

CHAPTER 1 - INTRODUCTION

1.1 GENERAL

Updating an Airport Layout Plan (ALP) is a standard industry practice and must be kept current for airports that accept federal funding. The need may be developed based on some dramatic change at the Airport. Still, as a "rule of thumb," updates should be considered approximately every five to seven years to maintain the currency of the data and the airport standards. The primary product of this project is the production of a new ALP with an associated narrative report. The ALP serves as the framework for planning future development at the Airport.

The last ALP update was conducted as part of a Master Plan Update in 2004. Since then, the Airport has undergone several changes in facilities, operations, and other issues that need to be formally documented. However, doing so allows for the planning necessary to preserve the Airport's role in the state, region, and national transportation system. Therefore, the development of this ALP Update is essential to reaffirm and maintain the future function of the Airport.

To determine the potential of the Airport and specific opportunities for improving facilities, the City-sponsored this ALP Update through a planning grant from the FAA Airport Improvement Program (AIP) (FAA Grant No. 3-25-0052-51-2017). As a result, a Project Scope of Work was prepared, and a contract was awarded to Stantec Consulting Services to prepare an Airport Layout Plan Update and Narrative Report for Westfield-Barnes Regional Airport. This document comprises the Narrative Report for the airport layout plan update that documents the research, analyses, and findings of the study.

1.2 PURPOSE AND SCOPE OF THE STUDY

The recommended development should satisfy aviation demand, community development, and other transportation modes. Above all else, the Plan must be technically sound, practical, economically feasible, and proposed development to be consistent with federal design standards. The following objectives shall also serve as a guide in the preparation of the study:

- To provide an efficient graphic presentation of the ultimate development of the Airport.
- To present the pertinent backup information and data essential to the development of the Airport Layout Plan Update.
- To describe the various concepts and alternatives which were considered in the establishment of the proposed Plan.
- To provide a concise and descriptive report so that the impact and logic of its recommendations can be understood by the community the Airport serves and those authorities and public agencies charged with the approval, promotion, and funding of the improvements proposed in the Airport Layout Plan Update.
- To ensure the reliability and safety of airport operations.

1.3 OBJECTIVES

As established during the scoping process, the focus of this ALPU include the following objectives



- Update the ALP to reflect actual or planned modifications to the Airport and any significant off-airport development.
- Provide realistic forecasts of aviation activity for the next ten years.
- Obtain a complete aerial survey of the Airport (planimetric) to generate a new airport base plan in addition to obtaining obstruction data for all four runway approach surfaces.
- Evaluate obstructions in the following surfaces:
 - ✓ FAR Part 77 primary surface
 - ✓ FAR Part 77 approach surfaces (all four runways)
 - ✓ TERPS Visual Area Surface (VAS) Runway 2 and 20 only
 - ✓ Threshold Siting Surface (Runway 15, others as applicable)
 - ✓ PAPI Obstacle Clearance Surface (OCS) on all four runway ends
- Evaluate the need for expanded airside facilities and development areas, including an expanded helicopter operations area and Gulfstream.
- Evaluate landside facilities for aviation and non-aviation uses.
- Evaluate alternatives related to geometric corrections/improvements at various taxiways and taxiway/runway intersections addressed in Advisory Circular (AC) 150/5300-13A, Airport Design.

1.4 ASSUMPTIONS

Usually, with such a project, a significant amount of data must be collected and analyzed. This type of data would include assessing the types of aircraft that regularly use the Airport, including the design aircraft and related airport reference code. Other calculations would include analyzing any future land acquisition needs or the need to extend, shorten or reorient a runway. Since the project schedule and budget did not accommodate such measurements, the analysis in this report is based on some assumptions. These assumptions include the following:

- Since the April 2004 master plan was adopted, there have been no significant changes in airport activity or improvements with unanticipated consequences.
- The airport footprint is adequate, with no requirement to acquire additional property.
- The current Runway 2-20 and 15-33 location, length, width, orientation, and wind coverage are adequate, and no further study is necessary.
- Current Instrument Approach and Departure Procedures are adequate, and no further study is required.
- While the Design Aircraft may change as a function of time and technology, the Airport Reference Code remains C-III/IV for Runway 2-20 and B-II for Runway 15-33.
- Air National Guard and Army National Guard aircraft and operations stay relatively unchanged.
- Airport Planimetric and obstruction data was collected to FAA AC 150/5300-16, AC 150/5300-17, or AC 150/5300-18 (series) and uploaded to the FAA Airport Geographic Information System (AGIS).
- Airport management provided a list of existing aircraft (civil and military), including make and model.
- As reported in the FAA Operations Network (OPSNET), existing aircraft operations are accurate and were used as the basis for forecast activity.



