AIRPORT MASTER PLAN UPDATE

TAUNTON MUNICIPAL AIRPORT

FINAL REPORT

Prepared for:

City of Taunton
Massachusetts

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TABLE OF CONTENTS

CHAPTER ONE - INTRODUCTION

1.1 MASTER PLAN PURPOSE AND OBJECTIVES 1-1
1.2 MASTER PLAN UPDATE ELEMENTS 1-3
1.3 MASTER PLAN COORDINATION 1-4
1.4 MASTER PLAN UPDATE ELEMENTS 1-5

CHAPTER TWO - INVENTORY OF EXISTING CONDITIONS

2.1 INTRODUCTION 2-1
2.1.1 Airport Setting 2-2
2.1.2 Airport History 2-5
2.1.3 Airport Administration 2-7
2.1.4 Airport Role 2-8
2.1.5 Primary Airport Data 2-9
2.1.6 Airport Services 2-9
2.2 AIRSIDE FACILITIES 2-10
2.2.1 Runways 2-11
2.2.2 Taxiways 2-13
2.2.3 Automated Surface Observation System (ASOS) 2-13
2.3 LANDSIDE FACILITIES 2-14
2.3.1 Terminal Building 2-14
2.3.2 Aircraft Hangar Facilities 2-15
2.3.3 Fixed Base Operator (FBO) Facilities 2-15
2.3.4 Airfield Maintenance Facility 2-15
2.3.5 Aircraft Parking Aprons 2-16
2.3.6 Fuel Storage Facilities 2-16
2.3.7 Airport Access Roadways and Auto Parking 2-16
2.3.8 Airport Fencing 2-17
2.3.9 Utilities 2-17

2.4 AIRSPACE SYSTEM / NAVIGATION AND COMMUNICATION AIDS 2-18
2.4.1 Air Traffic Service Areas and Aviation Communications 2-18
2.4.2 Airspace 2-19
2.5 AIRPORTS WITHIN THE REGION 2-27
2.6 AIRPORT ENVIRONS 2-30
2.6.1 Community Overview 2-30
2.6.2 New Bedford Demographics 2-30
2.6.3 New Bedford Economy 2-31
2.6.4 Existing Land Use and Zoning in the Airport Environs.....2-31
2.6.5 Local Comprehensive Planning 2-35
2.6.6 Environmental Setting and Considerations.....2-35

CHAPTER THREE - FORECASTS OF AVIATION ACTIVITY

3.1 INTRODUCTION.....3-1
3.2 OVERVIEW OF THE AIRPORT MARKET AREA 3-2
3.2.1 Definition of the EWB Airport Market Area.....3-2
3.2.2 National Aviation Trends 3-3
3.2.3 Regional Trends.....3-10
3.3 HISTORICAL AND EXISTING AVIATION ACTIVITY 3-14
3.3.1 Aircraft Operations 3-15
3.3.2 Based Aircraft 3-16
3.4 PROJECTIONS OF AVIATION ACTIVITY.....3-17
3.4.1 General Aviation Activity Forecast.....3-19
3.4.2 Commercial Air Service Activity Forecast 3-22
3.4.3 Military Activity Forecast.....3-22
3.4.4 Based Aircraft Forecast 3-23
3.4.5 Project First Light Resort & Casino Development Scenario 3-24
3.5 SUMMARY.....3-28

CHAPTER FOUR - AIRFIELD CAPACITY & FACILITY REQUIREMENTS

4.1 INTRODUCTION.....4-1
4.2 AIRFIELD DEMAND-CAPACITY.....4-2
4.2.1 Capacity and Delay.....4-2
4.2.2 Airfield Operational Capacity Parameters and Assumptions 4-2
4.2.3 Airfield Capacity Calculations 4-11
4.3 AIRFIELD REQUIREMENTS 4-12

4.3.1 Airport Design Standards 4-12
4.3.2 Runway Orientation 4-14
4.3.3 Runway Length 4-14
4.3.4 Runway Width 4-22
4.3.5 Pavement Strength 4-22
4.3.6 Taxiways 4-23
4.3.7 Navigational Aids (NAVAIDS) 4-26
4.3.8 Dimensional Standards 4-28
4.4 LANDSIDE REQUIREMENTS 4-31
4.4.1 Terminal / Administration Building 4-32
4.4.2 Hangars 4-36
4.4.3 Apron and Tiedown Areas 4-37
4.4.4 Automobile Parking 4-38
4.4.5 Airport Access 4-38
4.5 AIRPORT SUPPORT FACILITIES 4-39
4.5.1 Fuel Storage Facilities 4-39
4.5.2 Airport Security 4-39
4.5.3 Airfield Maintenance Facilities 4-40
4.5.4 Aircraft Rescue and Fire Fighting (ARFF) 4-40
4.6 PROJECT FIRST LIGHT RESORT & CASINO DEVELOPMENT SCENARIO 4-41
4.6.1 Airfield Demand-Capacity Implications 4-41
4.6.2 Airfield Requirements Implications 4-41
4.6.3 Landside Requirements Implications 4-42
4.6.4 Airport Support Facilities Implications 4-43
4.7 TAUNTON AIRPORT SURVEY 4-43
4.8 MASSACHUSETTS STATEWIDE AIRPORT SYSTEM PLAN RECOMMENDATIONS.. 4-47
4.9 FACILITY REQUIREMENTS SUMMARY 4-48

CHAPTER FIVE - ALTERNATIVES ANALYSIS & DEVELOPMENT CONCEPTS

5.1 INTRODUCTION 5-1
5.2 PREVIOUS STUDY RECOMMENDATIONS 5-3
5.3 EVALUATION OF ALTERNATIVE DEVELOPMENT SCENARIOS 5-5
5.4 AIRSIDE DEVELOPMENT CONCEPTS & ALTERNATIVES 5-6
5.4.1 Runways 5-6
5.4.2 Taxiways 5-27

5.4.3 Miscellaneous Airfield....5-34
5.5 LANDSIDE DEVLOPMENT CONCEPTS & ALTERNATIVES....5-37
5.5.1 Existing Terminal Area / Flightline....5-37
5.5.2 New Airport Development Areas....5-44
5.5.3 Miscellaneous Planning Considerations....5-52
5.6 ENVIRONMENTAL SCREENING....5-57
5.6.1 Environmental Impact Categories....5-58
5.6.2 Environmental Screening Summary....5-64

CHAPTER SIX - AIRPORT PLANS

6.1 INTRODUCTION....6-1
6.2 AIRPORT LAYOUT PLAN DRAWING SHEET DESCRIPTIONS....6-2
6.2.1 Title Sheet....6-2
6.2.2 Exhibit 1 - Existing Airport Layout Plan (ALP)....6-2
6.2.3 Exhibit 2 - Ultimate Airport Layout Plan (ALP)....6-2
6.2.4 Exhibit 3 - Technical Data Sheet....6-6
6.2.5 Exhibit 4 - Terminal Area Plan....6-6
6.2.6 Exhibit 5 - Airport Airspace Drawing (FAR Part 77)....6-6
6.2.7 Exhibit 6 - Inner Portion of the Approach Plan and Profile (Runway 12-30)
Exhibit 7 - Inner Portion of the Approach Plan and Profile (Runway 4-22)
....6-6
6.2.8 Exhibit 8 - Off-Airport Land Use Plan....6-7
6.2.9 Exhibit 9 - Airport Property Map / Exhibit "A"....6-7
6.3 AIRPORT LAYOUT PLAN DRAWING SET....6-7

CHAPTER SEVEN – FINANCIAL IMPLEMENTATION PLAN

7.1 INTRODUCTION....7-1
7.2 CAPITAL FUNDING SOURCES....7-2
7.2.1 Federal Aviation Administration (FAA) Funding....7-2
7.2.2 Massachusetts Department of Transportation (MassDOT) – Aeronautics Division....7-3
7.2.3 Net Operating Revenues/Cash Reserves....7-4
7.2.4 Other Capital Funding....7-4
7.3 FINANCIAL ANALYSIS AND IMPLEMENTATION PLAN....7-5
7.3.1 Projects Listed in the Capital Improvement Program (CIP)....7-6

7.3.2 Estimated Project Costs and Development Schedule 7-11
7.3.3 Airport Operating Revenues and Expenses 7-15
7.3.4 Projected Operating Revenues and Expenses 7-17
7.4 FINANCIAL PLAN SUMMARY..... 7-18

APPENDIX A – GLOSSARY

APPENDIX B – TAN PAVEMENT PLAN

APPENDIX C – TAN UTILITIES PLAN

APPENDIX D – TAN WETLANDS DELINEATIONS

APPENDIX E – TAN FAA DATA

APPENDIX F – TAN STAKEHOLDER SURVEY RESULTS

APPENDIX G – TAN AMPU MEETINGS

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CHAPTER ONE:

INTRODUCTION

The Airport Master Plan Update (AMPU) for the Taunton Municipal Airport (TAN or the "Airport") has been undertaken by the Taunton Municipal Airport Commission (TMAC, also known as the "Airport Sponsor"), to define a long-range, measured plan for reasonable and orderly airport development to produce a safe, efficient, economical, and environmentally acceptable air transportation facility. The study was funded by the Federal Aviation Administration (FAA), the Massachusetts Department of Transportation - Aeronautics Division (MassDOT Aeronautics), and TMAC. Technical work was conducted by a Study Team that was led by Airport Solutions Group, LLC, and supported by Epsilon Associates, Inc.

The ultimate goal of the AMPU is to provide a carefully considered, systematic approach to the Airport's overall maintenance, development, and operation over a 20-year period. This planning document is intended to identify and then plan for future facility needs well in advance of the actual demand for those future facilities. The AMPU is also designed to review and assess the Airport's current conformance with federal and state airport design and operational standards to help ensure that the Airport continues to operate in as safe a manner as possible. This is being undertaken to ensure that the Taunton Municipal Airport can appropriately coordinate project approvals, design, financing, and construction, while avoiding experiencing the detrimental effects that could be realized due to inadequate or noncompliant airport facilities.

1.1 MASTER PLAN PURPOSE AND OBJECTIVES

The overall purpose of the TAN AMPU is to define the Airport Sponsor's strategy for the long-term development of Taunton Municipal. This AMPU provides the framework to guide future airport development that will cost-effectively satisfy current and future aviation demand in a logical and financially-feasible manner, while also considering relevant environmental and community factors.

Consistent with this purpose, specific objectives were established for the AMPU through coordination with the Airport Sponsor and other interested stakeholders. The following represent the general study objectives that were recognized by that group for this planning effort. (Please note that more specific facility objectives were also identified as part of these discussions. These are discussed in detail in **Chapter Four**, *Airfield Capacity & Facility Requirements*.)

- Preserve and protect public and private investments in TAN's existing facilities;

- Reflect community and regional goals, needs, and plans;
- Enhance the safety of aircraft operations, as well as those who live near and around TAN;
- Maximize TAN's economic benefit for the local community, the city, the state and the region;
- Provide a plan that allows the Airport to meet the long-term air transportation needs of the city, the state and the region in a safe, secure, and efficient manner;
- Document changes in the aviation industry and economy to assist and prepare TAN for future challenges, as well as anticipating potential future opportunities in the highly competitive aviation market;
- Identify the airfield, ground transportation, and aviation support facilities necessary to accommodate TAN's future aviation demand and to fulfill the needs of its users and stakeholders;
- Promote the development of compatible land uses in the vicinity of TAN in a manner that is sensitive to the surrounding communities and the environment;
- Identify appropriate and best uses of land within airport property;
- Ensure that the AMPU results are consistent with the improvements in the Airport's current Capital Improvement Program (CIP) and recommendations of previous planning efforts, including the 2010 Massachusetts Statewide Airport System Plan (MSASP);
- Ensure that development plans are consistent with the safe, secure, efficient, environmentally responsible, and financially sound operation of Taunton Municipal Airport; and
- Actively engage the public throughout the planning process.
- Ensure that RW 4-22 is safe for use by those aircraft that need it (i.e., small aircraft and taildraggers).

It should be acknowledged that these goals are consistent with those established in the 2010 Massachusetts Statewide Airport System Plan (MSASP). Generally, the MSASP stated that the Massachusetts airport system (and by extension the airports that comprise that system), should strive for the following:

- Meet Standards - Meet applicable FAA airport design standards
- Environmental Compliance – Comply with applicable federal, state, and local environmental regulatory requirements
- Economic Benefit – Maximize the economic impact and benefits of incremental investment in the airports
- System Preservation – Provide sufficient facilities and services required to maintain the airports, and address the current and future needs of the aviation community
- Public Outreach – Promote and support community outreach, participation and aviation educational programs
- Transportation Integration – Ensure that airports are effectively integrated with other modes of transportation

In addition to addressing these objectives, the AMPU must also fulfill the broad master planning goals established by the FAA in **FAA Advisory Circular (AC) 150/5070-6B**, *Airport Master Plans*. These goals include the following:

- Document issues that the proposed development will address;
- Justify the proposed development through the technical, economic, and environmental investigation of concepts and alternatives;
- Provide an effective graphic presentation of the development of the Airport and anticipated land uses in the vicinity;
- Establish a realistic schedule for implementing the development proposed in the Master Plan Update, particularly the short-term capital improvement program;
- Propose an achievable financial plan to support the implementation schedule;
- Provide sufficient project definition and detail for subsequent environmental evaluations that may be required before the project is approved;
- Present a plan that adequately addresses the issues and satisfies local, state, and federal regulations;
- 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; and
- Set the stage and establish the framework for a continuing planning process.

1.2 OVERVIEW OF AIRPORT ISSUES

The previous Airport Master Plan prepared for the Taunton Municipal Airport was completed in 2002 by Edwards and Kelcey. Since that time, many of the Airport issues identified in that effort have been addressed by the completion of specific projects or the updating of specific airport policies. Others not addressed may have been due to changing industry circumstances and/or master plan assumptions, or have still yet to be resolved.

For the 2014 AMPU, the Taunton Municipal Airport Committee, which acts as a liaison between the Airport users and the city government, has identified several concerns that it would like to see addressed in this AMPU, including the following:

- Runway 4-22: As part of the last AMPU effort, this runway was planned to be reconstructed. Unfortunately, it is also known to have approaches with vegetative penetrations that must be addressed prior to reconstruction.

- Taxiway A: There is currently an FAA Modification of Standard (MOS) issued for runway-taxiway separation standards. This must be reviewed and addressed.

- Runway 12-30: A long-term look must be taken at the future of the Airport's primary runway with respect to design aircraft, length requirements and width.

- New Landside Development Areas: The Airport must identify future potential development areas to meet demand for businesses and hangars. This includes the potential for a new Airport Administration Building.

- Regional Economic Development Initiatives: Taunton is the site of a potentially significant regional economic development initiative (the First Light Casino & Resort). The potential impact of that initiative on the Airport must be anticipated.

- Airport Security: The Airport needs to evaluate its current security systems and policies including airport fencing, cameras, security plans, etc.

- Pavement Maintenance: Prepare an airport pavement maintenance program that considers the age and condition of existing airport pavements, options for maintenance or repair, and approximate costs for these improvements.

All of these issues, among others, will be discussed in subsequent chapters to varying degrees.

1.3 MASTER PLAN COMMUNICATION & COORDINATION

Public involvement is an integral part of any significant airport planning study since it encourages information-sharing and collaboration among the community and the airport stakeholders that hold a collective interest in the outcome of the study. Stakeholders typically include the airport sponsor, airlines, tenants, users, local businesses and residents, resource agencies, elected and appointed public officials, and the general public. With such a diverse stakeholder group, a variety of forums are often employed to enhance the effectiveness of the project coordination effort.

For the TAN AMPU, a **Project Management Team (PMT)** was established and comprised of members representing the Airport Sponsor, the FAA, and MassDOT Aeronautics to ensure that the project was executed within the approved scope of work, budget, and schedule. Additionally, the PMT served as an important resource with respect to providing information and guidance regarding specific

technical elements. Dedicated PMT meetings were held four times throughout the master planning project.

A **Project Advisory Committee (PAC)** was established to serve as a resource to ensure the AMPU addressed the key issues facing the Airport and its surrounding community today and into the future. The PAC consisted of members representing the City of Taunton - Mayor's Office, the City of Taunton - City Council, the City of Taunton – Planning Department, the Taunton Economic Development Council, Cape Air, Bridgewater State University – Department of Aviation Science, and Midwest Air Traffic Control, in addition to those members of the PMT. Their roles were to review and comment on draft study products, and to provide linkages to agencies and other constituencies as represented by the PAC membership Three PAC meetings were held throughout the project.

An online **airport stakeholder survey** was conducted to solicit feedback regarding a variety of topics, including the following:

- Changes that have occurred at TAN since 2002;
- TAN strengths, weaknesses, opportunities and threats; and the
- Future vision for TAN

The survey results were utilized to help guide planning actions during the subsequent Airfield Capacity & Facility Requirements tasks. The results of the survey are included in **Appendix F**.

Finally, in addition to the PMT and PAC, other forms of public involvement included **public meetings/workshops** and briefings to elected/appointed officials. Public workshops provided an opportunity to engage the public in meaningful conversation about the Airport and the AMPU. Two such meetings were conducted in an "open house" format with interactive information stations staffed by airport personnel and the Project Team. Other additional briefings or technical meetings were organized with key agencies, stakeholders, or public officials as required. Notes from meetings are included in **Appendix G**.

1.4 MASTER PLAN UPDATE ELEMENTS

The Taunton Municipal AMPU has been prepared consistent with the guidance provided in **FAA AC 150/5070-6B**, *Airport Master Plans*, and other industry-accepted principles and practices. This Master Plan Update has seven chapters that are designed to identify future facility requirements and provide the supporting rationale for their implementation.

Chapter ONE

Introduction provides an overview of the AMPU, including its purpose, its objectives, its work products and the overall structure of the project

Chapter TWO

Inventory of Existing Conditions establishes a sound basis for plan and program development through the assimilation and documentation of relevant data. The inventory is designed to assemble essential data regarding the physical, operational, and functional characteristics of TAN, its sub-components, and its environs. This data collection process includes the gathering of environmental data so that it can be considered throughout the master planning process.

Chapter THREE

Forecasts of Aviation Activity essentially serves as the hub of the AMPU by utilizing local socioeconomic information, as well as national air transportation trends, to project the levels of aviation activity that can reasonably be expected to occur at the Airport over a 20-year period. Assessing these future trends relating to airport utilization and operational activity levels is especially important in that many of the proposals and recommendations of the plan are principally based on the resultant aviation activity demand forecasts. Therefore, it is very important that the resultant forecasts be both reasonable and defensible.

Chapter FOUR

Airfield Capacity & Facility Requirements utilizes the results of the Forecasts to assess the ability of existing airside and landside facilities to meet the projected level of demand for the five, ten and twenty year planning horizons. This analysis results in the definition of requirements for additional facilities, expansion to existing facilities and the determination of those facilities that will meet the forecast of demand over the course of the 20-year planning period. Beyond this, the airport is examined with respect to improvements needed to safely serve the type of aircraft expected to operate at the airport in the future, including compliance with FAA design standards, as well as navigational aids to increase the safety and efficiency of operations.

Chapter FIVE

Alternatives Analysis & Development Concepts considers a variety of solutions to accommodate the anticipated facility needs identified by the Facility Requirements analysis. Through this process, various facility and site plan alternatives are proposed and weighed with respect to their ability to meet the projected facility needs. An analysis is completed to evaluate the alternatives for their ability to meet the identified facility requirements in an efficient and appropriate manner designed to meet the airport's long-term goals. As a tool for the alternatives review and evaluation, evaluation matrixes are employed to help identify the strengths and weaknesses of each proposed development alternative, with the intention of determining a single direction for development. Included in this chapter is an environmental screening of the development plan.

Chapter SIX

Airport Plans provides both a graphic and narrative description of the recommended plan for the use, development, and operation of the airport.

Chapter SEVEN

Financial Implementation Plan focuses on the capital improvement program which defines the schedules, costs, and funding sources for the recommended development plan. It is important that the development program is practical, reasonable, and capable of assisting in enhancing economic viability for the Airport.

CHAPTER TWO:

INVENTORY OF EXISTING CONDITIONS

2.1 INTRODUCTION

TAN Runway 12

The Taunton Municipal Airport - King Field (the Airport or TAN) is located approximately four miles east of downtown Taunton in Southeastern Massachusetts. Situated 41.5 feet above mean sea level (AMSL), the Airport provides the City of Taunton with aviation facilities designed to accommodate a full range of aviation services and general aviation operators ranging from small piston engine aircraft to turboprop aircraft, as well as the potential for some small corporate business jets.

The Airport, along with the aviation-related businesses and facilities, represents a vital and significant regional transportation and economic asset. In addition to its many aviation-related benefits, the Airport supports local industries and encourages additional business development and expansion for cities and towns throughout the region. This fact was demonstrated in the *2014 Massachusetts Statewide Airport Economic Impact Study* which quantified the total aviation and non-aviation related impact of the Taunton Municipal Airport at 31 jobs, with total wages of $978,000 and a total economic output of $3.26 million.

The last Airport Master Plan Update (AMPU) for the Taunton Municipal Airport was completed in 2002. Since that time, many changes have occurred on the Airport, as well as within the overall aviation industry on a local, regional, and national level that have potential impacts on the aviation facilities and services provided by the Airport. These changes necessitate a re-evaluation of the AMPU as a means of analyzing current and forecast operational characteristics and facilities, as well as updating the program for airport development. Changes in population and the economy within the region have also necessitated a long-range analysis and plan for the future needs of the Airport to accommodate aviation demand.

This Airport Master Plan Update (AMPU) is intended to provide a comprehensive evaluation of TAN and result in a long-term facilities and operational plan for the Airport.

The focus of this document will be on the total aviation facility and its environs, with the overall planning goal being the development of an aviation facility "right-sized" for accommodating future demand and that is not significantly constrained by its environs. The initial step in the preparation of this 20-year Airport Master Plan is the collection or identification of information pertinent to the Taunton Municipal Airport and the surrounding area. This chapter, **Inventory of Existing Conditions**, consolidates that information and provides a foundation for subsequent planning analyses. Specifically, this chapter examines three basic elements involved with the existing and future development of the Taunton Municipal Airport:

- the Airport's facilities (runways, taxiways, aircraft parking aprons, hangars, maintenance facilities, ground access, etc.);
- the relationship of the Airport to the regional airport system and the National Airport System (NAS); and
- the Airport environs.

The information collected for this chapter was obtained from many sources, including those listed below.

- Airport site visits;
- Tenant and user interviews;
- Airport administration records;
- FAA 5010 forms;
- TAN Airport Master Plan (2002);
- 2010 Massachusetts Statewide Airport System Plan (MSASP); and
- Other pertinent data and studies from the Federal Aviation Administration (FAA), Massachusetts Department of Transportation (MassDOT) Aeronautics Division, and the Taunton Municipal Airport Commission (TMAC).

As with any airport planning study, an attempt has been made to utilize existing data, or information in associated planning documents, to the maximum extent possible.

Subsequent chapters detail the Airport's forecasts of aviation activity, the ability of airport facilities to safely and efficiently meet the needs associated with the projected aviation activity, the compatibility of the Airport with surrounding land uses, and recommended future development within and around airport property.

