updated their Terminal Area Plan (TAP) in 2014, the master plan study will verify and reevaluate the plan to ensure its compatibility with the long-term vision of the airport.
- **UND Aerospace Needs** – This study will examine the University of North Dakota's existing and future needs at GFK in an effort to capture the entire airport's needs and ensure overall airport capacity needs are met over the next 20+ years.

## PAVEMENT/PRESERVATION

- **Pavement Preservation Plan –** GFK must maintain airport pavements so they remain usable to accommodate regular use of aircraft operations. The master plan will review a plan to rehabilitate or reconstruct projects, evaluate financial feasibility, and also evaluate proper pavement strength. As a result of change in aircraft types using the airport, it is important to make sure pavement strengths are adequate and prevent unnecessary stress on them.
- **Primary Runway 17R/35L Reconstruction Action Plan** – Although a thorough analysis has not been completed, Runway 17R/35L will need reconstruction of its pavement within this Master Plan period. As such, there is a need to evaluate and create a plan so the airport can minimize impacts to current aircraft operations on a daily basis.

*Figure 1-1 – Planning Considerations Map*




*Source: KLJ Analysis*

# Planning Objectives

Based on the background and planning considerations, the planning objectives for this study identify the methods used to meet the airport development goals outlined by the Grand Forks Regional Airport Authority. The key project objectives are identified as follows:

- Complete an airport master plan study to current FAA and State standards tailored to the specific needs of GFK.
- Evaluate existing social, built and natural environment including identification of critical issues such as wetlands, farmlands, roadway alignments and property acquisition that may affect the environmental clearance of future airport development.
- Utilize the aviation demand forecasts developed as the basis for the new Master Plan forecasts. Identify a critical design aircraft fleet.
- Formulate a clear understanding of the airport's role and the types of aircraft and aviation activities it is expected to serve. This includes scheduled/unscheduled passenger, cargo, general aviation and University of North Dakota (UND) flight training.
- Perform an airfield capacity analysis and identify opportunities to increase airfield capacity and reduce delay.
- Identify airport facility requirements based on FAA, State and local requirements. Areas of emphasis at GFK include:
    - Runway needs for the design aircraft (i.e. runway length, pavement strength)
    - Airfield capacity (including airfield configuration)
    - General aviation facilities and major tenants (including UND)
    - Passenger terminal building including number of gates/holdroom space, baggage claim space and aircraft parking apron space
    - Rental car ready/return parking lot
    - Air cargo space requirements
    - Airfield Perimeter Road options
    - Identifying compatible potential non-aeronautical land uses
    - Landside facilities including airport roadway alignment and automobile parking
- Identify a development and action plan for the reconstruction of Runway 35L/17R, the airport's only air carrier runway while considering other airport needs.
- Review a comprehensive set of reasonable alternatives that meet the aeronautical needs and look to avoid, minimize or mitigate impacts. Incorporate airport development plans considered since the last Master Plan study was completed.
- Analyze the alternatives through a technical, operational, financial and environmental investigation. Evaluate political and public acceptance. Recommend feasible preferred alternatives for each functional area of the airport, with a particular focus on the airfield.
- Identify land use compatibility standards including surrounding land use and airspace.
- Complete a separate Runway Protection Zone (RPZ) alternatives analysis package.
- Update the Airport Layout Plan to current FAA standards.
- Develop an integrated, long-term airport development plan based on the preferred airport development plan.
- Propose an achievable financial plan to support the implementation schedule, update the Capital Improvement Plan (CIP).

- Identify critical environmental conditions and subsequent environmental evaluations that may be required before a proposed project is approved.
- Complete a Solid Waste Management Plan in accordance with FAA standards.
- Assist the airport owner in developing stakeholder consensus on the airport development plan(s) through the execution of a public involvement program.
- Engage various stakeholder Focus Groups made up of individuals or representatives with a common airport interest to help provide direction and feedback in making planning decisions for the Airport's future.
- Develop consensus with local stakeholders on key airport planning issues including airport operational capacity and long-range airport development.
- Engage FAA and North Dakota Aeronautics Commission (NDAC) representatives at several key points in the project.
- Update the Exhibit A/Airport Property Map to current FAA standards.
- Complete an FAA aeronautical survey compliant with FAA standards.

## Master Plan Process

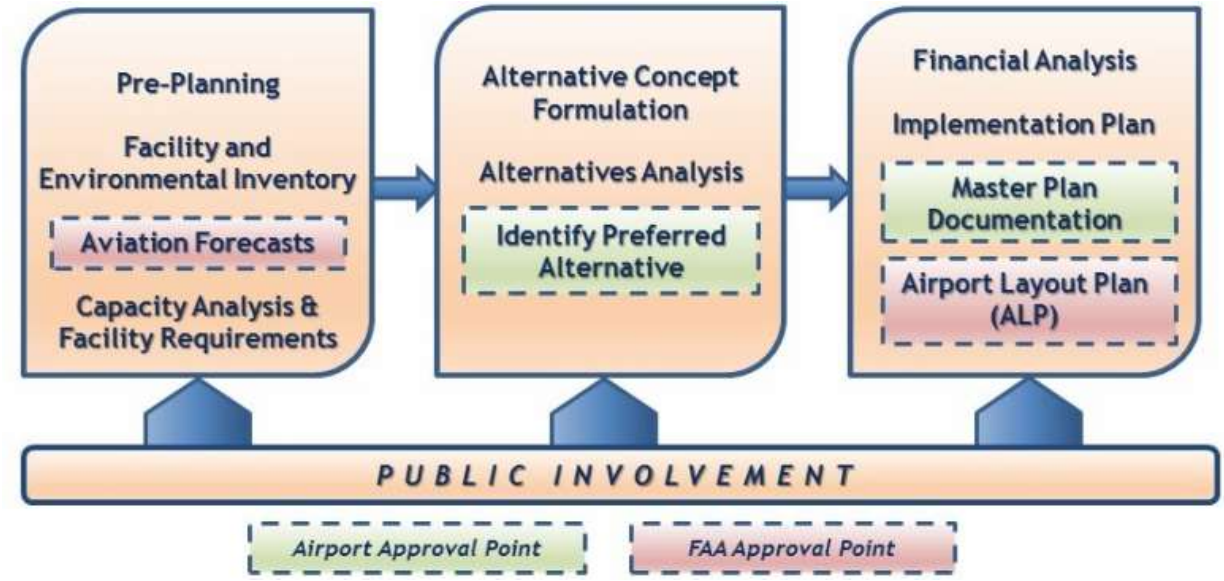
Guidelines for completing a Master Plan are set forth in FAA Advisory Circular 150/5070-6B. Each master plan study scope and level of effort is customized to fit each individual airport's needs and address critical issues.