1.5 THE PLANNING PROCESS

This ALP and Narrative Report was prepared and is presented in the following Chapters:

- Chapter 1 – Project Introduction
- Chapter 2 – Inventory of Existing Conditions
- Chapter 3 – Forecasts of Aviation Activity
- Chapter 4 – Development Issues and Options
- Chapter 5 – Alternatives Analysis
- Chapter 6 – Airport Layout Plan
- Chapter 7 - Implementation Plan

Appendices

- Appendix A: Terms & Abbreviations
- Appendix B: Interview Memoranda (see § 1.8)
- Appendix C: Obstruction Analysis

1.6 AIRPORT LAYOUT PLAN

The ALP is a public document that serves as a record of existing aeronautical requirements and as a reference for deliberations on land-use proposals, zoning, and budget resources planning for Westfield-Barnes Regional Airport. In addition, as a record of aeronautical requirements, it is referred to by the FAA in the review and findings on proposals involving the development of other nearby airports and objects which might affect navigable airspace.

The ALP graphically presents airport facilities, their location on the Airport, and the appropriate clearance and dimensional information required to show conformance with applicable design standards. The ALP depicts an airport as it exists today to depict those facilities and areas identified for future development to meet the forecast growth in aviation and related activity.

The ALP package for the Airport consists of the following 10 drawings:

1. Title Sheet
2. Existing Facilities Plan
3. Ultimate Airport Layout Plan
4. Terminal Area Plan
5. Runway 2 Approach Plan and Profile
6. Runway 20 Approach Plan and Profile
7. Runway 15-33 Approach Plan and Profile
8. FAR Part 77 Imaginary Surfaces Plan
9. Exhibit A, Sheet 1 of 2
10. Exhibit A, Sheet 2 of 2



1.7 TERMS AND ABBREVIATIONS

Appendix A contains a list of terms, acronyms, initialisms, and abbreviations common to the aviation industry but possibly foreign to readers unfamiliar with airports, aircraft, and airports' functional and physical design.

1.8 TENANTS

The Westfield-Barnes Regional Airport is home to several civil and military tenants. The businesses and military units include Gulfstream, Ross Aviation FBO, Ross Aviation MRO, Sok's Runway Restaurant & Bar, Aero Design, and Massachusetts Air and Army National Guard units. Each is discussed below.

- **Aero Design.** Aero Design is an aircraft restoration and maintenance facility specializing in general aviation and light corporate aircraft community services.
- **MA Air National Guard.** Flying the F-15, the MA Air National Guard's 104th Fighter Wing supports Air Force wartime contingency requirements and performs various peacetime missions required by the Air Force. The 104th is also readily available to the Governor of Massachusetts to respond to natural or human-made disasters.
- **MA Army National Guard.** The MA Army National Guard has three units based out of Westfield-Barnes as part of the Army Aviation Support Facility #2. The units consist of Detachment 1, Charlie Company, 3-126th General Support Aviation Battalion with 6 Medical Evacuation HH-60M Blackhawk helicopters. Detachment 1, Charlie Company, 1 224th Security & Support Battalion with 2 LUH-72 helicopters, and Detachment 3, Bravo Company, 638th Aviation Support Battalion, with is a maintenance detachment in support of the HH-60 and LUH-72 helicopters.
- **Gulfstream.** The Westfield Service Center covers the Northeastern United States and performs maintenance on the Gulfstream fleet.
- **Sok's Runway Restaurant & Bar.** Located in the airport terminal building, Sok's is open six days a week, serving lunch and dinner.
- **Ross Aviation MRO.** Ross Aviation MRO (Maintenance, Repair, and Overhaul) is an FAA Part 145¹ Repair Station providing airframe and power plant services.
- **Ross Aviation FBO.** Ross Aviation FBO is the Airport's sole fixed-based operator (FBO). The company offers private jet charter service, aircraft management, maintenance, and fixed-based operations and services, including fueling service and parking.
- **Whip City.** Whip City is a privately-owned business that invests in hangars to rent space out to individual or business aircraft owners. The company currently owns six hangar facilities at the Airport (Hangars 4-9).