2.1.1 Airport Setting

The Airport's relative location within the region is illustrated below in **Figure 2-1** and **Figure 2-2.** The seat of Bristol County, the City of Taunton is situated on the Taunton River which winds its way through the city on its way to Mount Hope Bay. Taunton has a population of 55,874 (in 2010), making it the 21st-largest city in Massachusetts. One of the oldest cities in the United States, Taunton is also known as the "Silver City", as it was an historic center of the silver industry beginning in the 19th century.

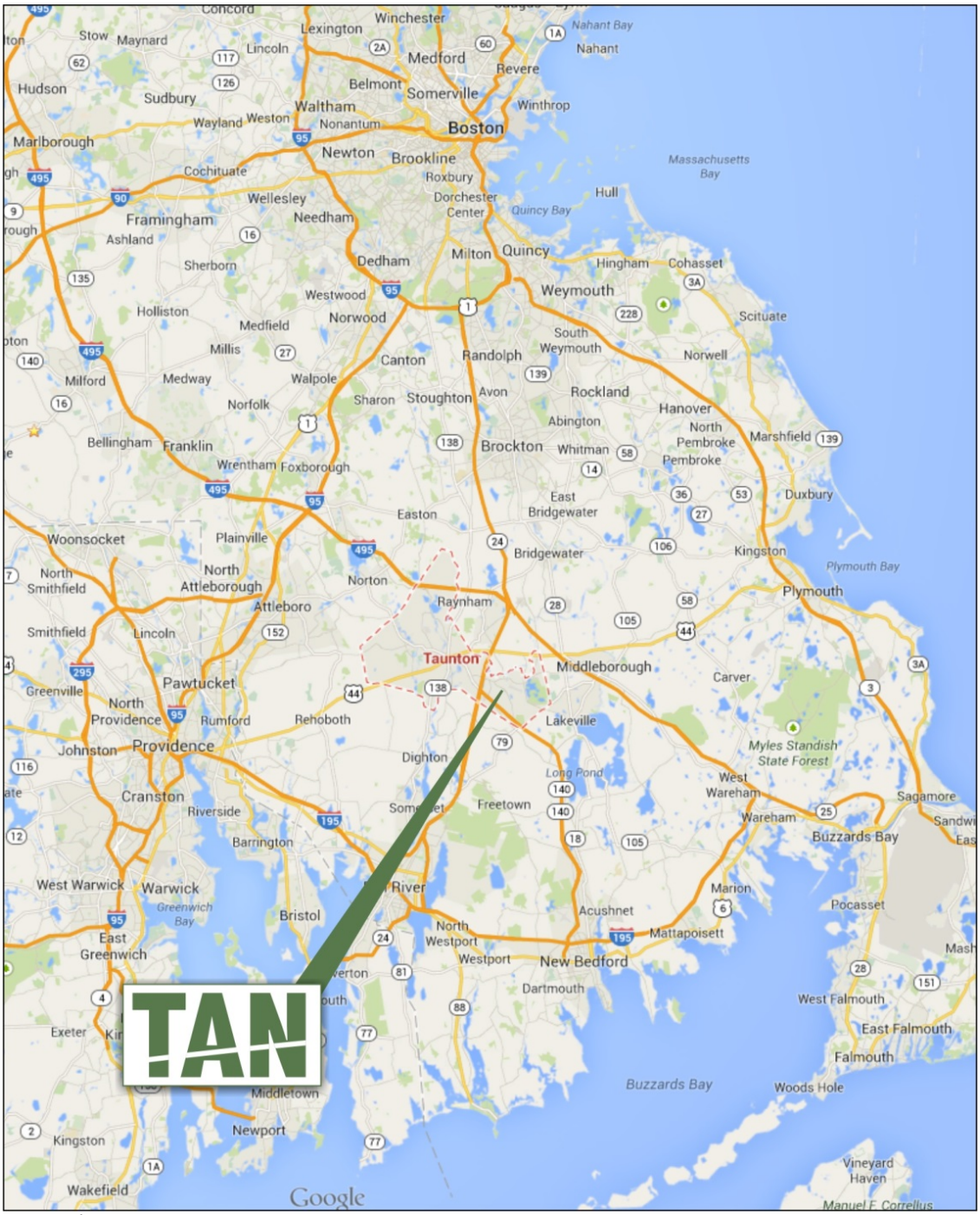
City of Taunton Seal

The Airport is situated approximately one and a half miles north of Route 140, two miles east of Route 24, and three miles south of Interstate 495. The Airport is also approximately 18 miles east of Providence, Rhode Island, 40 miles south of Boston, Massachusetts, 17 miles southwest of Plymouth, Massachusetts, and 15 miles north of New Bedford, Massachusetts.

The Taunton Municipal Airport is a publicly owned (by the City of Taunton) public use General Aviation (GA) airport. It does not have any commercial service

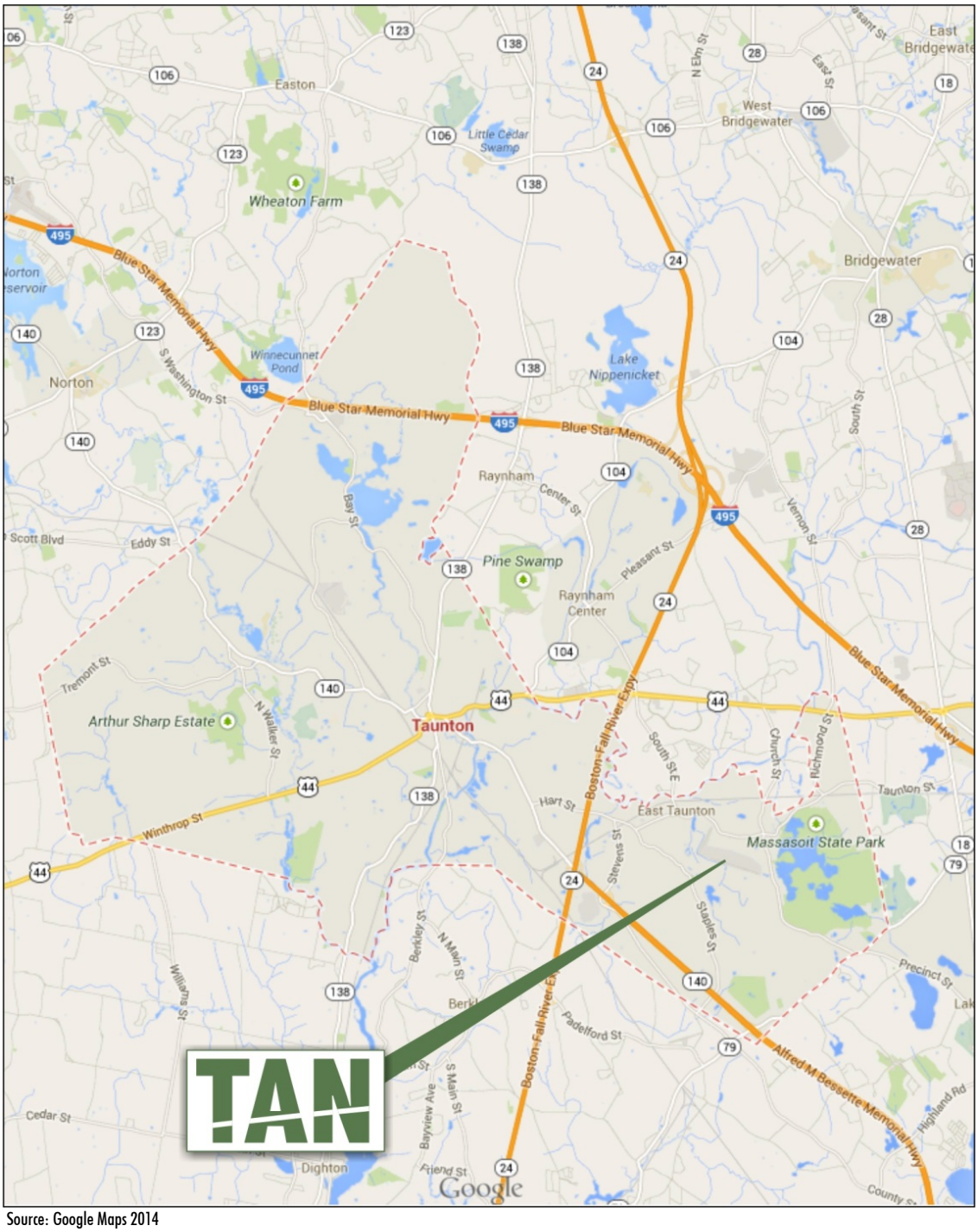
operations. The Airport itself encompasses 256 acres and has a defined elevation of 41.5 feet Mean Sea Level (MSL). The FAA site number for Taunton Municipal is 09336. The Airport Reference Point (ARP) is Latitude 41" 52' 28.0826"N and Longitude 071" 00' 58.7394"W. The mean, maximum temperature of the hottest month (July) at the Airport is 82 degrees Fahrenheit.

Figure 2-1: Airport Location Map



Source: Google Maps 2014

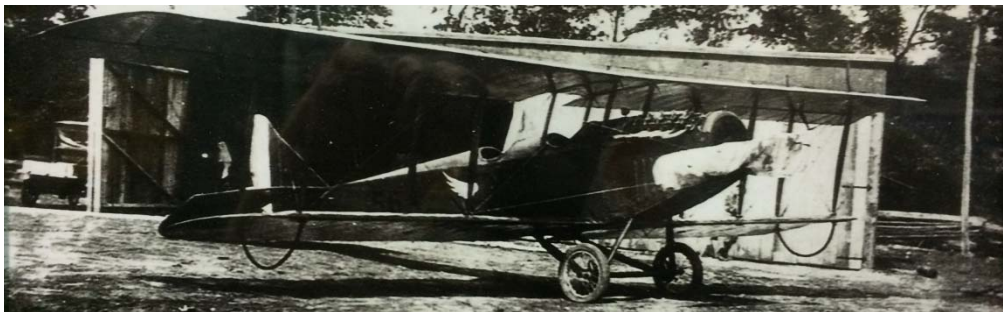
Figure 2-2: Airport Vicinity Map



Source: Google Maps 2014

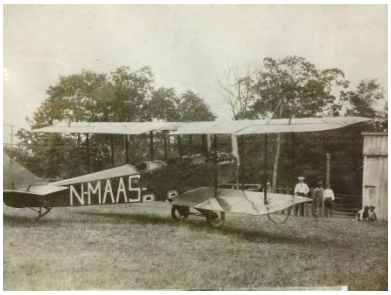
2.1.2 Airport History

King Field



Everett & Ora King

The Taunton Municipal Airport was first established in 1919 as a private airport (King Field) by Henry King on what was a 50-acre dairy farm at the time. This action was partially spurred by a group of eight local businessmen who had purchased a World War I surplus Curtiss JN-4 "Jenny" biplane. As told by locals, one day the airplane landed amidst a herd of dairy cows in one of Mr. King's pastures. Following that, the cows were then herded to give way to the aircraft taking off and landing until Mr. King ultimately pastured them in another field to allow for other aircraft operations. From that time on, Mr. King began to gradually close his dairy business and started investing into smoothing the pasture land and removing trees (including a new apple orchard) to make for clear approaches to the field. A skilled pilot by that time, Mr. King then purchased a 1914 Lincoln Standard L.S.5 and started King Aviation Service which provided passenger flights, aerial photographs and flight instruction. As the business grew, a shop and hangar were built in 1928, and Mr. King's children, Everett and Ora, became pilots and entered the business.



Curtiss JN-4 "Jenny"

Beginning in 1932 and with business increasing, the Airport was leased to the City of Taunton for one dollar a year to support local Works Progress Administration (WPA) projects. Through this arrangement, a new 2,500-foot gravel runway (Runway 12-30) was built across an existing swamp area. At the start of World War II, all airports within 50 miles of the coastline, including Taunton, were closed to civilian operations. In 1944, the US Air Force rented an office at the Airport to use as a tracking station and actually stationed soldiers in the King home. By late 1946, the airport was again opened to civilian traffic. The King family preserved and maintained the airport until 1960, when the City of Taunton assumed ownership, which resulted in the airport being renamed Taunton Municipal Airport – King Field. Some of the facilities on the airport grounds are registered with the National Register of Historic Places as they date back to the earliest days of aviation.

Lincoln Standard L.S.5

Additional data related to the historical development of the Airport can be gleaned by examining the history of FAA Airport Improvement Program (AIP) grants, as shown below in **Table 2-1**.

Table 2-1: TAN AIP Grant History

Fiscal Year	AIP Number	Project	Entitlement Funding	Discretionary Funding	Total
1983	001-1983	Improve Airport Drainage	$14,899.00	$0.00	$14,899.00
1983	001-1983	Rehabilitate Runway Lighting	$74,079.00	$75,000.00	$149,079.00
1985	002-1985	Improve Access Road	$95,236.00	$0.00	$95,236.00
1987	003-1987	Conduct Airport Master Plan Study	$74,656.00	$0.00	$74,656.00
1997	004-1997	Improve Airport Drainage	$65,613.00	$0.00	$65,613.00
1998	005-1998	Rehabilitate Taxiway	$35,000.00	$0.00	$35,000.00
1998	005-1998	Improve Runway Safety Area	$60,000.00	$0.00	$60,000.00
1998	005-1998	Rehabilitate Runway	$504,537.00	$0.00	$504,537.00
1998	005-1998	Install Miscellaneous NAVAIDS	$13,000.00	$0.00	$13,000.00
1999	006-1999	Remove Obstructions	$200,000.00	$0.00	$200,000.00
2000	007-2000	Install Perimeter Fencing	$91,026.00	$0.00	$91,026.00
2000	008-2000	Conduct Airport Master Plan Study	$101,426.00	$0.00	$101,426.00
2002	009-2002	Remove Obstructions	$209,949.00	$0.00	$209,949.00
2002	010-2002	Install Perimeter Fencing	$427,268.00	$0.00	$427,268.00
2003	011-2003	Construct Access Road	$645,265.00	$8,486.00	$653,751.00
2003	012-2003	Construct Snow Removal Equipment Building	$481,397.00	$0.00	$481,397.00
2004	013-2004	Acquire Snow Removal Equipment	$275,523.00	$0.00	$275,523.00
2005	014-2005	Rehabilitate Taxiway	$505,000.00	$59,675.00	$564,675.00
2005	014-2005	Conduct Miscellaneous Study	$19,000.00	$0.00	$19,000.00
2005	014-2005	Rehabilitate Runway Lighting	$190,000.00	$0.00	$190,000.00
2006	015-2006	Rehabilitate Apron	$50,000.00	$1,071,779.00	$1,121,779.00
2006	015-2006	Mark Obstructions	$100,000.00	$0.00	$100,000.00
2007	017-2007	Acquire Snow Removal Equipment	$41,426.00	$0.00	$41,426.00
2009	018-2009	Acquire Snow Removal Equipment	$47,504.00	$0.00	$47,504.00
2009	019-2009	Rehabilitate Runway	$166,535.00	$0.00	$166,535.00
2011	021-2011	Remove Obstructions	$162,964.00	$0.00	$162,964.00
2012	022-2012	Conduct Environmental Study	$241,057.00	$40,120.00	$281,177.00
2012	023-2012	Acquire Land For Approaches	$20,727.00	$0.00	$20,727.00
2013	024-2013	Update Airport Master Plan Study	$295,200.00	$0.00	$295,200.00
2014	025-2014	Construct Taxiway B	$636,300.00	$0.00	$636,300.00

Source: FAA.

2.1.3 Airport Administration

The Taunton Municipal Airport is owned and operated by the City of Taunton. Additionally, and as required by Massachusetts General Law, the Airport is administered by an airport commission (the Taunton Municipal Airport Commission or TMAC). The seven TMAC members are nominated by the Mayor of Taunton and approved by the City Council. Each commissioner has a three-year term and the appointments are staggered. There is a full-time airport manager that is hired by TMAC as an independent consultant.

The actual operation of the Airport is governed by Standard Operating Policies and Procedures (SOPP) guidebook originally adopted by TMAC in 1994 and amended in 2000. The SOPPs are minimum standards that apply to all operations and companies that operate on the airport. As noted in the Foreword of the SOPP:

> *The Standard Operating Policies and Procedures for the Taunton Municipal Airport has been written to meet one of the most important but least explained areas of business for the Fixed Base and Airfield Operator; the leases and agreements by which the Taunton Municipal Airport conducts its business. During the past year of research and preparation of the Second Edition, contributors to the book studied leases and agreements from more than 12 airports of every size and description in Massachusetts. The variables and provisions unique to each of them made it impossible to write universal standards and agreements that could be applied to every contractual arrangement.*
>
> *Instead, we opted to compile in a single book the guidelines, recommendations, and examples to help the airport and the aviation business person structure agreements that will protect and, it is hoped, foster the growth of their company and the airport.*
>
> *While this publication is designed to provide accurate and authoritative information, it is distributed with the understanding that the Taunton Municipal Airport Commission reserves the right to update, amend, and/or change its contents as it deems necessary."*

There is also the Taunton Airport Association, formed in the 1980s, which is a volunteer organization that supports the airport by sponsoring Young Eagle flights, organizing open houses, FAA Wings Safety Seminars, charity flights, social events, and fund raising activities.

*A **mission statement** is a statement of the purpose of an organization's reason for existing. It guides the actions of the organization, spells out its overall goal, provides a path, and guides decision-making.*

Airport Mission Statement

TMAC has adopted the "Taunton Municipal Airport Vision Statement", which states the following:

> *The Taunton Municipal Airport Commission envisions the Taunton Airport to be a center of General Aviation activity well into the twenty first century, serving aviation enthusiasts in the Southeast region of Massachusetts.*

Focus will be on the private pilot, owner, and aviation enthusiast, by providing quality services and educational activities and events. Our goal is to make Taunton Airport a community-based aviation center, and a good neighbor, while enhancing all facets of the General Aviation experience.

2.1.4 Airport Role

Airports can play a variety of different functional roles and contribute at varying levels in meeting the transportation and economic needs on national, regional, state and local levels. Identifying and understanding the various roles that an airport plays is essential in order for that airport to be developed with facilities and services appropriate to fulfilling its respective roles. Following are the various role classifications for the Taunton Municipal Airport.

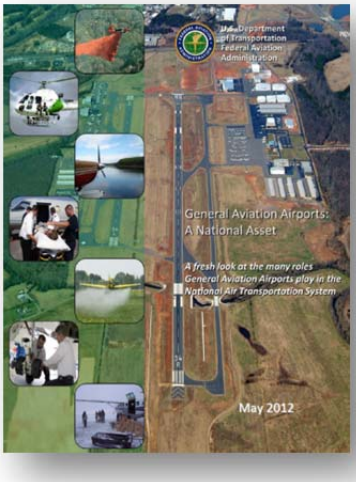
National Plan of Integrated Airport Systems (NPIAS)

The NPIAS is an FAA-sponsored national airport system plan whose purpose is to identify the airports that are important to national air transportation. Being identified within NPIAS makes an airport eligible to receive grants under the Airport Improvement Program (AIP) for the planning and implementation of airport capital improvements and infrastructure development. Specifically, NPIAS defines an airport by its service level, which reflects the type of service that a given airport provides for its host community. This service level also defines the funding categories established by Congress to assist in the distribution of funding resources for airport development.

The 2013 NPIAS classified Taunton Municipal Airport as **General Aviation** airport. This is defined as an airport that does not receive scheduled commercial service and accounts for enough activity (having usually at least 10 based aircraft) and are at least 20 miles from the nearest NPIAS airport.

General Aviation Airports: A National Asset (ASSET)

General Aviation Airports: A National Asset documents an 18-month study of the nation's nearly 3,000 General Aviation airports, heliports, and seaplane bases identified in the FAA's NPIAS. This in-depth analysis highlights for the traveling public the pivotal role GA airports play in our society, economy, and the aviation system. The study also aligns the GA airports into four categories - national, regional, local, and basic - based on their existing activity levels. The new categories better capture their diverse functions and the economic contributions GA airports make to their communities and the nation.



The FAA's ASSET study classified the Taunton Municipal Airport as **Local** airport, defined as an airport that supplements local communities by providing access primarily to intrastate and some interstate markets. These airports are typically located near larger population centers, but not necessarily in metropolitan or micropolitan areas. Most of the flying is by piston aircraft in support of business and personal needs. In addition, these airports also typically accommodate flight training, emergency services, and charter passenger service.

Massachusetts Statewide Airport System Plan (MSASP)

MassDOT Aeronautics Division conducted the MSASP to provide a strategic analysis of the statewide airport system of public use airports. The MSASP produced an extensive assessment of the current system's condition, as well as a guide for meeting its current and future needs. This plan provided tools to help facilitate the continued successful development of its aviation system, to respond to future challenges and to meet changes in demand in order to promote system sustainability. This effort included identifying roles for each airport in the state.

Taunton Municipal Airport is currently classified in the MSASP as a **Community/Business** airport. This is defined as an airport that serves a primary role in local economies, focused on supporting a variety of general aviation activities such as business, emergency service, recreational, and personal flying. It typically accommodates smaller general aviation aircraft including some multi-engine, but mostly single-engine aircraft.

2.1.5 Primary Airport Data

Table 2-2 below provides a summary of some of the important primary data elements for the Taunton Municipal Airport. Note that the most recent (2002) Airport Layout Plan (ALP) was utilized as the source for much of the data.

Table 2-2: TAN Primary Data – Existing Conditions

Airport Name	Taunton Municipal Airport
FAA Designation	TAN
Associated Town	Taunton, MA
Airport Owner	City of Taunton, MA
Airport Sponsor	Taunton Municipal Airport Commission
Airport Management	Full-time Airport Manager
Date Established	1919 (est)
Airport Roles	MSASP 2010: *Community/Business* FAA NPIAS: *General Aviation* FAA Asset Study: *Local*
Commercial Air Service	None
Part 139 Classification	*NA*
ARFF Index	*NA*
Airport Acreage	256 acres
Airport Reference Point (ARP)	Latitude: 41" 52' 28.0826"N Longitude: 071" 00' 58.7394"W
Airport Elevation	41.5 Mean Sea Level (MSL)
Area Mean Max. Temp.	82° F

Source: TAN ALP 2002; Airport Solutions Group.

2.1.6 Airport Services

Airports can provide a wide range of services in order to meet the varied demands of its individual market area. **Table 2-3** provides a general listing of Taunton Municipal Airport's current range of aviation-related services, as well as the entities located on-airport that provide them.