The Airport Master Planning process involves several coordinated steps. The master plan study for GFK consists of the following elements:

- **Pre-Planning** – Airport development concerns are identified and planning objectives prepared to address these issues. An overall vision for the study is formulated that will guide the process.
- **Inventory of Existing Conditions** – Overview of airport setting and environment; infrastructure and assets which includes airside, landside and support facilities; airspace, navigational aids and airport access utilizing data from an FAA Aeronautical Survey.
- **Forecast of Aviation Demand** – Using established forecasting methods, estimate current and project future airport activity for general aviation, air cargo, and passenger enplanements.
- **Demand/Capacity Analysis and Facility Requirements** – Compare the existing capacity with the future demand and identify the facility requirements to satisfy the aviation safety, capacity and compatibility needs.
- **Alternatives Development and Evaluation** – Identify and evaluate options considering both on-airport and off-airport impacts consistent with the study goals and objectives. A preferred alternative is selected.
- **Environmental Overview** – Provide an overview of anticipated environmental impacts as part of the development of alternatives.
- **Implementation Plan** – Provide a comprehensive plan for implementation of the preferred alternative including project triggers, sequencing, and cost estimates.
- **Land Use Compatibility** – Complete a comprehensive review of land surrounding the airport for potential uses that are incompatible with safe airport operations and provide mitigation recommendations.

- **Airport Layout Plan (ALP)** – Document the existing and planned airport facilities through a set of drawings approved by the airport sponsor, state and FAA.
- **Stakeholder and Public Involvement** – Prepare and execute a plan to engage important airport stakeholder and the public throughout the study to gather their input and address their concerns.

*Exhibit 1-2 – Airport Master Planning Process*




*Source: KLJ*

See **Appendix X: Airport Master Plan Process** for more information on this topic.

## Study Documentation & Approvals

The Master Plan Update was divided into chapters of information to document airport planning data, analysis, findings and recommendation of the study. The chapters included in the report are the following:

- Chapter 1 – Introduction
- Chapter 2 – Facility & Environmental Inventory
- Chapter 3 – Aviation Forecasts
- Chapter 4 – Facility Requirements
- Chapter 5 – Alternatives Analysis
- Chapter 6 – Implementation & Financial Feasibility
- Chapter 7 – Environmental & Land Use Compatibility

***[DISCUSSION TO BE COMPLETED ONCE STUDY IS FINALIZED]***

## Master Plan Format

The required and recommended contents of Airport Master Plans are detailed per FAA standards. Effective airport master plans are based on the analysis of significant amounts of data, and many airport master plans typically present not only the planning conclusions, but all data and accompanying analysis in considerable detail.

This Master Plan presents data to support the plan in a series of appendices. As the reader moves through the narrative descriptions, there are references to specific appendices to provide additional background details and information. In addition, internet hyperlinks are included to reference documents that are current as of the time of this report.

# Public Involvement

Public involvement is a key component to the successful development of an Airport Master Plan study. The purpose is to encourage information sharing and feedback from airport stakeholders including the airport owner, airport users/tenants, local government officials, resource agencies, elected and appointed officials and the general public. Public involvement provides valuable input to assist the airport owner in decision making and develop consensus on study conclusions.

Stakeholder focus groups were established to provide input throughout the life of the study. A listing of individuals who participated in a focus group is located in **Appendix X: Public Involvement.** The purpose of the focus group was to facilitate group discussion and feedback from different stakeholders groups, providing recommendations to the airport owner. Members represented the following stakeholder groups:

- Grand Forks Regional Airport Authority
- Airlines/Transportation Security Administration (TSA)
- Airline Terminal Tenants (i.e. Rental Car)
- General Aviation
- Airport Traffic Control Tower
- Air Cargo
- U.S. Customs and Border Protection (CBP)
- Federal Aviation Administration (FAA)
- Local Government (City of Grand Forks, Grand Forks County)
- University of North Dakota Aerospace
- Grand Forks Air Force Base

***[DISCUSSION TO BE COMPLETED ONCE STUDY IS FINALIZED]***

Project meetings with Airport, FAA Airports District Office and North Dakota Aeronautics Commission staff were held at key stages throughout the project to facilitate small group collaboration and feedback on study elements.

See **Appendix X: Public Involvement** for other information including copies of public involvement meeting agendas, attendees, presentations and summaries.

# Conclusion

This Airport Master Plan Update for the Grand Forks International Airport provides the Grand Forks Regional Airport Authority with a usable guidance document to assist with capital improvement decision making to meet aviation demands for the foreseeable future. As with any planning study, assumptions made are subject to change due to unpredictable internal and external events. For this reason, this study should be reviewed periodically to verify project scope and triggering events are still valid to meet the airport need.