¹ [Code of Federal Regulations, Title 14, Part 145.](#)



1.9 TENANT NEEDS

Early in the Plan's development, meetings with several of the Airport's tenants, including the air traffic control staff and city employees, were held to solicit information from each group's viewpoint concerning the Airport, its layout, operations, and facility needs. This information aided the consultant in developing the ALP and this technical report. Appendix B contains a memorandum of record for each interview. The following is a brief synopsis of those discussions as they relate to this project.

1.9.1 MA Air National Guard²

- Looking to add 25 acres of additional property³
- Replace arresting gear placement signs
- Relocate NavAids east of Taxiway "J."
- Reconstruct southern portion of Taxiway "B" to meet US Air Force Requirements
- Plans to move its headquarter facilities of the movement area to make more room for hangars
- The transition from F-15 to F-22 or F-35 is a moving timeline pending US Congress funding
- Modification of runway ends (all concrete) because of F-35 rotation point versus F-15
- There is sufficient parking space for the current F-15 fleet. Changes may be required if the fleet changes to the F-22 and F-35 because of the longer wingspan.

1.9.2 MA Army National Guard⁴

- No planned changes to existing fleet size
- Plans to expand near existing LAM shelter
- Adding additional apron space
- Discussions of moving C-26 to Coast Guard Air Station on Cape Cod because of limited space at BAF

1.9.3 Gulfstream⁵

- The business has improved over the past four years
- The current footprint is adequate for the next 3-5 years, then foresee the need to increase its size⁶
- Stockroom is at capacity size-wise; currently trying to figure out the best way to expand. The possible north expansion would require relocation of Industrial Road.
- Gulfstream 550 is the most significant aircraft that can fit on the ramp because of the aircraft tail height and the Part 77 transitional surface
- BAF lacks the necessary infrastructure to allow for operational tests on the ground. Therefore test flights are required.
- Restrictions on towing aircraft on active runway require ground taxi versus tow to compass rose.

² Interview August 7, 2017 between Maj. J. Dugan (ANG) and K. Hogue, P. Enzien, and E. Deck (Stantec) and follow up interview with Sgt B. Mapel on August 29, 2017.

³ Noted, but resolution beyond the scope of this update. Recommend further discussions with tenant and a separate resolution.

⁴ Interview August 8, 2017 between CW5 D. Picard (ANG) and K. Hogue and P. Enzien (Stantec).

⁵ Interview between K. Hogue and P. Enzien (Stantec) and Fran Ahern and Mark Herthington (Gulfstream) August 8, 2017

⁶ Noted, but resolution beyond the scope of this update. Recommend further discussions with tenant and a separate resolution.



1.9.4 Ross Aviation⁷

- The current footprint is adequate.
- Limited interest in large aircraft hangar space
- Limited interest in business aviation at BAF

1.9.5 Air Traffic Control⁸

- A parallel taxiway between Gulfstream facility and Taxiway "S" would be beneficial to ATC procedurally
- ILS glideslope becomes inoperative with as little as 6 inches of snow around the antenna
- The location of Runway 15 hold short line creates issues with pilots because of its non-standard location. Runway guard lights (wig-wag lights) might help reduce runway incursions.
- ILS Runway 2 would be helpful.
- Tallgrass hides wildlife from the tower's view
- Estimated runway use is 35% Runway 2, 45% Runway 20, 15% Runway 33, and 5% Runway 15

1.9.6 City of Westfield⁹

- Need for new corporate hangars, possibly in the former Cersosimo Lumber area¹⁰
- Consider lower costs in Westfield versus Whiteplains, NY area, which is a short flight away
- Consider ideas for a separate taxiway south of Taxiway B4

1.9.7 Whip City¹¹

- Interested in future hangar development, but no plans to expand the current footprint
- Meeting FAA requirements for setback from runways and taxiways, pavement drainage, and taxilane width hinders economies of development
- Higher demand for corporate versus tee hangars

⁷ Interview between K. Bradley, CEO of Operations (Retrix) and K. Hogue, P. Enzien, and E. Deck (Stantec) on August 8, 2017.

⁸ Interview between A. Lustenberger (Tower Chief) and K. Hogue, P. Enzien, and E. Deck (Stantec) on August 7, 2017.

⁹ Interview between J. Mitchell (City of Westfield Advancement Officer) and K. Hogue, P. Enzien, and J. Bland (Stantec) on August 29, 2017.

¹⁰ Located Taxiway B near the approach end of Runway 2.

¹¹ Interview between D. Klepacki (Whip City) and K. Hogue, P. Enzien, E. Deck, and J. Bland (Stantec) on August 29, 2017.