Table 2-3: TAN Airport Services – Existing Conditions

Service	Provider	Service	Provider
Commercial Air Service	-	General Aviation Terminal	TBD
Commercial Terminal	-	Pilots Lounge	TBD
Rental Cars	-	Aircraft Charter	-
Aviation Fuel *(100LL)*	TAN	Aircraft Leasing / Brokerage	AA
Aircraft Parking - Based *(Tiedowns)*	TAN	Aircraft Rental	PA
Aircraft Parking - Based *(Hangars)*	Multiple	Flight Training	PA, AAI
Aircraft Parking - Transient *(Tiedowns)*	TAN	Aircraft Interior Services	-
Aircraft Parking - Transient *(Hangars)*	-	Aircraft Detailing	-
Airframe Service	AA, SA, KK	Aircraft Catering	-
Powerplant Service	AA, SA, KK	Agricultural Spraying	-

Source: TAN ALP 2002; Airport Solutions Group.
Service Providers Key: TAN = Taunton Municipal Airport; TBD = To be determined; AA = American Aero; SA = Superior Aero; K&K Aircraft; AAI = Advanced Aircraft

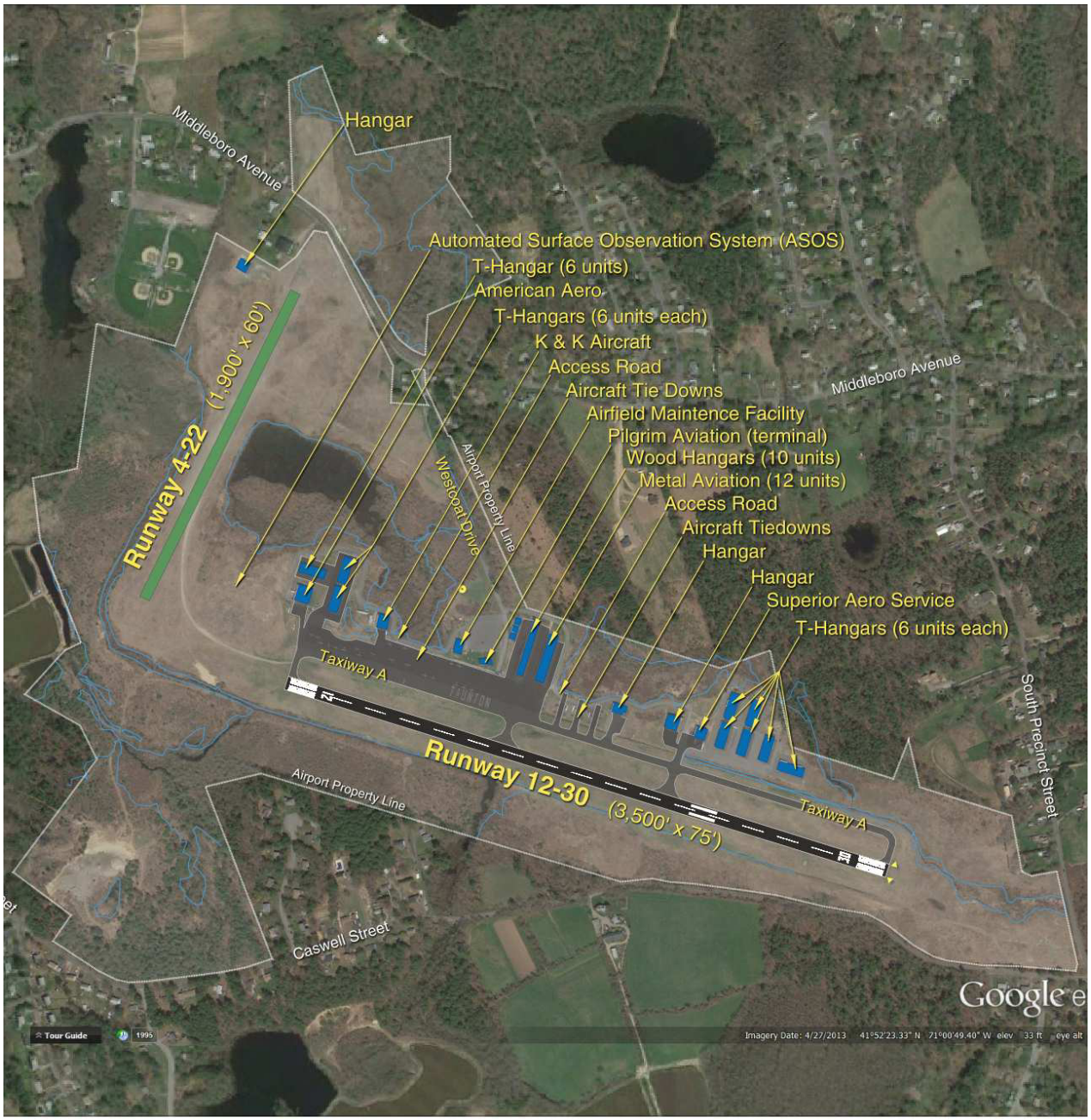
2.2 AIRSIDE FACILITIES

Taunton Municipal Airport is comprised of two runways – Runway 12-30 has a paved surface and is considered to be the primary runway, while Runway 4-22 has a turf/gravel surface and serves as a crosswind on a seasonal basis. Runway 12-30 also has a full parallel and connecting taxiways, which provide aircraft access to the terminal area and other facilities on the Airport. Runway 4-22 does not have any formally recognized taxiways, although there is a gravel path that allows for access to the runway from the terminal area. **Figure 2-3** and **Figure 2-4** provide graphic presentations of the existing airport facilities.

Figure 2-3: TAN Aerial Image

Source: Bing Maps 2014

Figure 2-4: Existing Airport Facilities



Source: Airport Solutions Group

2.2.1 Runways

Runway 12-30

The primary runway at the Airport has a designation of 12-30 and generally lies in a northwest /southeast orientation. It is 3,500 feet in length and 75 feet in width. The runway has a bituminous asphalt concrete surface with a recognized

gross weight bearing capacity of 21,000 pounds single wheel main landing gear configuration. The runway is equipped with Medium Intensity Runway Lights (MIRL), a four-light Visual Approach Slope Indicator (VASI) on the left side of Runway 30, and Runway End Identifier Lights (REILs). (Note that these are all Pilot Controlled Lighting (PCL) on 122.7 MHz.) Both Runway 12 and Runway 30 have non-precision instrument (NPI) approach runway markings, including centerline, runway designator (numerals), threshold markings, and aiming points (for Runway 30). The markings are in good condition and provide adequate contrast against the pavement surface. There is also a lighted windsock and a rotating beacon.

Runway 30 Approach

The Runway 30 end is served by a nonprecision area navigation (RNAV) Global Positioning System (GPS) approach and a Nondirectional Beacon (NDB) approach. Runway 12 has circling approaches based on Runway 30's approaches.

The runway was last reconstructed in 1998 and, according to the ***2013 MassDOT Pavement Management Report***, the pavement is in good condition with some longitudinal and transverse cracking and some weathering (see **Appendix B** for TAN Pavement Plan). Note that all cracking has been recently sealed through the MassDOT Airport Safety and Maintenance Program (ASMP).

A summary of the runway data has been provided below in **Table 2-4**.

Runway 4-22

Serving as the Airport's crosswind, Runway 4-22 generally lies in a northeast /southwest orientation. It is a turf/gravel runway that has been marked to be 1,900 feet long and 60 feet wide. It is not equipped with any runway lighting, markings, or instrument approaches. This runway is in poor condition with considerable unevenness, rutting, and some loose stones.

Table 2-4: Current Runway Data

Data Element	RWY 12	RWY 30	RWY 4	RWY 22
Length (ft)	3,000		1,900	
Width (ft)	75		60	
End Location – Latitude[1]	N 41° 52' 26.89"	N 41° 52' 16.39"	N 41° 52' 31.56	N 41° 52' 48.34"
End Location – Longitude[1]	W 071° 01' 11.34"	W 071° 00' 27.27	W 071° 01' 21.72"	W 071° 01' 10.50"
End Elevation (AMSL)	35.0	41.3	27.0	27.0
Threshold Displacement (ft)	None	None	None	None
Surface Type	Bituminous Concrete		Turf/Gravel	
Pavement Design Strength (lbs)	21,000 SW		NA	
Effective Gradient	-0.2%		0.00%	
Markings	Non-Precision	Non-Precision	None	
Edge Lighting	MIRLS		None	
Approach Lighting	None	None	None	
Visual Approach Aids	None	None	None	
Instrument Navigational Aids	Circling	RNAV(GPS) / NDB	None	

Source: Airport Solutions Group; FAA ASIS Data (1/9/2014)
[1] NAD83

2.2.2 Taxiways

Taxiway A

In addition to the runways, the airside facilities at Taunton Municipal Airport consist of a full-length parallel taxiway for Runway 12-30 that provides access to the terminal area and other aviation facilities. This taxiway (Taxiway A) is 35 feet wide and has with four exit/connector taxiways located on the north side of the runway. Additionally, all paved taxiways are equipped with Medium Intensity Taxiway Lights (MITL).

With respect to pavement conditions, the majority of Taxiway A was last constructed in 2005 and is in Very Good condition with the most prevalent distress in the form of moderate severity, longitudinal and transverse cracking and weathering. Note that all cracking has been recently sealed through the MassDOT ASMP. There is very little spalling, aggregate raveling, rutting, alligator cracking, or settlements that were evident due to heavy loading, unsuitable or variable subgrade materials, or frost conditions. There are no apparently settlements resulting from drainage or utility trench crossings. There does not appear to be significant rutting or settlements in the surface that would indicate severe structural deficiencies within the pavement section. Taxiway shoulders and safety areas appeared to be properly graded, structurally adequate, and well maintained.

It should also be noted that aircraft access to Runway 4-22 is available via a turf path that originates on west end of Taxiway A. There are also paved taxilanes that provide access to the maintenance hangars and T -hangars, as well as to aircraft tiedown areas.

2.2.3 Automated Surface Observation System (ASOS)

Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the FAA, and the Department of Defense, and serves as the nation's primary surface weather observing network. It is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. Installed in 1992 by the NWS, TAN's ASOS is located northwest of the American Aero Services hangar and provides on-site weather data collection and reporting capabilities. Without on-airport weather reporting, charter/air taxi flights may not be allowed to takeoff or land in instrument (poor) weather conditions. The ASOS collects and transmits weather data to pilots on a frequency of 132.675, and is also available by telephone on 508-824-5005. Criteria for locating an ASOS states that the wind sensor has to be above adjacent structures within a certain radius, cannot penetrate the Obstacle Free Area or Runway Safety Area, and that some of the sensors should be located within 500' to 1000' of the primary runway (visual and non-precision instrument). The present location of the ASOS meets current FAA siting criteria, which can be found at: www.ofcm.gov/siting/text/c-toc.htm.

2.3 LANDSIDE FACILITIES

Landside development at the Airport includes a terminal building, Fixed Base Operator (FBO) facilities, aircraft parking aprons, aircraft hangar facilities, fuel storage facilities, and access roadways.

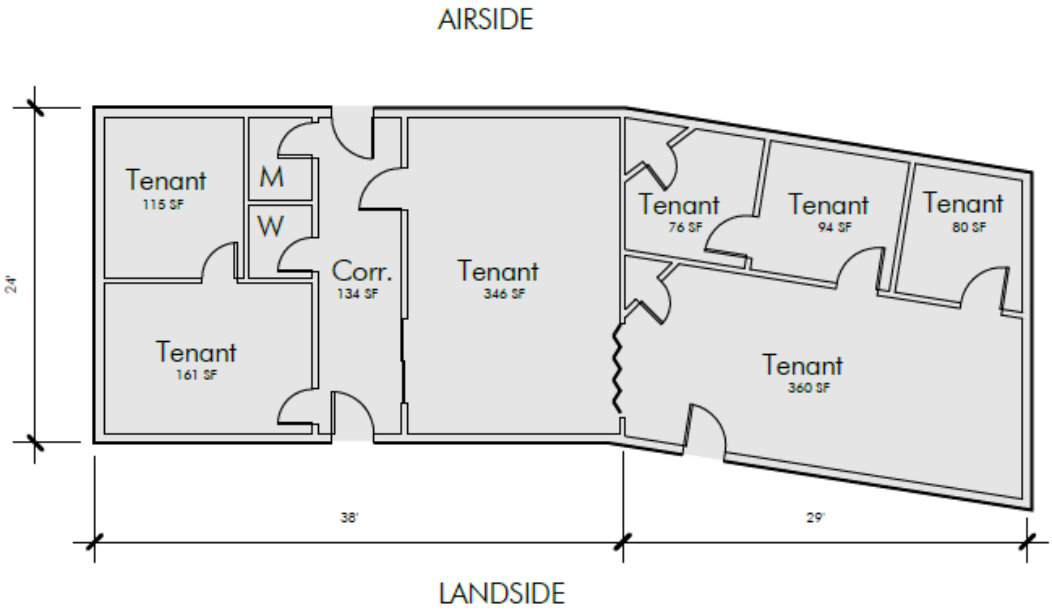
2.3.1 Terminal Building

The terminal building is located at the end of Westcoat Drive and is currently occupied by Pilgrim Aviation. The structure is approximately 67 feet by 24 feet (see **Figure 2-5**) and was apparently constructed in two distinct phases, with the original phase having a full basement (with signs of significant water damage) and the second phase having a crawl space. Currently, water for the building is provided by a well located under the second phase of the building. Additionally, the building does not have natural gas or three-phase power, and does not currently comply with the Americans with Disabilities Act (ADA) regulations.

The building serves as the operations center for Pilgrim Aviation, which includes its offices, training rooms, and lobby area, along with public bathrooms.

Terminal Building (Airside)

Figure 2-5: Existing Airport Terminal Building



Source: Strategic Master Plan for Terminal/ Administration Building Program at Massachusetts Airports 2014.

American Aero Services

2.3.2 Aircraft Hangar Facilities

Conventional Hangars

There are six conventional hangars located on the Airport, all of which have steel steel frames, aluminum siding with insulation, and oil-fired heaters. Three of these hangars are used for aircraft maintenance operators, including American Aero Services, Inc., K & K Aircraft, and Superior Aero Services, Inc. The six hangars have approximate sizes of 3,600 SF (60 feet x 60 feet), 7,200 SF (90 feet x 80 feet), 4,320 SF (72 feet x 60 feet), 3,000 SF (60 feet x 50 feet), 6,400 SF (80 feet x 80 feet), and 3,600 SF (60 feet x 60 feet). Respectively, they have an estimated capacity of four, eight, six, three, six, and four aircraft, for a total of 31 airplanes. All of the hangars have electrical connections, and some utilize a well and septic system.

T-Hangars

There are 11 buildings of nested T-hangars located in three areas along the flight line north of the runway. On the northwest end, there are currently three T-hangar structures (52 feet by 147 feet in size), each of which contains six individual hangar units. Located midfield on the Airport are the two oldest T-hangar units of the Airport: the "wood hangar", having 10 units (35 feet by 315 feet in size), and the "metal hangar", having 12 units (52 feet by 274 feet in size). It should be noted that in the vicinity are also three other individual "portable" hangars. On the southeast end of the Airport is the largest T-hangar complex with six T-hangar structures (52 feet by 147 feet in size), each containing six individual units. In total, there are 79 individual T-hangar units on the Airport, all of which are occupied. All of the T-hangar rows have electrical connections, but no other utilities.

TAN T-Hangars

2.3.3 Fixed Base Operator (FBO) Facilities

The administration of Taunton Municipal Airport serves as the sole fuel provider on the Airport. This traditional FBO service is supported by the Airport's fuel farm and administrative offices, located in the Airfield Maintenance Facility. Pilot facilities (e.g. restrooms, phone, weather reporting, etc.) are located in the Terminal Building, which also accommodates the Airport's flight school. Other FBO businesses located on the Airport provide aircraft maintenance services, including American Aero Services, Inc., K & K Aircraft, and Superior Aero Services, Inc. Their services are reflected above in **Table 2-3**.

2.3.4 Airfield Maintenance Facility

Airfield Maintenance Facility

The Airfield Maintenance Facility is approximately 60' by 74' and contains much of the Airport's Snow Removal Equipment (SRE), as well as some airfield maintenance equipment. (Equipment that is not able to be stored in the building due to space limitations is generally stored outside next to the building.) It is a metal sided building with three overhead doors located on each side of the

structure. Also included in the building is the Airport Manager's office, a conference room, and a bathroom (with water from the well under the Terminal Building and a septic for wastewater), as well as other general storage areas. Note that the building complies with the American with Disabilities Act (ADA) requirements for public access.

2.3.5 Aircraft Parking Aprons

The main tiedown apron is located in front of the terminal building and is approximately 60 feet by 470 feet in size. The entire apron was reconstructed in 2006 and is in very good condition. There are some signs of cracking (longitudinal and traverse) and some depressions in the tie-down locations. The apron has 57 marked aircraft tiedown positions.

Aircraft Parking Apron

2.3.6 Fuel Storage Facilities

The Airport has a single 10,000-gallon underground 100LL avgas fuel storage tank, which was installed in 1996. The tank is in full compliance with current U.S. Environmental Protection Agency (EPA) and Massachusetts regulations regarding underground storage tanks (UST). The tank is located on the main apron adjacent to the "wood" hangars, and aircraft are refueled adjacent to the fuel pump via a single hose. Note that fueling operations are conducted solely by Airport personnel – there is no self-fueling currently available. Additionally, there is no mobile fueler (truck) on the Airport.

As stated previously, the Airport is the sole proprietor of aviation fuel and receives deliveries of fuel approximately every six weeks throughout the year, indicating that there is more than sufficient storage and throughput capacity to meet current demand. There is no indication of congestion due to airplanes at the fuel pump, and there is sufficient room for aircraft to maneuver on the apron around airplanes that are being refueled.

Fuel Pump & Storage

2.3.7 Airport Access Roadways and Auto Parking

Access to the Airport is gained via Westcoat Drive, a paved two-lane road that extends from Middleboro Avenue to the terminal area. There are power and telephone cables on poles located along Westcoat Drive providing feed from Middleboro Avenue to the Airport. The roadway pavement is in fair condition, and its size is adequate for the existing volume of traffic. The Airport's automobile parking lot is located behind the terminal building and can accommodate approximately 87 cars, which is more than adequate capacity for normal operations. The parking lot pavement is in fair condition.

Airport Entrance Road

2.3.8 Airport Fencing

TAN has a security fence that completely encompasses the airport perimeter. The majority of the fence is eight (8) feet tall with fencing framing being standard galvanized steel pipe and the fencing fabric being black vinyl coated (9 gauge core). 12-foot wide swing gates have been installed to provide access to the airport at key locations. There are also two powered slide gates with key card access in the terminal area. It should be noted that there are portions of the fence that are only four (4) feet tall, most notably in the terminal area and in the northwest corner of the airport. Finally, large segments of the fencing are currently in disrepair with vegetation growing on the fencing, as well as fallen trees lying on and collapsing the fence. There is no security road or any clearance of vegetation on either side of most of the fence line.

2.3.9 Utilities

This section includes a review of the known utilities located both on-airport and off-airport. A detailed airport utilities plan has been provided in **Appendix C**.

Water

Municipal water is not available at the airport. The closest water main runs along Middleboro Avenue. An existing well provides water to the terminal building.

It is reported by the Taunton Water Department that the closest main that the airport could tap into is the 12-inch main running along Middleboro Avenue. While there is also a 30-inch gravity line running along Middleboro Avenue, the Water Department would want the Airport to tie into the l2-inch line.

Sewer

Airport Sewer

There are no existing sewer lines located in the vicinity of the airport. The existing municipal sewer line along Middleboro Avenue stops west of Richmond Pond. Based on the plans received from the Taunton Sewer Department, there is an existing 10-inch sewer line that runs along Liberty Street. At the intersection of Liberty Street and Caswell Street, the sewer line continues directly south across the intersection and extends onto Cardinal Court and Puffin Way to provide service to the housing development. Most of the sewer lines within the development are 8 inches in size. The existing sewer line along Liberty Street does not, however, extend along Caswell Street. There are no sewer lines along Caswell Street until approximately 3,000 feet west of the intersection of Liberty and Caswell Street. There are no sewer lines along Caswell Street to the east of the intersection.

The existing terminal building is serviced by a septic tank/field to handle the waste generated from the two bathrooms within the terminal. None of the FBOs at the airport have any form of septic field.

Electric

Existing power service to the airport is all single-phase (2,400V). Service extends down Middleboro Avenue to Westcoat Drive. Based on current demand levels, the Airport currently has an adequate power supply. If additional loads are created due to the expansion of an existing or new business at the Airport, Taunton Municipal Light and Power (TMLP) has the capacity in its current system to handle the loads.

Airport Power / Phone Poles

Telephone / Internet

Verizon provides the airport's telephone/internet services. The cable comes into the Airport via the existing aerial lines running down Westcoat Drive. The telephone cable (copper) currently servicing the airport has the capability of providing 125 separate services, with the option of providing additional capacity without physical improvements, indicating that there is still significant capacity left within the existing phone cable. Therefore, the airport has adequate telephone/internet service available to meet current and future needs.

Natural Gas

Columbia Gas of Massachusetts provides gas to East Taunton through an existing 6-inch wrought iron main running along Middleboro Avenue. There is also a 1-inch coated steel pipe running from the main to service one house off Westcoat Drive.

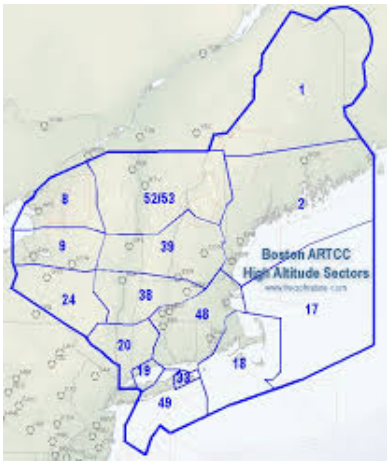
2.4 AIRSPACE SYSTEM / NAVIGATION AND COMMUNICATION AIDS

The Taunton Municipal Airport operates within the larger National Aviation System (NAS), which is comprised of a wide array of services, systems and requirements for airports as well as for the pilots that function within it. The following sections provide an overview of some of the Airport's key considerations with respect to navigating and operating within the NAS including a review of the following elements as they are related to Taunton Municipal Airport:

- Air Traffic Service Areas and Aviation Communications,
- the National Airspace System,
- Navigational Aids, and
- Part 77 Airspace Surfaces.

2.4.1 Air Traffic Service Areas and Aviation Communications

Within the continental United States, there are some 22 geographic areas that are under Air Traffic Control (ATC) jurisdiction. Air traffic services within each area are provided by air traffic controllers in Air Route Traffic Control Centers (ARTCC). The ARTCCs provide air traffic service to aircraft operating on Instrument Flight Rules (IFR) flight plans within controlled airspace, and primarily during the en route phase of flight. Those aircraft operating under Visual Flight Rules (VFR) that depend primarily on the "see and avoid" principle for separation,



Boston ARTCC Sectors

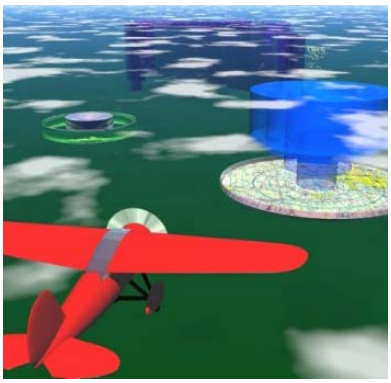
may also contact the ARTCC or other airport traffic control (ATC) services to request traffic advisory services. Traffic advisory service is used to alert pilots of other air traffic known in the vicinity of, or within the flight path of, the aircraft. The airspace overlying Taunton Municipal Airport is contained within the Boston ARTCC jurisdiction, which includes the airspace ranging from Maine to upstate New York and all of New England. The Taunton Municipal Airport can be found on the New York sectional chart.

Aircraft that are approaching or departing an airport are also subject to airspace and air traffic control that is designed to serve one primary purpose - the safe separation of one aircraft from another. At the Taunton Municipal Airport, clearance delivery, approach and departure services are actually provided by the Providence Air Traffic Control Tower (ATCT)

The primary means of controlling aircraft employed by air traffic controllers is computerized radar systems that are supplemented with two-way radio communications. Altitude assignments, speed adjustments, and radar vectors are examples of techniques used by controllers to ensure that aircraft maintain proper separation. The specified lateral and vertical separation criterion for aircraft used by controllers is as follows:

- Lateral Aircraft Separation: three miles (radar environment)
- Lateral Aircraft Separation: five miles (non-radar environment)
- Vertical Aircraft Separation: 1,000 feet (below 29,000 feet) and 2,000 feet (29,000 feet and above)

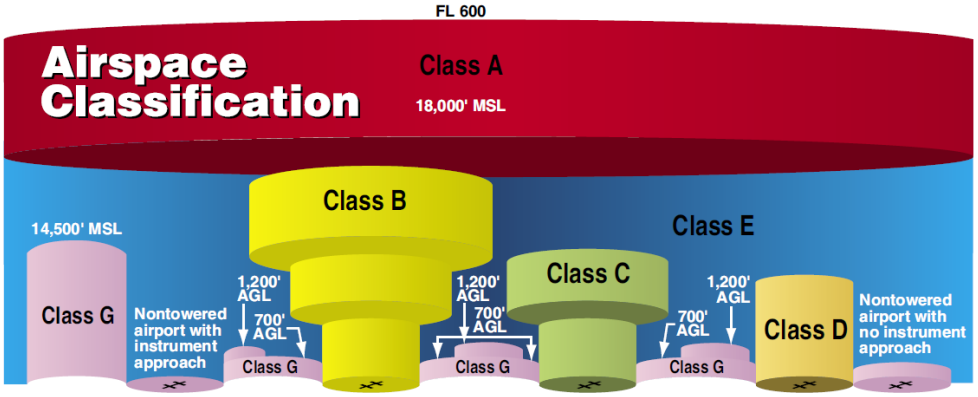
Aviation communication facilities associated with the Airport include the Common Traffic Advisory Frequency (CTAF) and Aeronautical Advisory Station (UNICOM) on frequency 122.7. Automated Surface Observing System (ASOS) weather data for Taunton Municipal Airport is available via telephone at (508) 824-5005 and on frequency 132.675. Approach and departure control is accessed on the Providence Approach/Departure frequency of 128.7. When Providence Approach Control is closed (Providence ATCT hours are between 5:45 am to 12:00 am), approach/departure service is provided by the Boston ARTCC on frequency 124.85.



2.4.2 Airspace

To ensure a safe and efficient airspace environment for all aspects of aviation, the FAA has established an airspace structure through the Federal Aviation Regulations (FAR) that regulates and establishes procedures for aircraft that use the National Airspace System. This airspace structure essential provides for two basic categories of airspace: controlled (classified as Class A, B, C, D, and E) and uncontrolled (classified as Class G). (**Figure 2-6** below generally illustrates each airspace type.)

Figure 2-6: Airspace Classifications Illustration



Source: FAA Pilot's Handbook of Aeronautical Knowledge

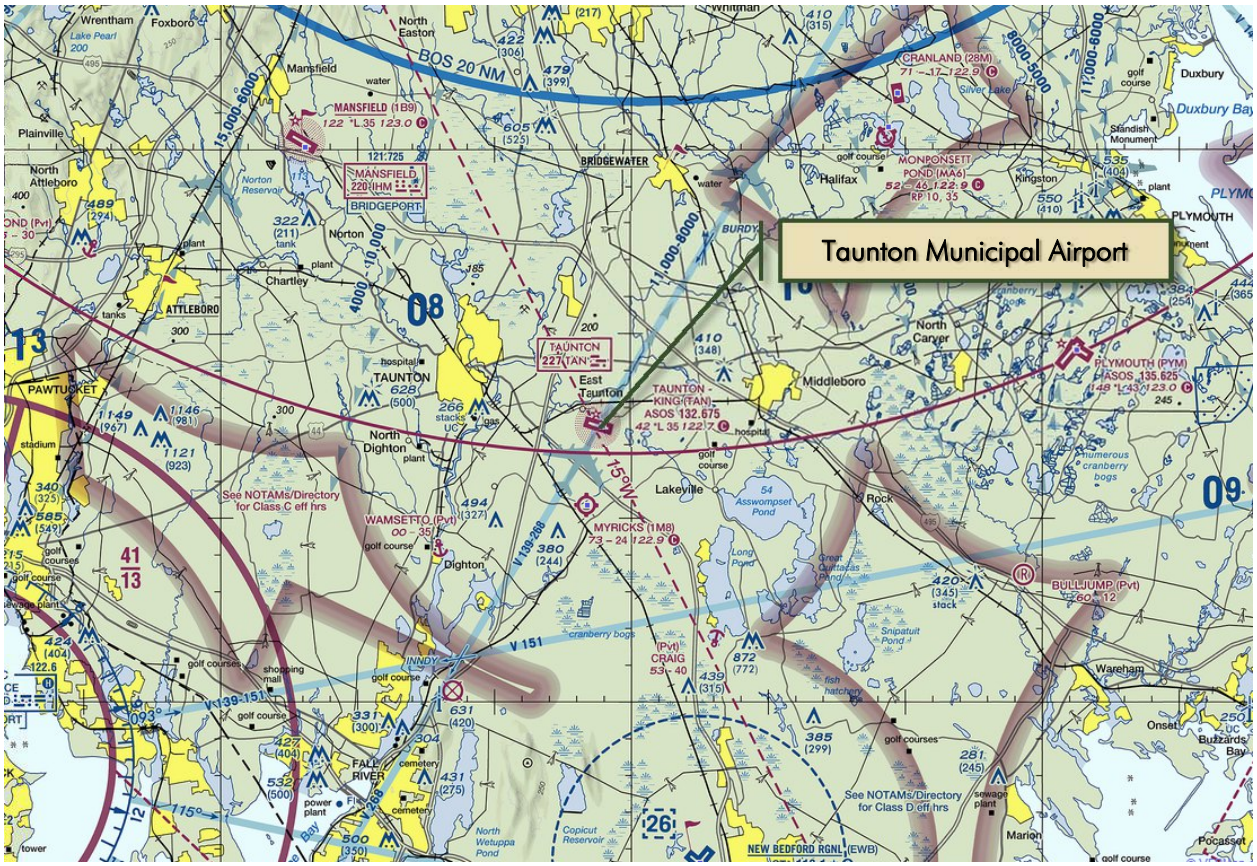
Further, FAR Part 71 and FAR Part 73 establish these classifications of airspace with the following characteristics:

- Class A airspace is generally the airspace from 18,000 feet mean sea level (MSL) up to Flight Level 600 (approximately 60,000 feet MSL). Unless otherwise authorized, all operation in Class A airspace is conducted under instrument flight rules (IFR).
- Class B airspace is generally airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace.
- Class C airspace is generally airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and have a certain number of IFR operations or passenger enplanements. Each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace.
- Class D airspace is generally airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. Unless otherwise authorized, each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace.
- If the airspace is not Class A, B, C, or D, and is controlled airspace, then it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. Only aircraft operating under IFR are required to be in contact with air traffic control when operating within Class E airspace.
- Class G or uncontrolled airspace is the portion of the airspace that has not been designated with any of the above classifications. It extends from

the surface to the base of the overlying Class E airspace. Although ATC has no authority or responsibility to control air traffic, pilots must still abide by visual flight rules (VFR) minimums in Class G airspace.

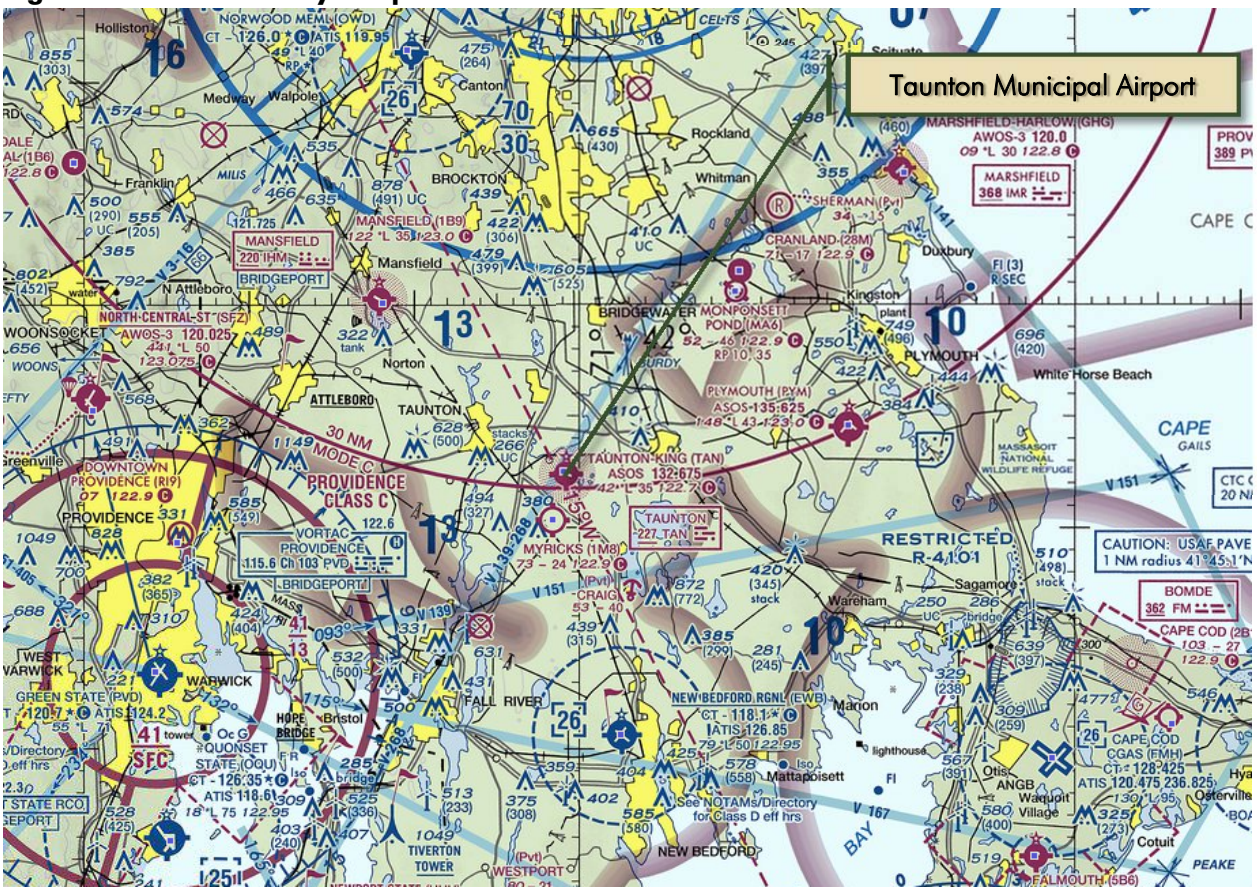
The Taunton Municipal Airport lies in **Class G** airspace, but only up to 700 feet above ground level (AGL) where the airspace transitions to **Class E,** which itself extends up to but not including 18,000 feet MSL (**Class A** airspace). **Figure 2-7** and **Figure 2-8** show a portion of the sectional aeronautical chart published by the FAA's National Aeronautical Charting Office for the immediate regional airspace around Taunton Municipal Airport. The magenta line indicates the limits of the Class E airspace. Note that unless otherwise indicated, the airspace outside of the Class E airspace is classified as Class G or uncontrolled.

Figure 2-7: TAN Immediate Airspace



Source: New York Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration

Figure 2-8: TAN Vicinity Airspace



Source: New York Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration

Navigational Aids (NAVAIDS)

A variety of navigational facilities are currently available to pilots around the Taunton Municipal Airport, whether located at the field or at other locations in the region. Many of these navigational aids are available to en route air traffic as well. The navigational aids (NAVAIDS) available for use by pilots in the vicinity of Taunton Municipal Airport are VOR/DME, VORTAC and NDB facilities. These NAVAIDS are listed below in **Table 2-5**.

A VOR/DME system is a Very High Frequency Omnidirectional Range Station (VOR) with Distance Measuring Equipment (DME) transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north. This DME equipment is used to measure, in nautical miles, the slant range distance of an aircraft from the navigation aid. There are three VOR/DMEs in range of TAN. A VORTAC (VHF Omnidirectional Range / Tactical Air Navigation) is a ground-based electronic navigation aid transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north, with equipment used to measure, in nautical miles, the slant range distance of an aircraft from the navigation aid. A VORTAC provides VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site. There is one VORTAC in range

of TAN. A non-directional beacon (NDB) is an L/MF radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and track to or from the station. There are five NDBs in range of TAN.

Table 2-5: NAVAIDS in Close Proximity to TAN

Type	ID	Name	Frequency	Radial	Range
VORTAC	PVD	PROVIDENCE	115.60	078°	20.6 nm
VOR/DME	BOS	BOSTON	112.7	198°	29.0 nm
VOR/DME	MVY	VINEYARD	114.5	343°	33.9 nm
VOR/DME	PUT	PUTNAM	117.4	111°	37.3 nm
NDB	TAN	TAUNTON	227	at field	-
NDB	IHM	MANSFIELD	220	150°	11.2 nm
NDB	IMR	MARSHFIELD	368	245°	20.3 nm
NDB	SKR	SHAKER HILL	251	184°	35.6 nm
NDB	PVC	PROVINCETOWN	389	268°	37.2 nm

Source: New York Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration.

There is also a network of low-altitude published federal airways (i.e., Victor airways), in the vicinity of Taunton Municipal Airport, which traverse the area and span between the regional ground-based VOR/DME and VORTAC equipment. Victor airways include the airspace within parallel lines located four nautical miles on either side of the airway and extend 1,200 feet above the terrain up to, but not including, 18,000 feet MSL. When an aircraft is flying on a federal airway below 18,000 feet average mean sea level MSL, the aircraft may be operating within Class B, C, or E airspace. Near Taunton Municipal Airport, there are three low altitude Victor airways (V151, V167, and V139) that utilize the nearby PROVIDENCE VORTAC located west of the Airport. Note that the Airport lies directly underneath V139.

There are two published instrument approached at the Taunton Municipal Airport – both for Runway 30. **Table 2-6** summarizes the approach and visibility minima of these published approaches. It should also be noted that TAN is scheduled to have a Localizer Performance with Vertical guidance (LPV) approach established on Runway 30 by 2015. **Figure 2-9** and **Figure 2-10** present are the current approach plates for these published instrument approaches.

Table 2-6: Lowest Published Instrument Approach Minima at TAN

Instrument Approach	Lowest Straight-In Minimums		Lowest Circling Minimums	
	Ceiling	Visibility	Ceiling	Visibility
RNAV (GPS) RWY 30	600'	1 mile	620'	1 mile
NDB RWY 5	700'	1 mile	700'	1 mile

Source: U.S. Terminal Procedures.

Figure 2-9: Instrument Approach Plate – RNAV (GPS) RWY 30

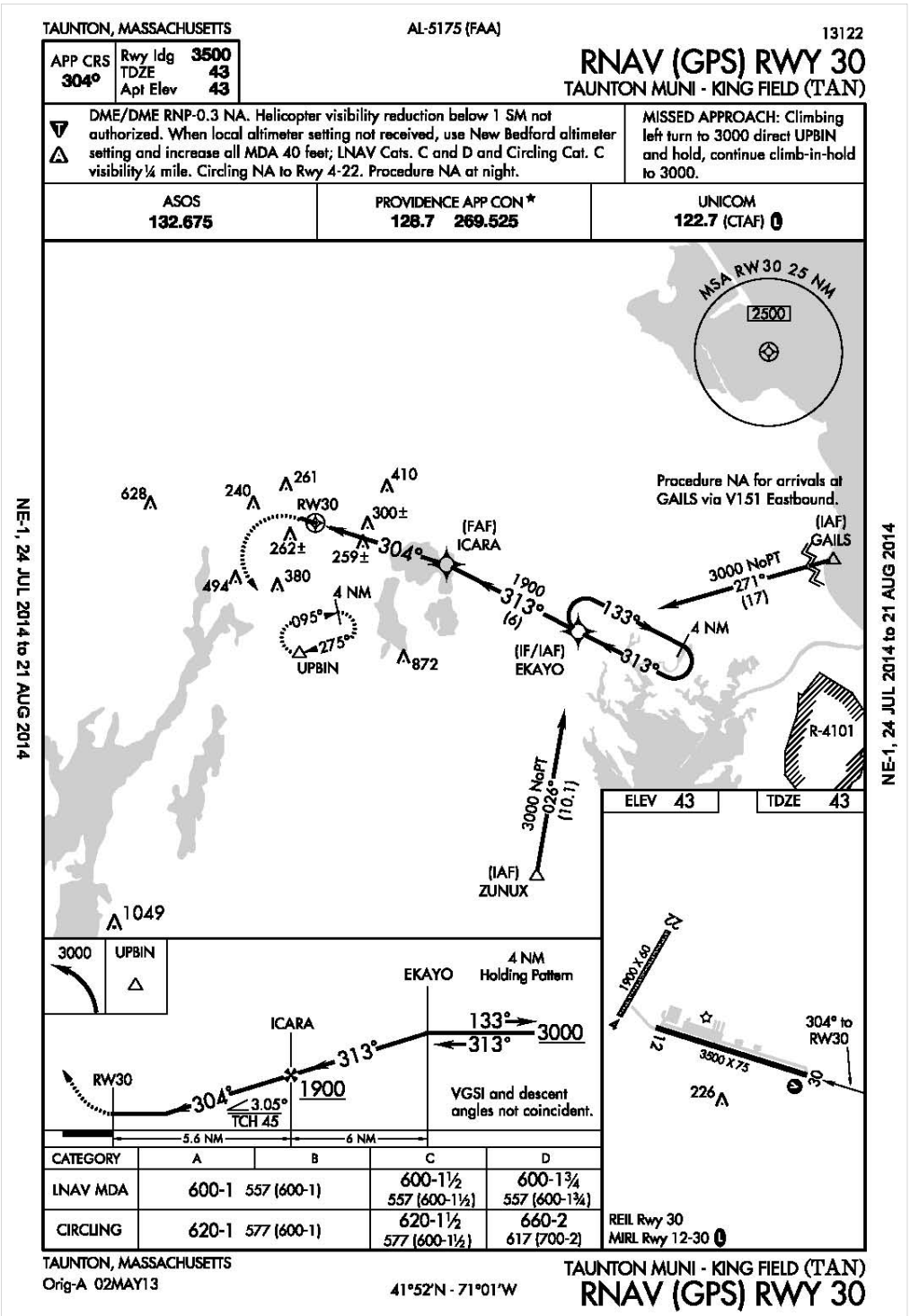
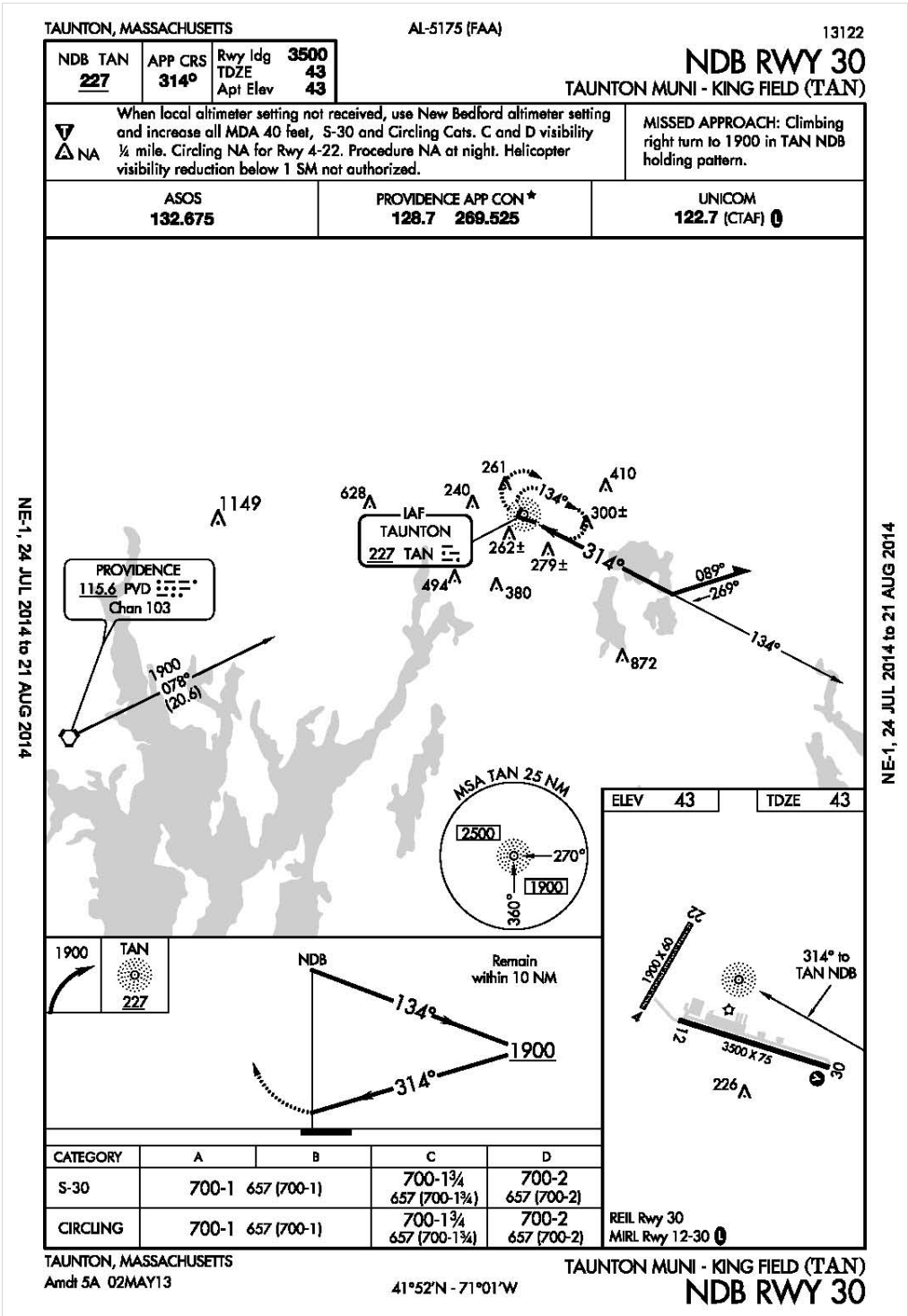


Figure 2-10: Instrument Approach Plate – NDB RWY 30

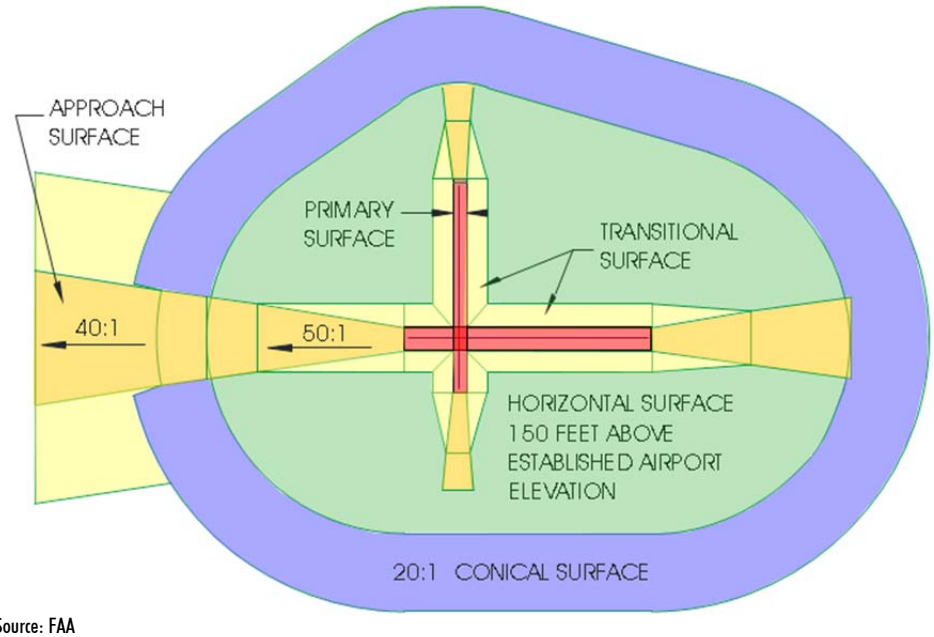


Part 77 Airspace Surfaces

Federal Aviation Regulations (FAR) Part 77, ***Objects Affecting Navigable Airspace***, is a tool used to protect the airspace over/around a given airport, and each of its runway approaches, from potential obstructions to air navigation. (It is important to note that as a federal regulation, all airports included in the NAS are subject to the requirements of Part 77.) To determine whether an object is an obstruction to air navigation, Part 77 establishes several imaginary airspace surfaces in relation to an airport and to each runway end. The dimensions and slopes of these surfaces depend on the configuration and approach categories of each airport's runway system. The size of the imaginary surfaces depends largely upon the type of approach to the runway in question. The principal imaginary surfaces are generally described below and are illustrated in **Figure 2-11**.

- Primary Surface: Longitudinally centered on the runway at the same elevation as the nearest point on the runway centerline.
- Horizontal Surface: Located 150 feet above the established airport elevation, the perimeter of which is established by swinging arcs of specified radii from the center of each the primary surface end, connected via tangent lines.
- Conical Surface: Extends outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.
- Approach Surface: Longitudinally centered on the extended centerline, and extending outward and upward from each runway end at a designated slope (e.g. 20:1, 34:1, 40:1, and 50:1) based on the runway approach.
- Transitional Surface: Extends outward and upward at a right angle to the runway centerline at a slope of 7:1 up to the horizontal surface.

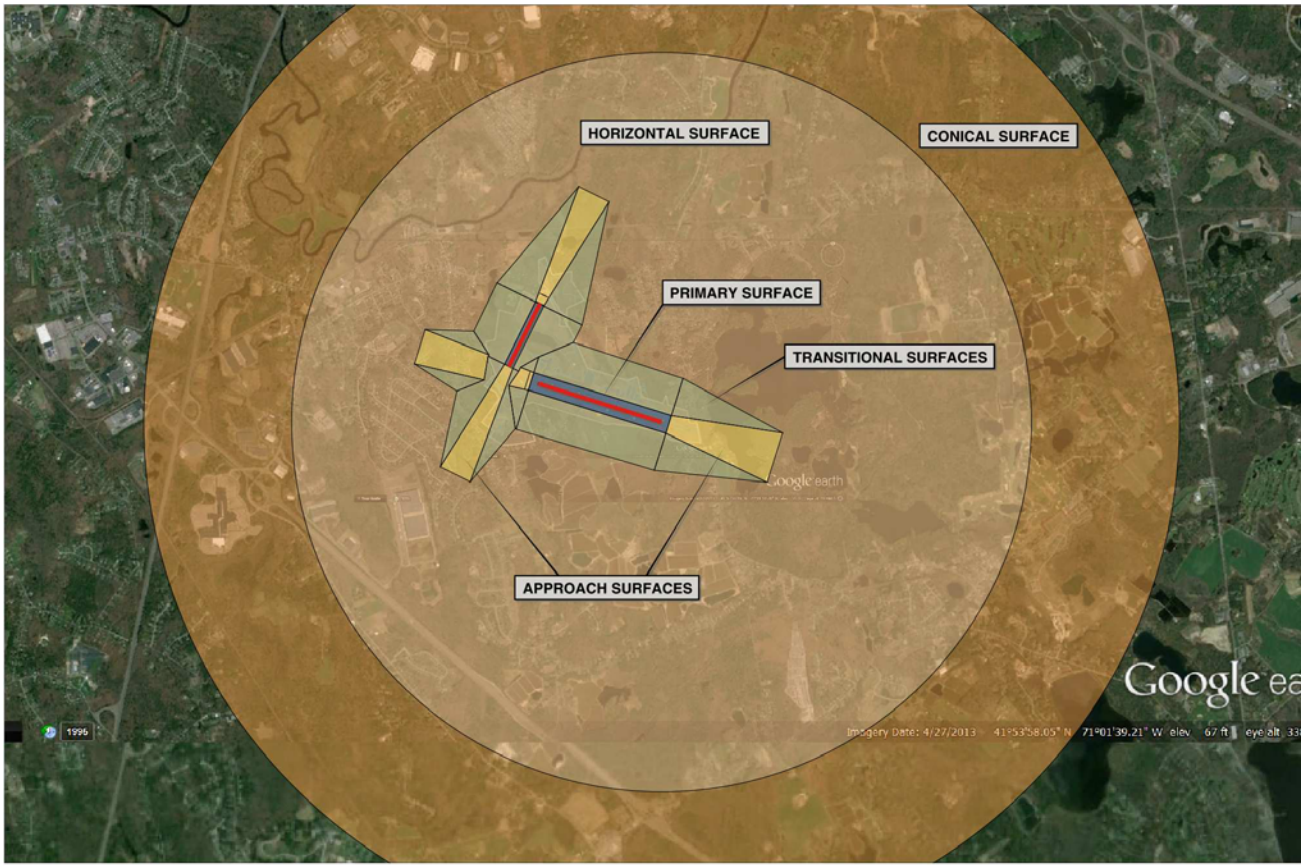
Figure 2-11: Part 77 Plan View



Source: FAA

Based on the current operational types and approaches presented in the previous sections, the current Part 77 airspace surfaces for Taunton Municipal Airport are reflected in **Figure 2-12** below. Note that greater details related to Part 77 are presented in the Airport Layout Plan (ALP) located in **Chapter Six:** ***Airport Plans***.

Figure 2-12: TAN Part 77 Plan View (current)

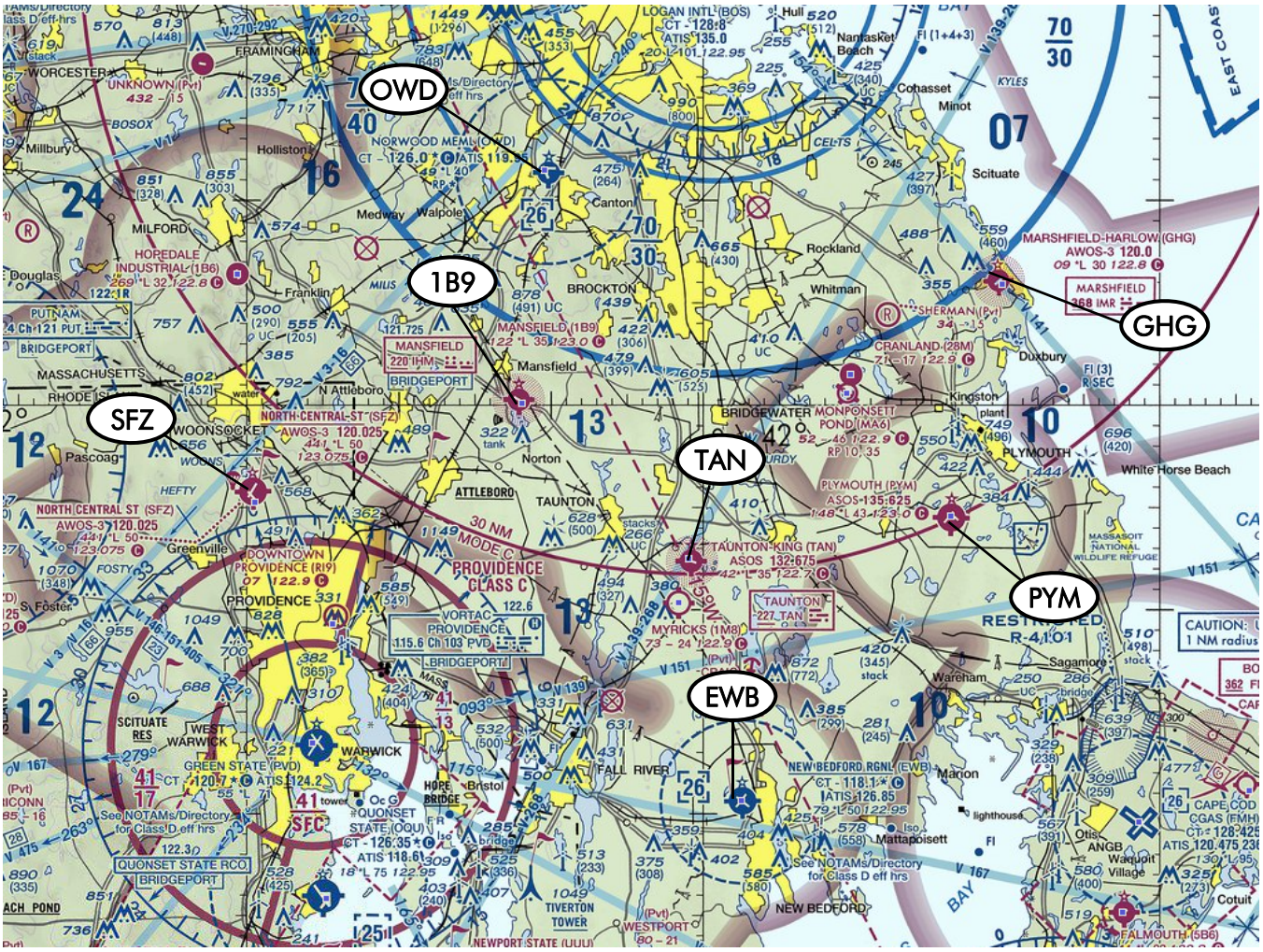


Source: Airport Solutions Group, Google Maps 2014.

2.5 AIRPORTS WITHIN THE REGION

An airport service area evaluation has been prepared, which identifies selected surrounding public-use airports in relative close proximity to Taunton Municipal Airport (see **Figure 2-13**). The evaluation also includes an assessment of these airports existing roles, airside facilities/services, and operational data (see **Table 2-7**). The information presented in the table below would indicate that those airports located closer to Taunton Municipal Airport, and providing similar facilities and services, will tend to exert a greater influence on the demands at the Airport. There are seven public-owned/public-use airports within 28 nautical miles of Taunton.

Figure 2-13: TAN Regional Airspace



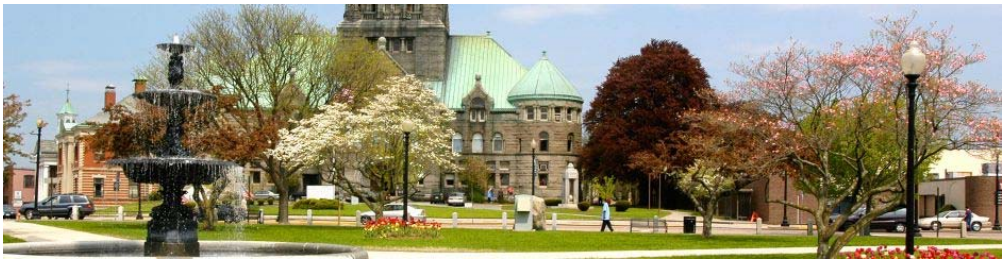
Source: New York Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration

Table 2-7: Area Airports Comparison

	Taunton Municipal	Norwood Memorial	Newport State	North Central	Mansfield Municipal	New Bedford Regional	Plymouth Municipal	Marshfield Municipal
Identifier	TAN	OWD	UUU	SFZ	1B9	EWB	PYM	GHG
City	Taunton, MA	Norwood, MA	Middletown, RI	Smithfield, RI	Mansfield, MA	New Bedford, MA	Plymouth, MA	Marshfield, MA
Ownership	Town of Taunton	Town of Norwood	State of RI	State of RI	Town of Mansfield	City of New Bedford	Town of Plymouth	Town of Marshfield
Airport Use	Public	Public	Public	Public	Public	Public	Public	Public
Location Relative to TAN	--	23 mi 20 nm NW	27 mi 24 nm SW	25 mi 22 nm W	13 mi 11 nm NW	14 mi 12 nm SE	15 mi 13 nm E	24 mi 21 nm NE
NPIAS	GA	Reliever	GA	Reliever	GA	Primary	GA	GA
Elevation	41.5 msl	49.2 msl	171.8 msl	441msl	121.5 msl	78.7 msl	148.1 msl	9.0 msl
Runways	RW 12/30 *Paved* *3,500' x 75'* RW 4/22 *Turf* *1,900' x 60'*	RW 10/28 *Paved* *3,995' x 75'* RW 17/35 *Paved* *4,008' x 100'*	RW 4/22 *Paved* *2,999' x 75'* RW 16/34 *Paved* *2,623' x 75'*	RW 5/23 *Paved* *5,000' x 100'* RW 15/33 *Paved* *3,211' x 75'*	RW 14/32 *Paved* *3,503' x 75'* RW 4/22 *Turf* 2,200' x 100'	RW 5/23 *Paved* *4,998' x 150'* RW 14/32 *Paved* *5,000' x 150'*	RW 6/24 *Paved* *4,350' x 75'* RW 15/33 *Paved* *3,351' x 75'*	RW 6/24 *Paved* *2,999' x 75'*
Instrument Approach	RNAV(GPS), NDB	RNAV(GPS), LOC	None	RNAV(GPS), LOC, VOR	RNAV(GPS), NDB	RNAV(GPS), NDB, LOC, ILS	RNAV(GPS), ILS	RNAV(GPS), NDB
NAVAIDS	Rotating Beacon, MIRL, VASI, REILs, ASOS	Rotating Beacon, MIRL, PAPI, MALSF	Rotating Beacon, MIRL, VASI, PAPI, ASOS	Rotating Beacon, MIRL, VASI, PAPI, REILs, MALS, AWOS	Rotating Beacon, MIRL, PAPI	Rotating Beacon, HIRL, PAPI, VASI, MALSR, REILs, ASOS	Rotating Beacon, MIRL, MALSF, REILs, PAPI, ASOS	Rotating Beacon, MIRL, VASI, REILs, AWOS
ATCT	None	Yes	None	None	None	Yes	None	None
Based Aircraft	SE: 102 ME: 2 Jet: 0 Helo: 5 UL: 0 GL: 0 ***Total: 109***	SE: 114 ME: 10 Jet: 8 Helo: 9 UL: 0 GL: 0 ***Total: 141***	SE: 29 ME: 3 Jet: 0 Helo: 0 UL: 0 GL: 0 ***Total: 32***	SE: 77 ME: 7 Jet: 0 Helo: 0 UL: 0 GL: 0 ***Total: 84***	SE: 87 ME: 2 Jet: 0 Helo: 0 UL: 0 GL: 0 ***Total: 89***	SE: 101 ME: 15 Jet: 2 Helo: 4 UL: 1 MIL: 0 ***Total: 121***	SE: 77 ME: 13 Jet: 4 Helo: 7 UL: 0 GL: 0 ***Total: 101***	SE: 33 ME: 1 Jet: 3 Helo: 1 UL: 2 GL: 0 ***Total 40***
Aircraft Storage	Tiedowns	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns, Hangars
Total Annual Operations	33,550	99,800	20,238	18,001	47,950	56,897	55,350	22,500
Avg. Ops. per Day	92	273	55	49	131	156	152	62
Airport Services	Avgas, Major Airframe, Major Powerplant	Avgas, Jet-A, Major Airframe, Major Powerplant	Avgas, Major Airframe, Major Powerplant	Avgas, Jet-A, Major Airframe, Major Powerplant	Avgas, Major Airframe, Major Powerplant	Avgas, Jet-A, Major Airframe, Major Powerplant	Avgas, Jet-A, Major Airframe, Major Powerplant	Avgas, Jet-A, Major Airframe, Major Powerplant
Acreage	256	688	221	475	235	847	754	232

Source: Website airnav.com, FAA Form 5010-1, Airport Master Record (effective date for all is 06/01/2014)
Notes: SE=Single Engine; ME=Multi-Engine; Jet=Business Jet; Helo=Helicopter; UL=Ultralight; MIL=Military; MSL=Mean Sea Level; MIRL=Medium Intensity Runway Lighting; ILS=Instrument Landing System; GPS=Global Positioning System; PAPI=Precision Approach Path Indicator; VASI=Visual Approach Slope Indicator; PLASI=Pulse Light Approach Slope Indicator; REIL=Runway End Identifier Lights; AWOS=Automated Weather Observing System; ASOS=Automated Surface Observing System; MALSR=Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights

2.6 AIRPORT ENVIRONS



The purpose of following sections is to place the Taunton Municipal Airport within its community and regional setting. This includes demographic and economic considerations in the City of Taunton and a brief discussion of other factors such as land use and environmental considerations.

2.6.1 Community Overview

As referenced on the City of Taunton's website, Taunton is one of the oldest towns in the United States having been founded in 1637 by members of the Plymouth Colony. Located in an area originally called Cohannet, Tetiquet and Titicut, Taunton is situated in the heart of southeastern Massachusetts, a mix of urban, suburban and rural landscapes with a population of over 600,000 in 808 square miles. Taunton is also known as the "Silver City", as it was an historic center of the silver industry beginning in the 19th century when companies such as Reed & Barton, F. B. Rogers, Poole Silver, and others produced fine-quality silver goods in the city.

According to the United States Census Bureau, the city has a total area of 48.4 square miles – of which, 46.7 square miles is land, and 1.7 square miles is water. Towns surrounding Taunton include Rehoboth on the west, by Norton and Easton on the north, Raynham and Lakeville on the east, and Dighton and Berkley on the south.

2.6.2 Taunton Demographics

According to the 2010 US Census, the City of Taunton had a population of 55,874 people, making it the 21st-largest city in Massachusetts by population. The population density of Taunton is 1,154 persons per square mile. The male/female split of the city's population is approximately 48/52. The racial makeup of the city's population is 83.7 percent white, 4.8 percent African-American, 4.8 percent of another race, and 6.7 percent describing themselves as having Hispanic or Latino origins.

2.6.3 Taunton Economy

Taunton has an industrial history with the first successful iron works in Plymouth Colony established on the Two Mile River in 1656 that operated for over 200 years. During the 19th century, Taunton became known as the "Silver City", as it was home to many silversmithing operations. Taunton was also home to several textile mills and other industries, such as felt and brick making. During the 19th century, Taunton was a major shipping point for grain from the inland rural farm areas of Massachusetts to the rest of the nation. Today, Taunton is home to Myles Standish Industrial Park, currently one of the largest in New England. At 805 acres and located in the northwest section of Taunton, the industrial park is currently home to over 100 businesses, including Verizon, Pepsi Co., General Dynamics, Waters Corporation, Perkins Paper, etc.

The 2010 per capita personal income for the City of Taunton was estimated to be $26,309, slightly lower than the national average of $26,881. Median household income for Taunton was estimated at $53,401, while the national median was $51,144, and Massachusetts' was $62,859.

TAN generates an estimated $2.2 million in total economic output for the local area, including 23 jobs (both on and off the airport)

Finally, Massachusetts airports are significant generators of revenues, wages, and jobs. The *Massachusetts Statewide Airport Economic Impact Study 2011* calculated the economic impact totals associated with individual airports within the Commonwealth. Through that process, it was established that not only do the airports themselves generate economic benefits, but many other non-aviation-related employers that contribute to building the State's economy rely on the Massachusetts airport system to support their daily business activities. Through that planning effort, the annual economic impact benefit of Taunton Municipal Airport for the local area was established at approximately $2.2 million, including $705,000 of payroll.

2.6.4 Existing Land Use and Zoning in the Airport Environs

Land Use and Zoning

Of critical interest to any airport is the degree to which it is compatible with surrounding land uses. Airport compatible land uses can be defined as "those uses that can co-exist with an airport without constraining the safe and efficient operation of the airport or exposing people living or working nearby to unacceptable levels of noise or hazards." This definition is intentionally broad since there are many variables that must be factored when considering whether a given land use is compatible with in an airport operational environment.

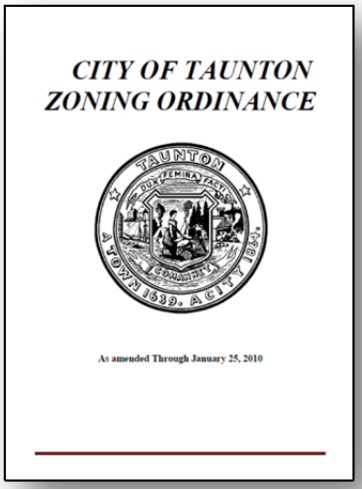
According to the City of Taunton's online municipal mapping website, the areas surrounding the Airport are comprised of a wide variety of land uses, including residential, agricultural, recreational, wetlands, urban public/institutional, brushland/successional and open land (see **Figure 2-14**). Note that potential incompatibilities lie all around the Airport due to many areas with residential development and zoning.

Figure 2-14: Airport Vicinity Land Use

Source: City of Taunton GIS 2014

Zoning regulations or ordinances are the method in which municipal government controls the physical development of land and the kinds of uses that may be developed for each individual property. Zoning typically segregates land uses into three main categories: residential; commercial; and industrial. Thus, if a section of a city is zoned residential to allow for housing, then no commercial uses, such as an auto body shop are allowed to be developed in that area. Typical zoning regulations also address things such as the height of a building, number of people that can occupy a building, lot area, setbacks, parking, signage, and density.

Figure 2-15 reflects the current zoning on and around Taunton Municipal Airport. The Airport itself is located within a dedicated Airport District (AD) that is defined in the *City of Taunton Zoning Ordinance (January 25, 2010)* as follows:


CITY OF TAUNTON
ZONING ORDINANCE

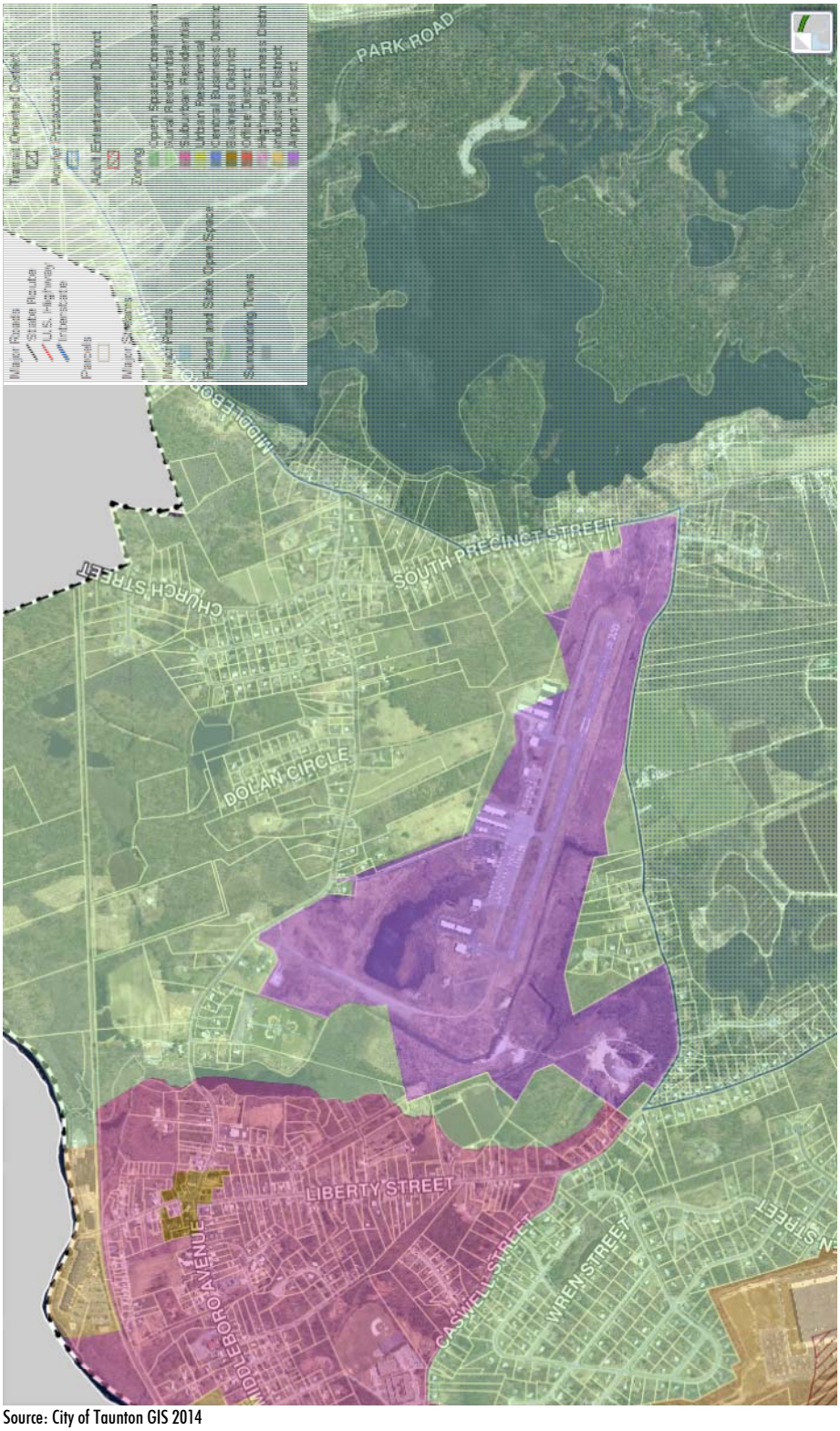
As amended Through January 25, 2010

> *The purpose of this district is to establish and preserve areas for uses intended and designed to primarily to serve the needs of the municipal airport.*

Also surrounding the Airport are the following zoning districts (including their definitions per the *Zoning Ordinance*):

> *<u>Rural Residential District (RRD)</u>*
> *The purpose of this district is to establish and preserve areas for residential development while maintaining the character of the rural landscape and open space. This district is intended to be the lowest density district in the City.*
>
> *<u>Suburban Residential District (SRD)</u>*
> *The purpose of this district is to establish and preserve areas for residential development while maintaining the atmosphere of open space. Density requirements shall be greater than the Rural Residential District and lower than the Urban Residential District.*
>
> *<u>Open Space and Conservancy District</u>*
> *The purpose of this district is to establish and preserve areas for government facilities and open space.*

Figure 2-15: Airport Vicinity Zoning



Source: City of Taunton GIS 2014

2.6.5 Local Comprehensive Planning

A local comprehensive plan is a strategic long-range document that addresses land use and zoning as it relates to growth and development of a municipality. With respect to an airport that lies within a community, it is critical that local comprehensive planning efforts acknowledge and address the issue of land use compatibility near an airport.

The last comprehensive plan for the City of Taunton was completed in 1997, and is no longer current. An update to that plan is not currently forecasted.

2.6.6 Environmental Setting and Considerations

Environmental concerns and possible hazards are an important consideration for any public use airport, including Taunton Municipal Airport. This environmental overview takes as its guide the requirements of and the Impact Categories listed in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*.

Air Quality

This section describes the existing air quality conditions at the Airport. An overview has been provided of the regulations that establish standards for the pollutants, and Taunton's current attainment of these standards has been reported. Laws governing Air Quality include the following:

- Clean Air Act, as amended [42 U.S.C. 7401-7671] [P.L. 91-604, P.L. 95-95, P.L. 101-549];
- EPA air regulations, 40 CFR Parts 50 and 51; and
- Massachusetts regulations, 310 CMR 6 and 310 CMR 7.

<u>National Ambient Air Quality Standards</u>
The 1970 Clean Air Act was enacted by the U.S. Congress to protect the health and welfare of the public from the adverse effects of air pollution. As required by the Clean Air Act, EPA promulgated National Ambient Air Quality Standards (NAAQS) for these criteria pollutants: nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM) (PM10 and PM2.5), carbon monoxide (CO), ozone (O_3), and lead (Pb).

Massachusetts has developed Massachusetts Ambient Air Quality Standards (MAAQS), which generally follow the EPA NAAQS. **Table 2-8** summarizes the standards as currently presented by the EPA and MassDEP. Note that MAAQS generally follow the NAAQS but are not identical in all respects.

Table 2-8: National & Massachusetts Ambient Air Quality Standards

Pollutant	Averaging Period	National Ambient Air Quality Standards (micrograms per cubic meter)		Massachusetts Ambient Air Quality Standards (micrograms per cubic meter)	
		Primary	Secondary	Primary	Secondary
NO_2	Annual [1]	100	Same	100	Same
	1-hour [7]	188	None	None	None
SO_2	Annual [1]	80	None	80	None
	24-hour [2]	365	None	365	None
	3-hour [2]	None	1,300	None	1300
	1-hour [7]	196	None	None	None
PM10 [6]	Annual	None	Same	50	Same
	24-hour [3]	150	Same	150	Same
PM2.5	Annual [4]	12	15	None	None
	24-hour [5]	35	Same	None	None
CO	8-hour [2]	10,000	Same	10,000	Same
	1-hour [2]	40,000	Same	40,000	Same
Ozone	8-hour [8]	147	Same	235	Same
Pb	3-month [1]	1.5	Same	1.5	Same

Source: 40 CFR 50 and 310 CMR 6.00; Epsilon Associates.
[1] Not to be exceeded
[2] Not to be exceeded more than once per year.
[3] Not to be exceeded more than an average of one day per year over three years.
[4] Not to be exceeded by the arithmetic average of the annual arithmetic averages from 3 successive years.
[5] Not to be exceeded based on the 98th percentile of data collection.
[6] Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, EPA revoked the annual PM10 standard in 2006 (effective December 17, 2006). However, the annual standard remains codified in 310 CMR 6.00
[7] Not to be exceeded. Based on the 3-yr average of the 98th (NO2) or 99th (SO2) percentile of the daily maximum 1-hour concentrations.
[8] Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years.
[9] EPA revoked the annual and 24-hour SO2 NAAQS in 2010. However they remain in effect until one year after the area's initial attainment designation, unless designated as "nonattainment".

NAAQS specify concentration levels for various averaging times and include both "primary" and "secondary" standards. Primary standards are intended to protect human health, whereas secondary standards are intended to protect public welfare from any known or anticipated adverse effects associated with the presence of air pollutants, such as damage to vegetation.

A one-hour NO_2 standard became effective on April 12, 2010. The form of this standard is the three-year average of the 98th percentile of the daily maximum one-hour concentrations. A new one-hour SO_2 standard became effective on August 23, 2010. The form of this standard is the three-year average of the 99th percentile of the daily maximum one-hour concentrations. Although the eight-hour ozone standard has been revised (2008), the 1997 ozone standard (0.08

ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place.

The NAAQS also reflect various durations of exposure. The short-term periods (24 hours or less) refer to exposure levels not to be exceeded more than once a year. Long-term periods refer to limits that cannot be exceeded for exposure averaged over three months or longer.

The inhalable particulate (PM10) NAAQS were promulgated on July 1, 1987 at the federal level with the intent of replacing the existing standards limiting ambient levels of Total Suspended Particulate (TSP). EPA also promulgated a Fine Particulate (PM2.5) NAAQS, effective December 2006, with an annual standard of 15 micrograms per cubic meter (μg/m3) and the 24-hour standard of 35 $\mu g/m^3$. The primary annual PM2.5 standard has since been strengthened to 12 $\mu g/m^3$ while 15 $\mu g/m^3$ remains as a secondary standard.

The standards were developed by EPA to protect the human health against adverse health effects with a margin of safety.

Ambient Air Quality

To estimate pollutant levels representative of the Taunton Municipal Airport area, the most recent air quality monitor data reported by the MassDEP in their Annual Air Quality Reports was obtained for the years 2012 to 2014.

The Clean Air Act allows for one exceedance per year of the CO and SO_2 short-term NAAQS per year. The highest second-high accounts for the one exceedance. Annual NAAQS are never to be exceeded. The 24-hour PM10 standard is not to be exceeded more than once per year on average over three years. To attain the 24-hour PM-2.5 standard, the three-year average of the 98th percentile of 24-hour concentrations must not exceed 35 $\mu g/m^3$. For annual PM-2.5 averages, the average of the highest yearly observations was used as the background concentration. A new 1-hr NO_2 standard was recently promulgated. To attain this standard, the 3-year average of the 98th percentile of the maximum daily 1-hour concentrations must not exceed 188 $\mu g/m^3$.

Ambient pollutant concentrations were determined from the closest available monitoring stations to the proposed development. All pollutants are not monitored at every station, so data from multiple locations are necessary. The closest monitors are at Harrison Avenue in Boston, and Commercial Street in Brockton. A summary of the ambient air quality concentrations in the region are presented in **Table 2-9**.

Table 2-9: Observed Ambient Air Quality Concentrations and Selected Background Levels

Pollutant	Averaging Time	2012	2013	2014	Background Concentration (µg/m³)	Location
SO_2 [1,7,8]	1-Hour	31.7	28.8	32.2	30.9	Harrison Ave., Boston
	3-Hour	35.1	*25.4*	*56.3*	56.3	Harrison Ave., Boston
	24-Hour	13.1	*13.1*	*13.4*	13.4	Harrison Ave., Boston
	Annual	2.9	2.6	2.5	2.9	Harrison Ave., Boston
PM-10	24-Hour	32.0	34.0	61.0	61.0	Harrison Ave., Boston
	Annual	14.1	15.0	13.9	15.0	Harrison Ave., Boston
PM-2.5	24-Hour[4]	21.5	17.0	12.2	16.9	120 Commercial St, Brockton
	Annual[5]	7.9	6.6	5.7	6.7	120 Commercial St, Brockton
NO_2 [3]	1-Hour[6]	82.7	94.0	95.9	90.9	Harrison Ave., Boston
	Annual	29.7	32.8	29.6	32.8	Harrison Ave., Boston
CO [2]	1-Hour	2521.2	2143.0	1963.1	2521.2	Harrison Ave., Boston
	8-Hour	1833.6	1260.6	1260.6	1833.6	Harrison Ave., Boston

Source: 2012-2014 MA DEP Annual Data Summaries. Missing data (in italics) from EPA's AirData Website; Epsilon Associates.
[1] SO_2 reported ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 2.62 $\mu g/m^3$.
[2] CO reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1146 $\mu g/m^3$.
[3] NO_2 reported in ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 1.88 $\mu g/m^3$.
[4] Background level is the average concentration of the three years.
[5] The 24-hour and Annual standards were revoked by EPA on June 22, 2010, Federal Register 75-119, p. 35520.

Air quality in the vicinity of the Airport is generally good, with all local concentrations found to be well below their respective NAAQS.

Federal Attainment Designations

Section 107 of the 1977 Clean Air Act Amendment requires that the USEPA publish a list of all geographic areas in compliance with the NAAQS, plus those not attaining the NAAQS. Areas not in NAAQS compliance are deemed non-attainment areas. Areas that have insufficient data to make a determination are deemed unclassified, and are treated as being attainment areas until proven otherwise. An area's designation is based on the data collected by the state monitoring network on a pollutant-by-pollutant basis. The attainment status for each pollutant is shown in **Table 2-10**.

Table 2-10: Bristol County Attainment Status

Pollutant	Status
Sulfur Dioxide (SO_2) (all averaging times)	Better than national standards (Attainment)
Carbon Monoxide (CO) (1- and 8-hour)	Attainment
Ozone (O_3) (1- and 8-hour)	Nonattainment (Serious for 1-hour and Moderate for 8-hour)
Particulate Matter (PM10) (24-hour)	Unclassifiable/Attainment
Nitrogen Dioxide (NO_2) (annual and 1-hour)	Better than national standards (Attainment) for annual and Unclassifiable/Attainment for 1-hour
Particulate Matter (PM2.5) (annual and 24-hour)	Unclassifiable/Attainment
Lead (Quarterly)	Unclassifiable/Attainment

Source: 40 CFR 81.322; Epsilon Associates.
[3] The 1-hour ozone standard is revoked effective June 15, 2005 for all areas in Massachusetts.

State Implementation Plan

Massachusetts is currently designated as nonattainment for ozone. In order for states with nonattainment areas to show their intent to meet the NAAQS in a timely manner, they are required to compose plans outlining realistic methods to do so in the required timeframe.

Massachusetts currently has an approved SIP for 1-hour ozone (from 2002) and an approved SIP for 8-hour ozone (from 2009).[1]

Coastal Resources

Coastal resources in Massachusetts are protected under the following federal and state statutes and regulations:

- Coastal Barrier Resources Act of 1982 as amended by the Coastal Barrier Improvement Act of 1990 (16 U.S.C. 3501-3510) (PL 97-348); U.S. Department of Interior Coastal Barrier Act Advisory Guidelines (57 FR 52730, November 5, 1992).
- Coastal Zone Management Act as amended (16 U.S.C. 1451-1464) (PL 92-583); 15 CFR part 930, subparts C and D, 15 CFR part 923.
- Massachusetts Wetlands Protection Act (M.G.L. ch. 131, §40); Massachusetts Wetlands Regulations (310 CMR 10.00).

The Massachusetts coastal zone is the "area bounded by the seaward limit of the state's territorial sea (generally 3 miles from shore) to 100 feet landward of specified major roads, railroads, or other visible right-of-way." The Taunton

[1] See http://www.mass.gov/eea/agencies/massdep/air/reports/final-ma-sip-revision-8-hour-ozone-attainment.html.

Municipal Airport is located outside the coastal zone – it is approximately 3.7 miles from the shore. Resource areas on the Airport property are limited to inland freshwater wetlands and streams.

Compatible Land Use

The FAA reviews Compatible Land Use under the Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 47501-47507) and 14 CFR Part 150, and assumes that an airport's compatibility with surrounding land uses is generally associated with an airport's noise impacts. In this regard, Taunton Municipal Airport is located within a dedicated Airport District[2]. As discussed previously, land use in the area surrounding the Airport is a varied including: Brushland/Successional, Cemetery, Open Land (Transitional), Recreation, Wetlands, Agricultural, and Residential. Brushland/Successional, Residential, and Agricultural dominate the surrounding area. See **Figure 2-14** above for a visual representation of existing land uses. Existing noise conditions in the vicinity of the Airport are typical of areas containing the surrounding land uses. Aircraft operating from the Airport must meet requirements of 14 CFR, section 36.103, which outlines aircraft noise limits. Additionally, the Airport has voluntary noise abatement procedures that request that aircraft departing Runway 30 avoid flying over the Martin School by climbing to 500 feet and then turning left to heading 260. Helicopters and rotorcraft are also to avoid overflights of populated areas located west and south of the Airport. There should be no touch and go landings between 9pm and 6am, and airplanes should conduct run-ups short of the Runway 30 threshold.

Section 4(f)

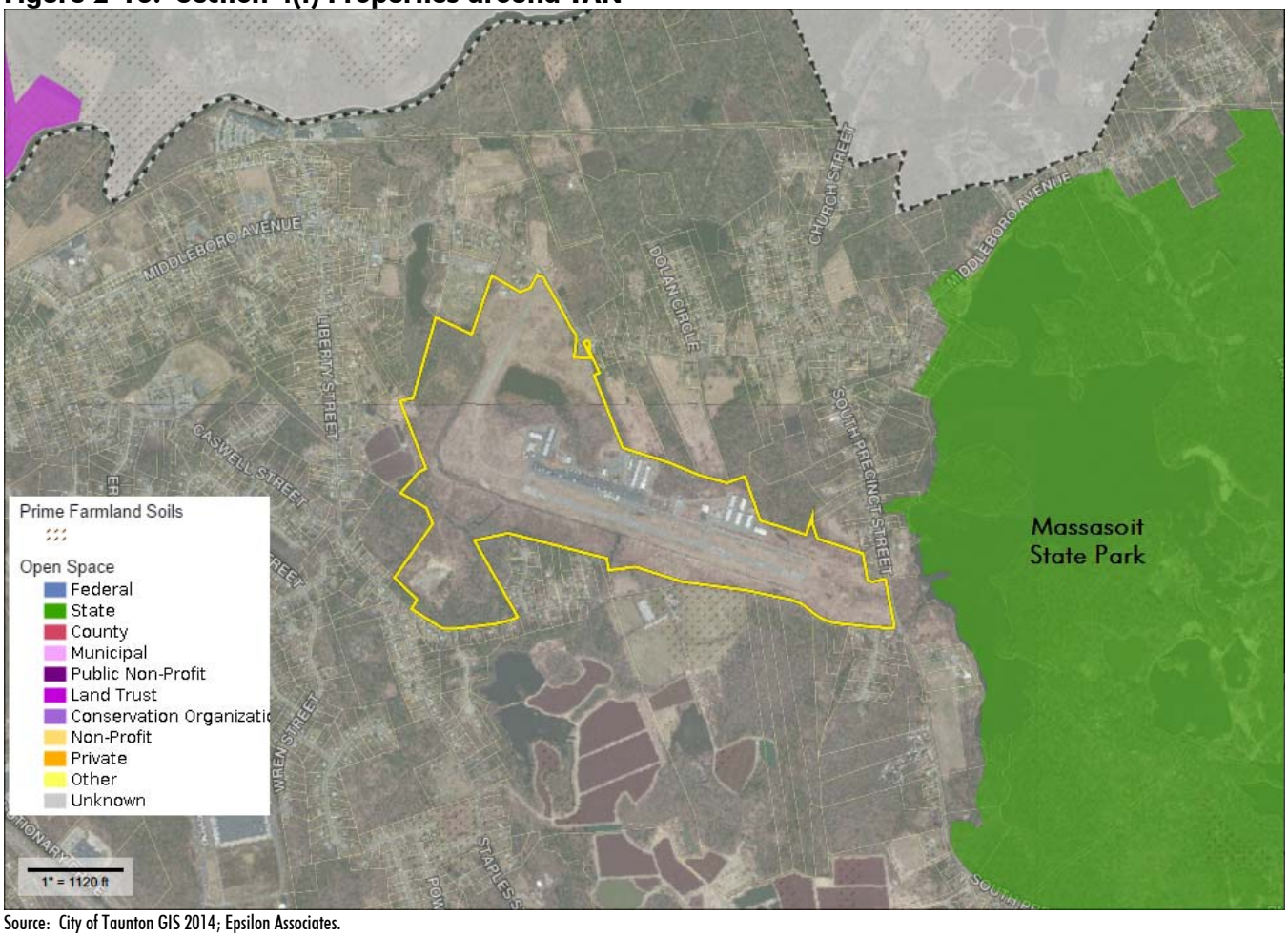
The Department of Transportation Act of 1966, section 4(f), recodified at 49 U.S.C. 303(c), requires the consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development in projects that receive funding from or require approval by an agency of the U.S. Department of Transportation.[3] Section 4(f) provides that the "Secretary shall not approve any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge of national, state or local significance; or land of a historical site of national, state or local significance as determined by officials having jurisdiction thereof unless there is not feasible and prudent alternative to the use of such land, and such program or project includes all possible planning to minimize harm from the land use."

There are no 4(f) lands on Taunton Municipal Airport. The only 4(f) land located in the vicinity of the Airport is Massasoit State Park (see **Figure 2-16**) located approximately 1,200 feet east of the Airport's eastern border and separated from the Airport by South Precinct Road and residential lands. Massasoit State Park is

[2] See http://www.mapgeo.com/tauntonma/#
[3] See http://environment.fhwa.dot.gov/4f/

an approximately 1,200 acre State Park managed by the Massachusetts Department of Conservation and Recreation and is protected under Article 97 of the Amendments to the Constitution of the Commonwealth.[4]

Figure 2-16: Section 4(f) Properties around TAN



Source: City of Taunton GIS 2014; Epsilon Associates.

Farmlands

The Farmland Protection Policy Act (7 U.S.C. 4201-4209) (PL 97-98 amended by section 1255 of the Food Security Act of 1985, PL 99-198) addresses the conversion of farmland to non-agricultural uses. In Massachusetts, Executive Order 193 (March 19, 1981) is intended to avoid or minimize the conversion of farmland to non-agricultural uses.

The Farmland Protection Policy Act requires coordination with the local office of the U.S. Department of Agriculture, Natural Resources Conservation Service if a proposed project includes irreversible conversion of prime farmland to

[4] See http://www.mass.gov/eea/agencies/dcr/massparks/region-south/massasoit-state-park.html

nonagricultural uses.[5] Farmland subject to this requirement does not have to be currently used for cropland; it may be forested or pasture, but not urban or built-up land. With the exception of a stream located on the opposite, or southern, side of Taunton Municipal Airport that is used to supply irrigation water to cranberry bogs located outside of the Airport property, there is no active farmland, forest or pasturelands on the Airport. Additionally the majority of the Airport can be considered built or managed, so there will be no conversion of farmland to any other use.

The NRCS also identifies and maps soils that have ideal combinations of physical and chemical attributes for a variety of farming uses; these are identified as Prime Farmland, Farmland of Unique Importance, and Farmland of Statewide Importance. Prime Farmland are those areas with ideal farming conditions; Farmland of Unique Importance are those soil types that high-value crops require; and Farmland of Statewide Importance are those soils that do not meet the previous grouping criteria, but are important at the state or local level. Information on Massachusetts soils can be found at http://nesoil.com/important.html. As depicted on **Figure 2-17**, three soil map units on the Airport mapped as Deerfield, Hickley, and Windsor soil series are considered Farmland of Statewide Importance while the Freetown series is considered Farmland of Unique Importance as classified as Prime farmland in the October 1981 Soil Survey of Bristol County, Massachusetts (by Rino J. Roffinoli and Peter C. Fletcher).

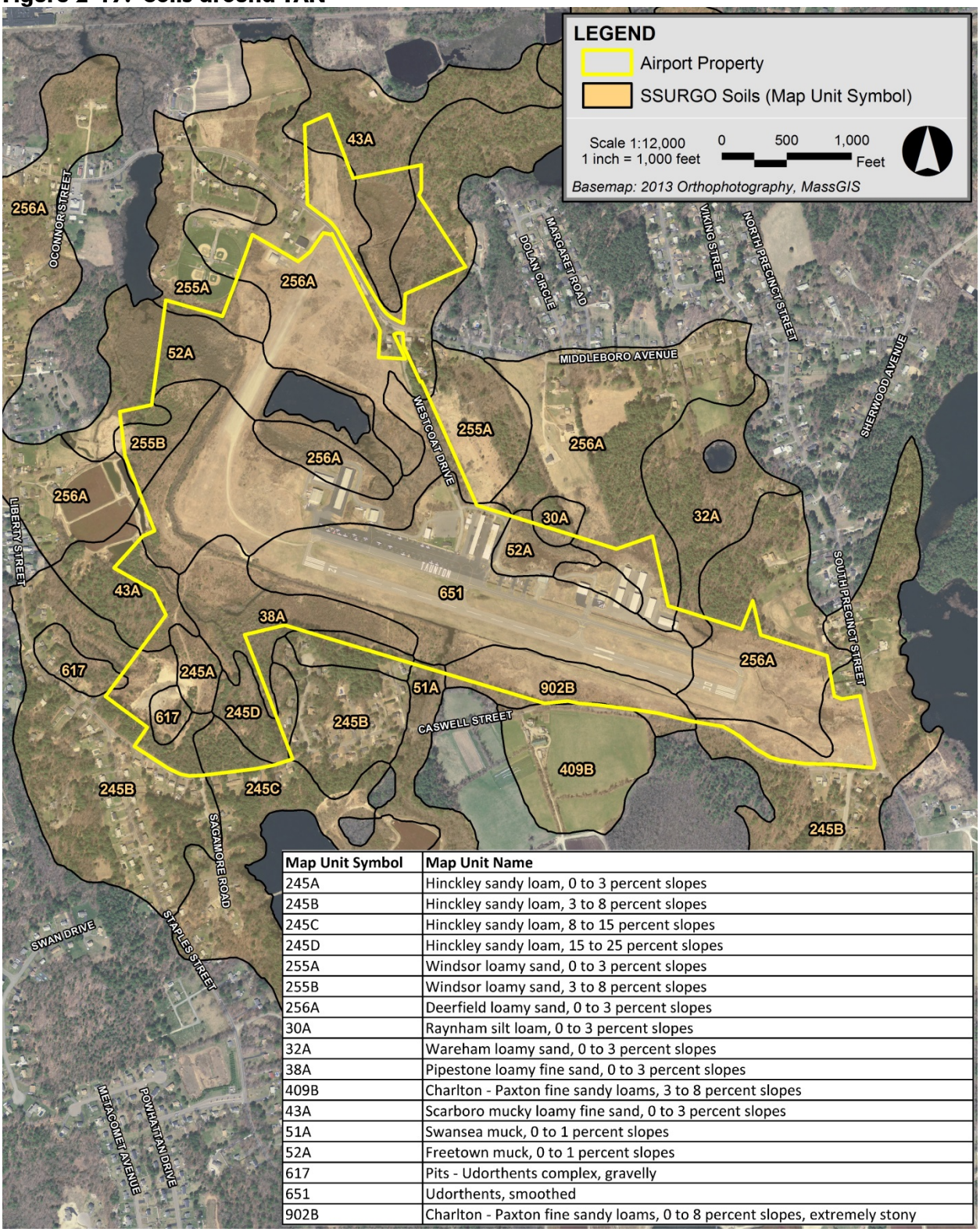
Fish, Wildlife, and Plants

Fish, wildlife, and plants at Taunton Municipal Airport are protected under the following federal and state statute and regulations:

- Endangered Species Act of 1973 (16 U.S.C. 1531-1544) (PL 93-205); 50 CFR parts 17 and 22, 50 CFR part 402, 50 CFR parts 450-453, 50 CFR 600.920.
- Spikes Act Amendment of 1974 (PL 93-452).
- Fish and Wildlife Coordination Act of 1958 (16 U.S.C. 661-666c) (PL 85-624).
- Fish and Wildlife Conservation Act of 1980 (16 U.S.C. 2901-2912) (PL 93-366); 50 CFR part 83.
- Executive Order 13112, Invasive Species (64 FR 6183, February 8, 1999); DOT Policy on Invasive Species, April 22, 1999.
- Migratory Bird Treaty Act of 1981 (16 U.S.C. 703-712).
- Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (66 FR 3853, January 17, 2001).
- Massachusetts Endangered Species Act (M.G.L. ch. 131A); (321 CMR 10.00).

[5] See http://www.nrcs.usda.gov/wps/portal/nrcs/detail//?cid=nrcs143_008275

Figure 2-17: Soils around TAN



Map Unit Symbol	Map Unit Name
245A	Hinckley sandy loam, 0 to 3 percent slopes
245B	Hinckley sandy loam, 3 to 8 percent slopes
245C	Hinckley sandy loam, 8 to 15 percent slopes
245D	Hinckley sandy loam, 15 to 25 percent slopes
255A	Windsor loamy sand, 0 to 3 percent slopes
255B	Windsor loamy sand, 3 to 8 percent slopes
256A	Deerfield loamy sand, 0 to 3 percent slopes
30A	Raynham silt loam, 0 to 3 percent slopes
32A	Wareham loamy sand, 0 to 3 percent slopes
38A	Pipestone loamy fine sand, 0 to 3 percent slopes
409B	Charlton - Paxton fine sandy loams, 3 to 8 percent slopes
43A	Scarboro mucky loamy fine sand, 0 to 3 percent slopes
51A	Swansea muck, 0 to 1 percent slopes
52A	Freetown muck, 0 to 1 percent slopes
617	Pits - Udorthents complex, gravelly
651	Udorthents, smoothed
902B	Charlton - Paxton fine sandy loams, 0 to 8 percent slopes, extremely stony

Source: Epsilon Associates.

Wildlife habitat is generally considered to be the sum of food, water, and cover, and their spatial distribution that a given species needs to survive and reproduce in a particular area. Wildlife species have specific habitat requirements, such that the distribution and abundance of each species are limited by the quality and quantity of available habitat in a given area. Certain undeveloped portions of the Airport likely provide suitable habitat for a number of plant and wildlife species that are common to southeastern Massachusetts and the early successional habitats that are often associated with airport facilities.

According to U.S. Fish and Wildlife data, mapped potential habitat for Northern Long Eared Bat (*Myotis septentrionalis*), a threatened species under the Endangered Species Act ("ESA") occurs on or near the Airport. According to the USFWS's Information, Planning, and Conservation System ("IPaC")[6] the range of the NLEB covers much of the eastern and north central United States (including all of Massachusetts) and all Canadian provinces from the Atlantic Coast west to the southern Northwest Territories and eastern British Columbia. The Service has also developed an interim 4(d) rule under the ESA for the northern long-eared bat and opened a public comment period on the interim 4(d) rule through July 1, 2015.

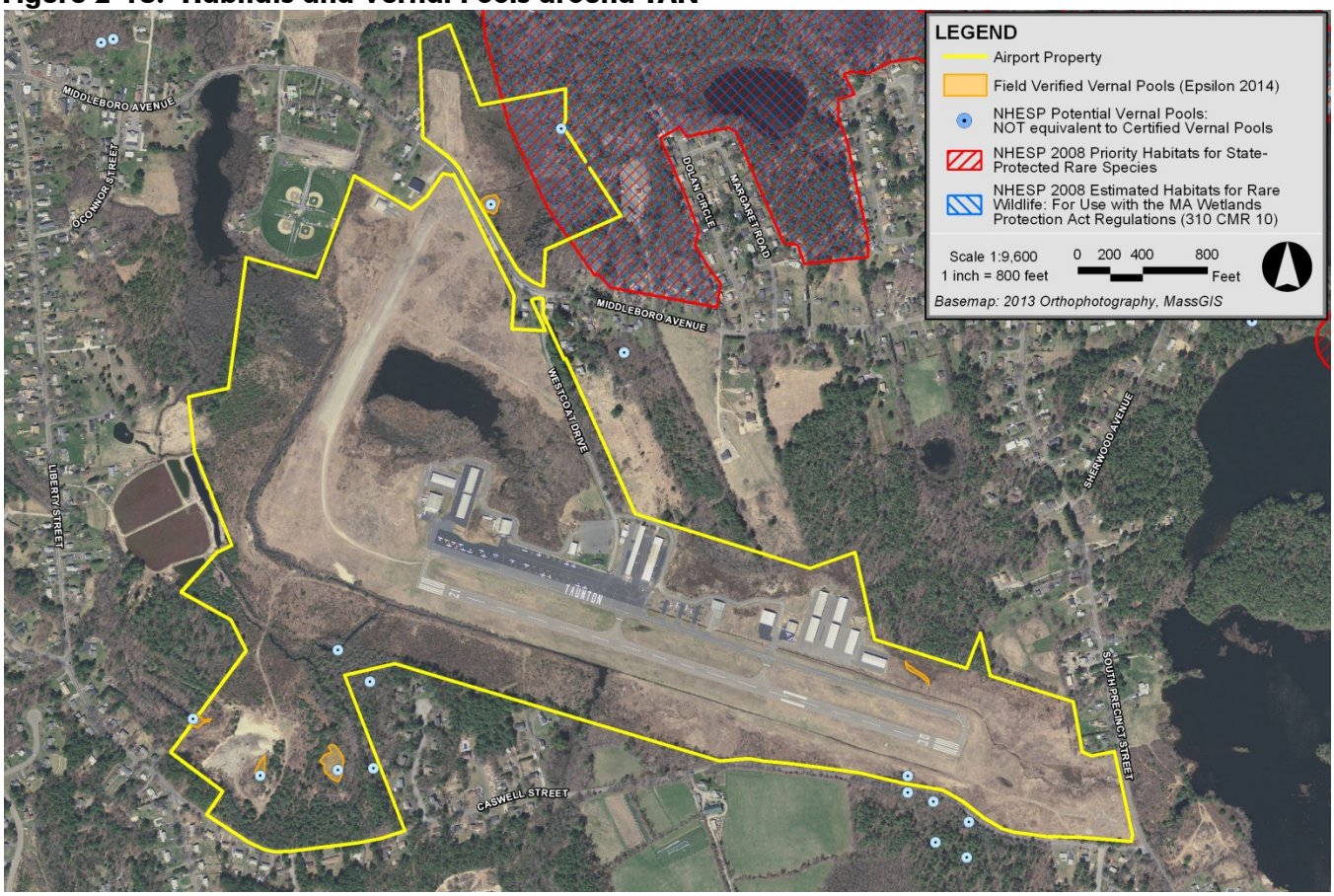
The Massachusetts Natural Heritage and Endangered Species Program (NHESP) provides estimated and priority habitat of rare species as part of the Natural Heritage Atlas program. With regard to state-listed species, according to the current Massachusetts Natural Heritage Atlas (effective October 1, 2008), prepared by the NHESP, the Project site does not contain any areas of Priority Habitat or Estimated Habitat for the NLEB. According to the 2008 Natural Heritage Atlas, while the majority of the Airport is not mapped as Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife, there is an area located on the north side of Middleboro Avenue that is mapped as such (see **Figure 2-18**). Any proposed work within this area would require coordination with the NHESP.

Vernal pools are temporary bodies of fresh water that provide important habitat for many vertebrate and invertebrate species. Vernal pool habitats are extremely important to a variety of wildlife species, including some amphibians that breed exclusively in vernal pools, and other organisms such as fairy shrimp, which spend their entire life cycles confined to such locales. According to MassGIS data, the NHESP mapped several Potential Vernal Pools (PVP) on and in the vicinity of the Airport, based primarily on a review of aerial photographs. In 2012, these mapped areas and other similar depressions were investigated to determine if they function as vernal pool habitat as defined under the Wetlands Protection Act regulations (310 CMR 10.04) and US Army Corps of Engineers guidance documents. Three mapped PVPs located in the southwestern portion of the Airport, one mapped PVP located north of Middleboro Avenue and one area located east of the northeastern T-hangar group were identified and confirmed as vernal pools by the presence of physical and biological evidence. Each of these areas meet NHESP's "Guidelines for the Certification of Vernal Pool Habitat" as

[6] See http://ecos.fws.gov/ipac/.

published in March 2009, including the physical and biological evidence required for pool certification. The locations of confirmed vernal pools are identified within the Wetlands Section and are also shown on **Figure 2-18**.

Figure 2-18: Habitats and Vernal Pools around TAN



Source: Epsilon Associates.

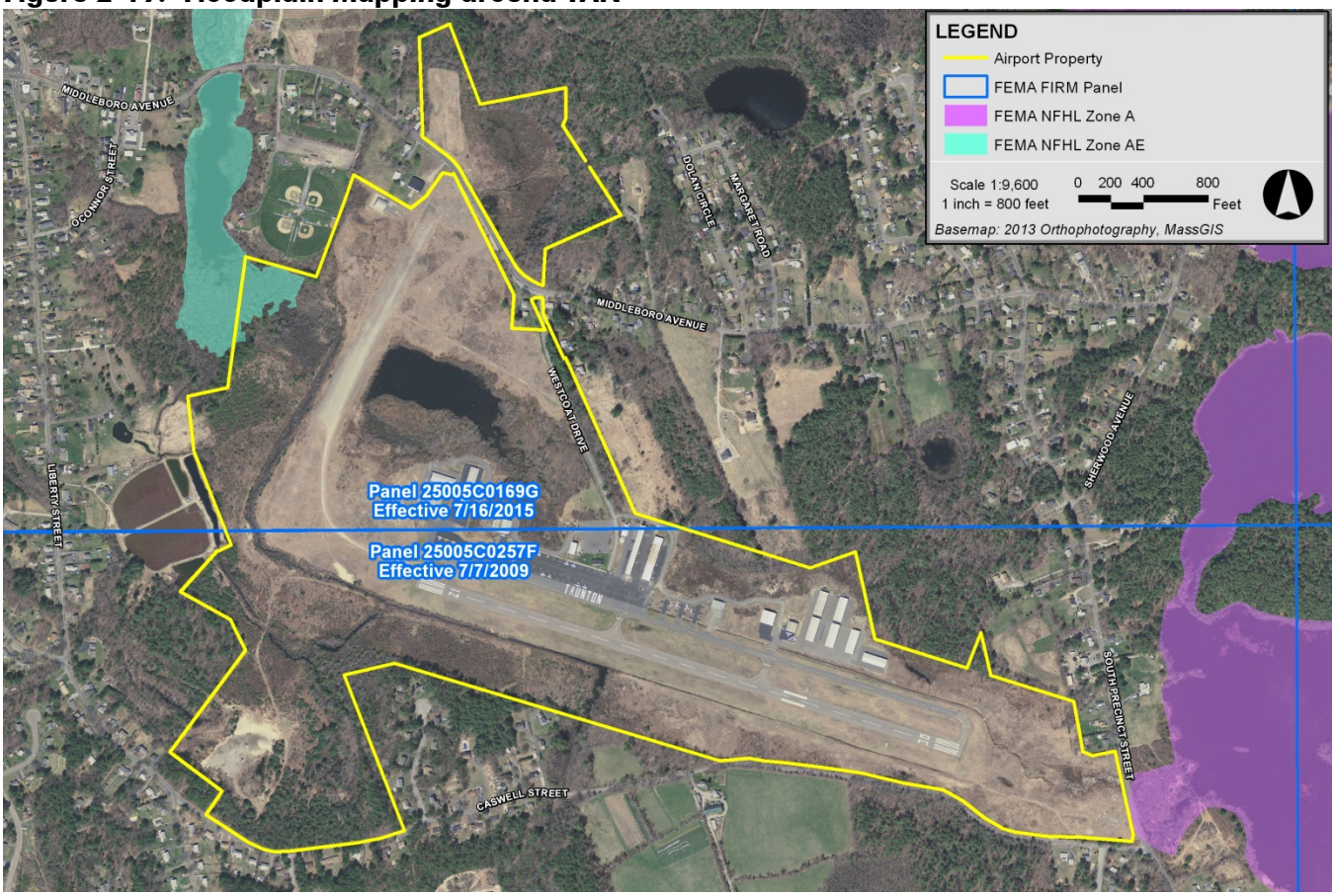
Floodplains

Construction in floodplains is regulated to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values provided by floodplains. Executive Order 11988, *Floodplain Management*, May 24, 1977 (42 FR 26951) and Order DOT 5650.2, *Floodplain Management and Protection*, address development in floodplains.

According to Federal Emergency Management Agency mapping (see **Figure 2-19**) (Flood Insurance Rate Map Community Panel Numbers #25005C0169F and #25005C0257F, Revision Dates July 16, 2015), there is an area of 1% Annual Chance Flood Hazard mapped within the northwest portion of the Airport (Zone AE 100 year floodplain) and an area of 0.2% Annual Chance Flood Hazard

(Zone X 500 year floodplain) mapped within the south and northeast portion of the Airport.

Figure 2-19: Floodplain Mapping around TAN



Source: FEMA; Epsilon Associates.

Hazardous Materials, Pollution Prevention, and Solid Waste

Hazardous Materials, Pollution Prevention, and Solid Waste at the Airport are regulated under the following federal and state statute and regulations:

- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (as amended by the Superfund Amendments and Reauthorization Act of 1986 and the Community Environmental Response Facilitation Act of 1992) [42 U.S.C. 9601-9675]; 40 CFR parts 300, 311, 355, and 370.
- Pollution Prevention Act of 1990 [42 U.S.C. 1310-1319]; CEQ Memorandum on Pollution Prevention and the National Environmental Policy Act, January 12, 1993 (58 FR 6478).
- Toxic Substances Control Act of 1976, as amended (TSCA) [15 U.S.C. 2601-2692] [PL 94-469]; 40 CFR parts 761 and 763.

- Resource Conservation and Recovery Act of 1976 (RCRA) [PL 94-580, as amended by the Solid Waste Disposal Act of 1980 (SWDA), PL 96-482, the Hazardous and Solid Waste Amendments of 1984, PL 98-616, and the Federal Facility Compliance Act of 1992, (FFCA) PL 103-386] [42 U.S.C. 6901-6992(k)]; 40 CFR parts 240-280.
- Executive Order 12088, Federal Compliance with Pollution Control Standards, October 13, 1978 (43 FR 47707), amended by Executive Order 12580, January 23, 1987 (52 FR 2923) January 29, 1987.
- Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements (58 FR 41981, August 3, 1993).
- Executive Order 12580, Superfund Implementation, amended by Executive Order 13016 and 12777.

To determine the potential for encountering soils contaminated from historical releases or former land development practices, the U.S. Environmental Protection Agency Envrionfacts MultiSystem database and MassDEP reportable release database were reviewed. A search of the U.S. Environmental Protection Agency Envrionfacts System database did not reveal recordable hazardous or soil waste materials or material releases within the Airport property. MassDEP database revealed one recordable release from King Aviation on the Airport in August 1997. The Release Tracking Number for this event is RTN 4-0001281, the response action outcome was submitted in June 2004.

Hazardous materials used for operation and maintenance of aircraft, runways, and taxiways include fuels, degreasers, and aviation lubricants and oils. The Airport has a current Spill Prevention Control and Countermeasures (SPCC) Plant that establishes procedures for handling these substances. The Airport has a single 10,000-gallon underground 100LL avgas fuel storage tank, which was installed in 1996. The tank is in full compliance with current U.S. Environmental Protection Agency (EPA) and Massachusetts regulations regarding underground storage tanks (UST). Aircraft fuel storage and refueling areas are limited to a dedicated aircraft fueling ramp associated with a self-service aircraft fueling station (there are no mobile fueling trucks on the Airport). The tank is located on the main apron adjacent to the "wood" hangars, and aircraft are refueled adjacent to the fuel pump via a single hose.

Historical, Architectural, Archaeological, and Cultural Resources

Laws Governing National Historic Preservation Programs, National Natural Landmarks, and National Historic Landmarks include the following:

- National Historic Preservation Act of 1996, as amended, including Executive Order 11593, Protection and Enhancement of the Cultural Environment (36 FR 8921, May 13, 1971) [16 U.S.C. 470, 470 note] [PL 102-575 (1992)]; 36 CFR parts 60 (National Register of Historic Places (NRHP)), 65, 65.1 (National Historic Landmarks), 68 (standards), 73 (World Heritage Program), 78 (Waiver of Federal agency section 110

responsibilities), 79 (curation) and 800 (consultation), as revised (65 FR 77697; December 12, 200, effective January 1, 2001).

Laws Governing the Federal Archeology Program include the following:

- Antiquities Act of 1906 [16 U.S.C. 431, 432, 433] [PL 59-209 (1906)]; 43 CFR part 3, 25 CFR part 261.
- Archaeological and Historic Preservation Act of 1974, as amended [16 U.S.C. 469-469c] [PL 89-665]; Guidelines for Archaeology and Historic Preservation: Standards and Guidelines (DOI) (48 FR 44716, September 29, 1983) 36 CFR part 68.
- Archaeological Resources Protection Act of 1979, as amended [16 U.S.C. 470aa-470mm] [PL 96-95 (1979)]; 43 CFR parts 3 and 7, 36 CFR part 79, 25 CFR part 262, Federal Archeological Preservation Strategy.
- Native American Graves Protection and Repatriation Act of 1990 [25 U.S.C. 3001] [PL 101-601 (1990)]; 43 CFR part 10, 25 CFR 262.8.
- Other Major Federal Historic and Cultural Resource Preservation Laws and Executive Orders:
- American Indian Religious Freedom Act of 1978 [42 U.S.C. 1996, 1996 note] [PL 95-341 (1978)]; 43 CFR 7.7 and 7.32, 25 CFR 262.7.
- Department of Transportation Act [49 U.S.C. 303].
- Public Building Cooperative Use Act of 1976 [40 U.S.C. 601(a), 601(a)(1), 606, 611(c), 612(a)(4)] [PL 94-541]; 41 CFR parts 101-117, 101-17.002(l), (m), (n) (rural areas), 101.17.002(i)(2)(urban areas) and 101-19.
- Executive Order 13006, Locating Federal Facilities on Historic Properties in Our Nation's Central Cities (61 Fe 26071, May 24, 1996).
- Executive Order 13007, Indian Sacred Sites (61 FR 26771, May 29, 1996).
- Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249, November 9, 2000), and the Presidential Memorandum of April 29, 1994, Government-to-government Relations with Native American Tribal Governments.
- Executive Order 11593, Protection and Enhancement of the Cultural Environment (36 FR 8921, May 13, 1971) (16 U.S.C. 470 note).

Section 106 of the National Historic Preservation Act (36 CFR 800 [Section 106]) requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (Council) reasonable opportunity to comment on such undertakings. Projects subject to Section 106 must consult with the State Historic Preservation Officer, Tribal Historic Preservation Officer(s), and Council to determine if the Project has the potential to affect historic properties listed on or eligible for listing on the National Register of Historic Places and what, if any, alternatives exist to avoid, minimize or mitigate the adverse effect(s) to National Register and National Register-eligible properties.

State Register Review (950 CMR 71.00) requires state agencies take into account the effects of their undertakings on historic properties listed in the State Register of Historic Places. Projects subject to State Register Review must consult with the Massachusetts Historical Commission (MHC) and consulting parties (including Native American tribes and local historical commissions) to determine if the Project has the potential to affect historic properties listed on the State Register, and what, if any, alternatives exist to avoid, minimize or mitigate the adverse effect(s) to State Register-listed properties. State Register Review may be undertaken concurrently with the Section 106 Review process.

If a Project is subject to the Massachusetts Environmental Policy Act (MEPA) and requires destruction of properties listed on the State Register of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth, the proponent must consider alternatives to destruction of the resource in consultation with MHC and other consulting parties (including Native American tribes and local historical commissions). If destruction of a State Register or Inventoried property is the only MEPA threshold met, submittal of an ENF is not required provided the Project has a determination of No Adverse Effect or a Memorandum of Agreement with the MHC.

Recent consultation with the MHC on other projects proposed at Taunton Municipal Airport confirmed there are no known archaeological resources within the majority of the Airport; however, in 2009 MHC identified a potential archeologically sensitive area south of the active field and two historic cemeteries near the Airport. The Caswell Street Burying Ground and Padelford Burying Ground are located within the immediate vicinity of the Airport and should be identified relative to future development. An archeological survey was conducted in the identified potentially archeologically sensitive area. The results of this study found that this area is not eligible for listing in the National Register and is not potentially significant[7].

Noise

Laws governing Noise include the following:

- 49 U.S.C. 47501-47507 (Aviation Safety and Noise Abatement Act of 1979, as amended); 14 CFR part 150, Noise Control and Compatibility Planning for Airports Advisory Circular, 150/5020.
- 49 U.S.C. 40101 et seq., as amended by PL 103-305 (Aug. 23, 1994) (The Federal Aviation Act of 1958).
- The Control and Abatement of Aircraft Noise and Sonic Boom Act of 1968; 14 CFR part 161 Notice and Approval of Airport Noise and Access Restrictions.
- 49 U.S.C. 47101 et seq., as amended by PL 103-305 (Aug. 23. 1994) (The Airport and Airway Improvement Act).

[7] See correspondence from the MHC to the FAA dated March 27, 2013 in response to an Intensive Locational (archaeological) Survey conducted by the Airport's cultural resources consultant AHS, Inc.

- 49 U.S.C. 2101 et seq. (Airport Noise and Capacity Act of 1990).
- 49 U.S.C. 44715 (The Noise Control Act of 1972).

Existing noise conditions in the vicinity of the Airport are typical of areas containing the surrounding land uses. Aircraft operating from the Airport must meet requirements of 14 CFR, section 36.103, which outlines aircraft noise limits. According to the Taunton Municipal Airport Standard Operating Procedures (SOP), aircraft noise is limited between the hours of 2200 and 0700 where touch and go landings are prohibited. Additionally, the SOP prohibits midfield departures and encourages avoidance of residential areas.

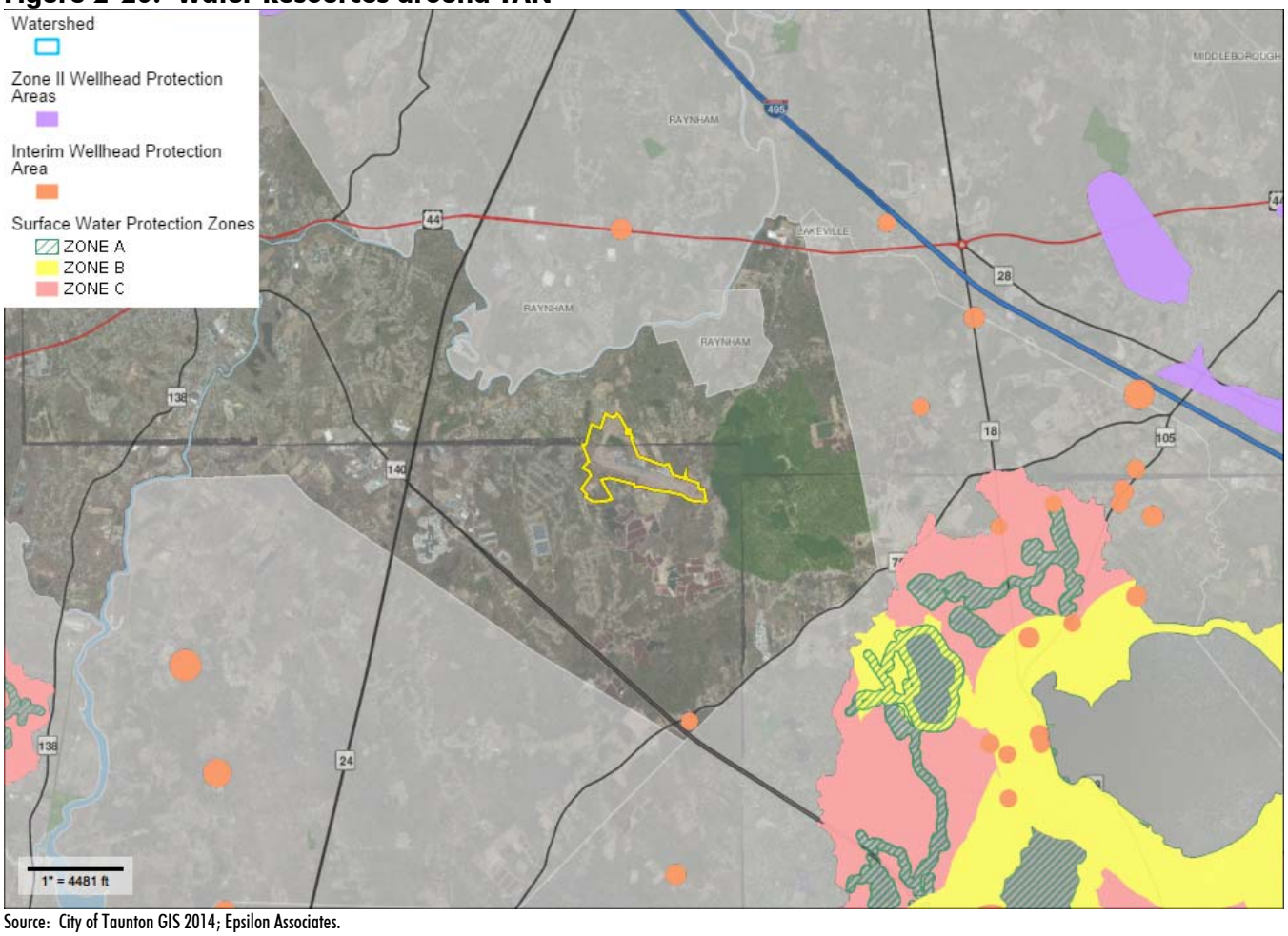
Water Quality

Taunton Municipal Airport is located within the Narragansett watershed (10 digit Hydrologic Unit Code 01090004). Based on EPA data reported by the Commonwealth of Massachusetts in accordance with Sections 305(b) and 303(d) of the Clean Water Act, there are no impaired waters located in the vicinity of the Airport [http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf]. An eastern portion of the Airport is underlain by a mapped medium yield aquifer. This aquifer is not a federally protected sole source aquifer; however the City of Taunton has identified an Aquifer Resource Protection District southeast of the Airport (see **Figure 2-20**). This Aquifer Protection District is located over the high yield portion of the aquifer and portends to "protect, preserve and maintain the existing quality and quantity of groundwater to ensure a sustainable supply of high quality drinking water for the City" (Zoning Ordinance of Taunton). The Airport is served by a private well and septic system.

A Stormwater Pollution Prevention Plan (SWPPP) developed in accordance with the National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit (MSGP) [as amended under the authority of 40 CFR 122/ 55 FR 48063] controls maintenance activities and operations on the site that have the potential to impact stormwater.

The Airport conducts snow removal operations for measurable snowfall events. Snow removal operations comply with MassDEP's Snow Removal Guidance (March 2001). Snow removed from runways, taxiways and aprons is stored in upland areas. Snow pile consolidation in these upland areas may occur as necessary. No chemicals or salt are used on the runways, taxiways and aprons.

Figure 2-20: Water Resources around TAN



Source: City of Taunton GIS 2014; Epsilon Associates.

Wetlands and Other Habitats

Laws governing Wetlands include the following:

- Clean Water Act, section 401 and 404 [33 U.S.C. 1344] [PL 92-500, as amended by PL 95-217 and PL 100-4]; 33 CFR parts 320-330.
- Rivers and Harbors Act of 1899, section 10; Order DOT 5660.1A, Preservation of the Nation's Wetlands.
- Executive Order 11990, Protection of Wetlands (May 24, 1977) (42 FR 26961).
- Massachusetts Wetlands Protection Act (M.G.L. ch. 131, §40); Massachusetts Wetlands Regulations (310 CMR 10.00).
- Taunton Wetlands Ordinance.

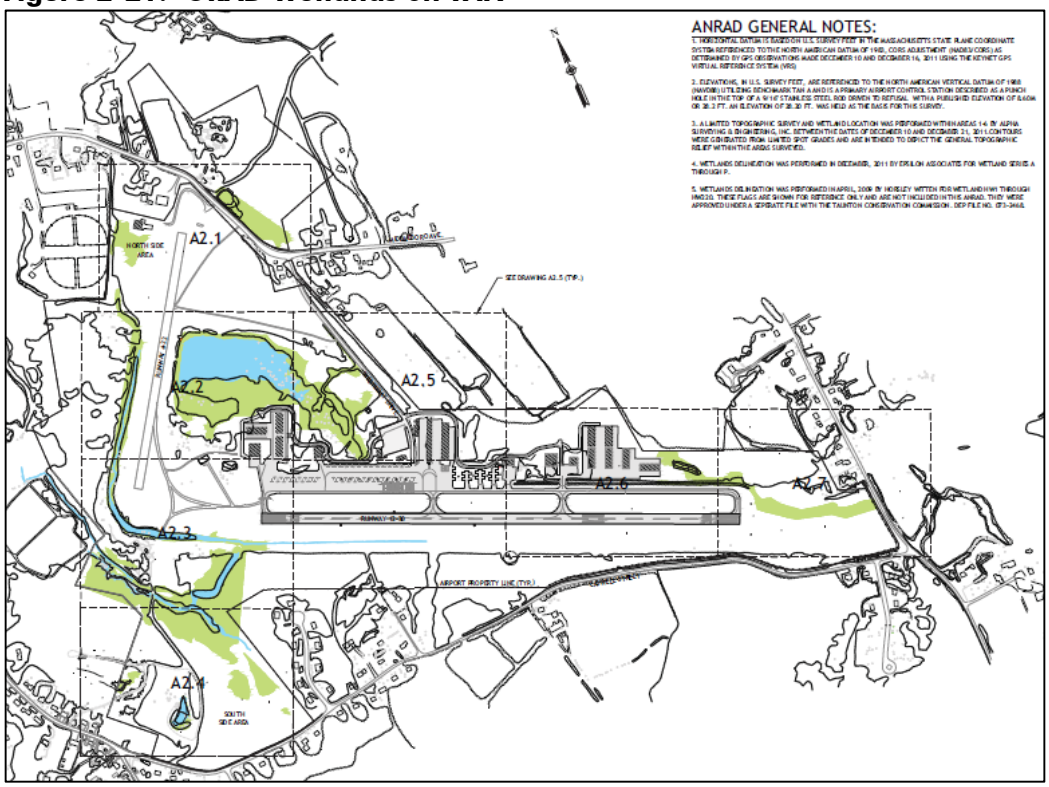
A number of streams and wetlands exist on the Airport property. These resource areas are regulated under Section 401/404 of the Clean Water Act, Massachusetts Wetlands Protection Act and the Taunton Wetland Ordinance. With regard to the local and state regulations, the boundaries of wetland

resource areas on the Airport were reviewed and approved by the Taunton Conservation Commission under an Order of Resource Area Delineation (ORAD; MassDEP File Number SE 73-2516) issued on August 17, 2012. These wetland resource area boundaries are shown generally in **Figure 2-21**, and in detail in **Appendix D**. The approved delineation boundaries will remain valid until August 17, 2015 (note that the Airport applied for an extension in 2015 that will extend that to 2018). Delineated state jurisdictional wetland resource areas include Bordering Vegetated Wetland (BVW), Isolated Land Subject to Flooding (ILSF), Inland Bank, Land Under Water Bodies and Waterways (LUW) and Riverfront Area (RFA).

Delineated local jurisdictional wetland resource areas delineated in the study area include Freshwater Wetlands and ILSF as defined in the City of Taunton Conservation Ordinance. It is assumed that all of the delineated wetlands and streams are jurisdictional "waters of the U.S." for the purposes of Sections 401 and 404 of the U.S. Clean Water Act.

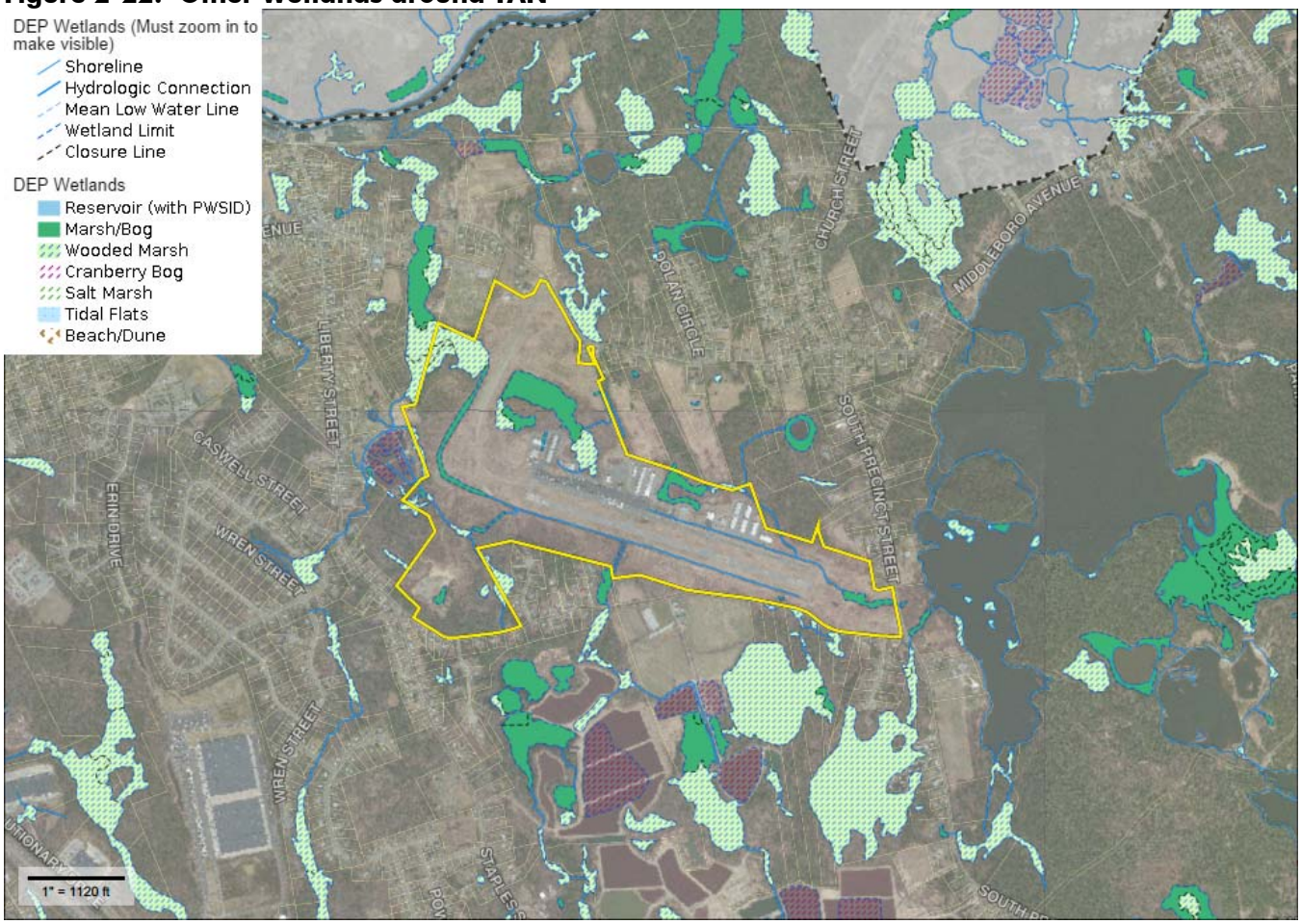
In 2012, Potential Vernal Pools and other similar depressions were investigated to determine if they function as vernal pool habitat as defined under the Wetlands Protection Act regulations. These vernal pool habitat features are shown above in **Figure 2-18**. Three mapped PVPs located in the southwestern portion of the Airport, one mapped PVP located north of Middleboro Avenue and one area located east of the northeastern T-hangar group were identified and confirmed as vernal pools by the presence of physical and biological evidence.

Figure 2-21: ORAD Wetlands on TAN



Source: City of Taunton GIS 2014; Epsilon Associates.

Figure 2-22: Other Wetlands around TAN



Source: City of Taunton GIS 2014; Epsilon Associates.

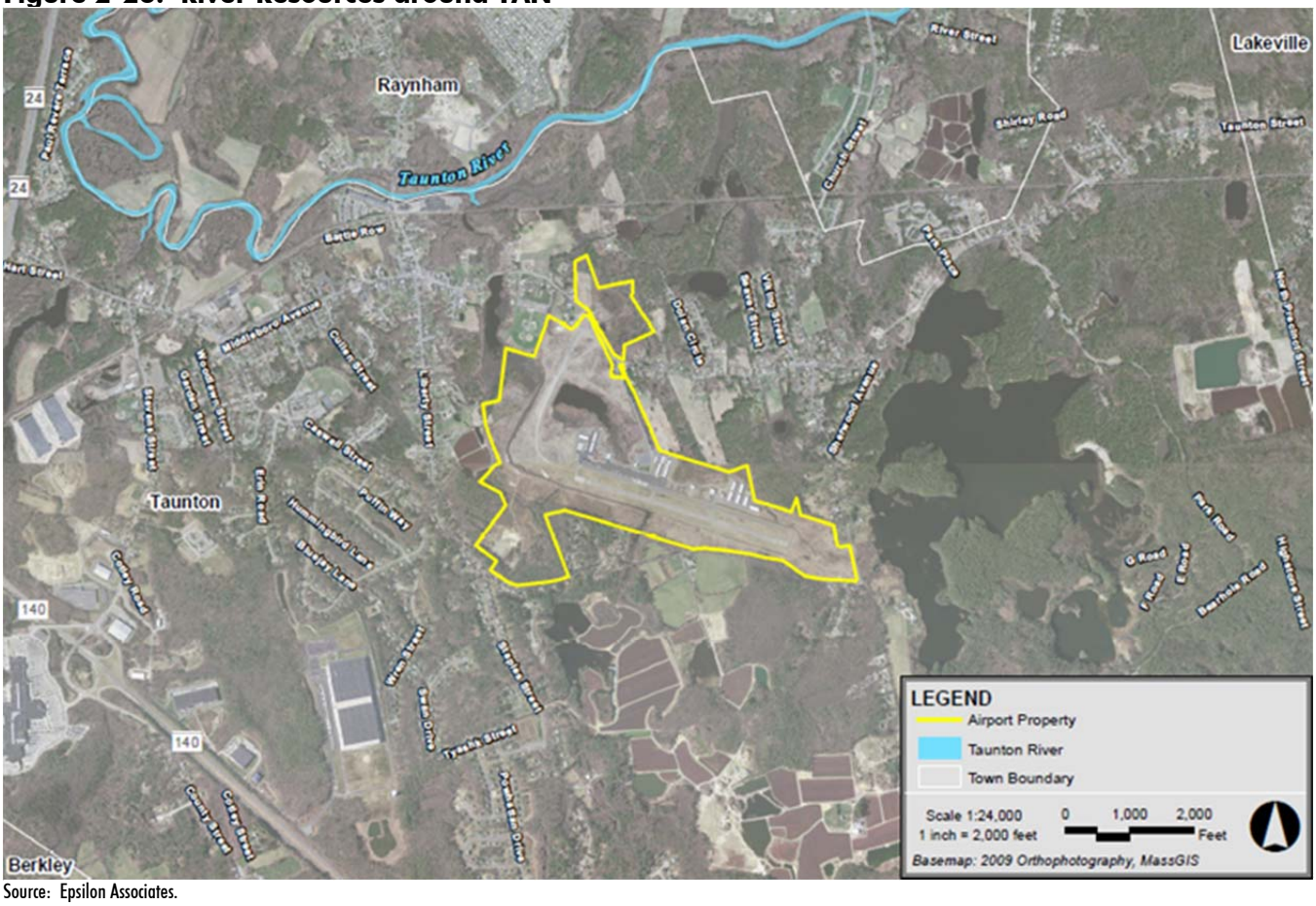
Wild and Scenic Rivers

Laws governing Wild and Scenic Rivers include the following:

- Wild and Scenic Rivers Act of 1968 [16 U.S.C. 1271-1287] [PL 90-542 as amended by PL 96-487]; 36 CFR part 297, subpart A (USDA Forest Service), Department of the Interior and Department of Agriculture, Wild and Scenic River Guidelines for Eligibility, Classification and Management of River Areas (47 FR 39454, September 7, 1982), CEQ Memorandum on Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory, August 11, 1980 (45 FR 59190, September 8, 1980).

The Taunton River has been classified as a Wild and Scenic River pursuant to the 1968 Wild and Scenic Rivers Act, administered by the National Park Service. The Taunton River is located approximately 1,700 feet north of the Airport at its closest point (see **Figure 2-23**). The Taunton River is classified from its headwaters in Bridgewater to the Braga Bridge in Fall River.

Figure 2-23: River Resources around TAN



Source: Epsilon Associates.

Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety Risks

Laws governing Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety Risks include the following:

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629, February 16, 1994); Order DOT 5610.2, Environmental Justice in Minority and Low-Income Populations, April 15, 1997, CEQ Environmental Justice: Guidance Under the National Environmental Policy Act, December 10, 1997, Final Guidance For Consideration of Environmental Justice in Clean Air Act 309 Reviews, July 1999.
- Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks (62 CFR 19883, April 23, 1997).; 40 CFR 1508.27.
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 [42 U.S.C. 4601] [PL 91-528 amended by the Surface Transportation and Uniform Relocation Act Amendments of 1987, PL 100-117]; FAA Advisory Circular 150/5100-17, 49 CFR part 24, FAA

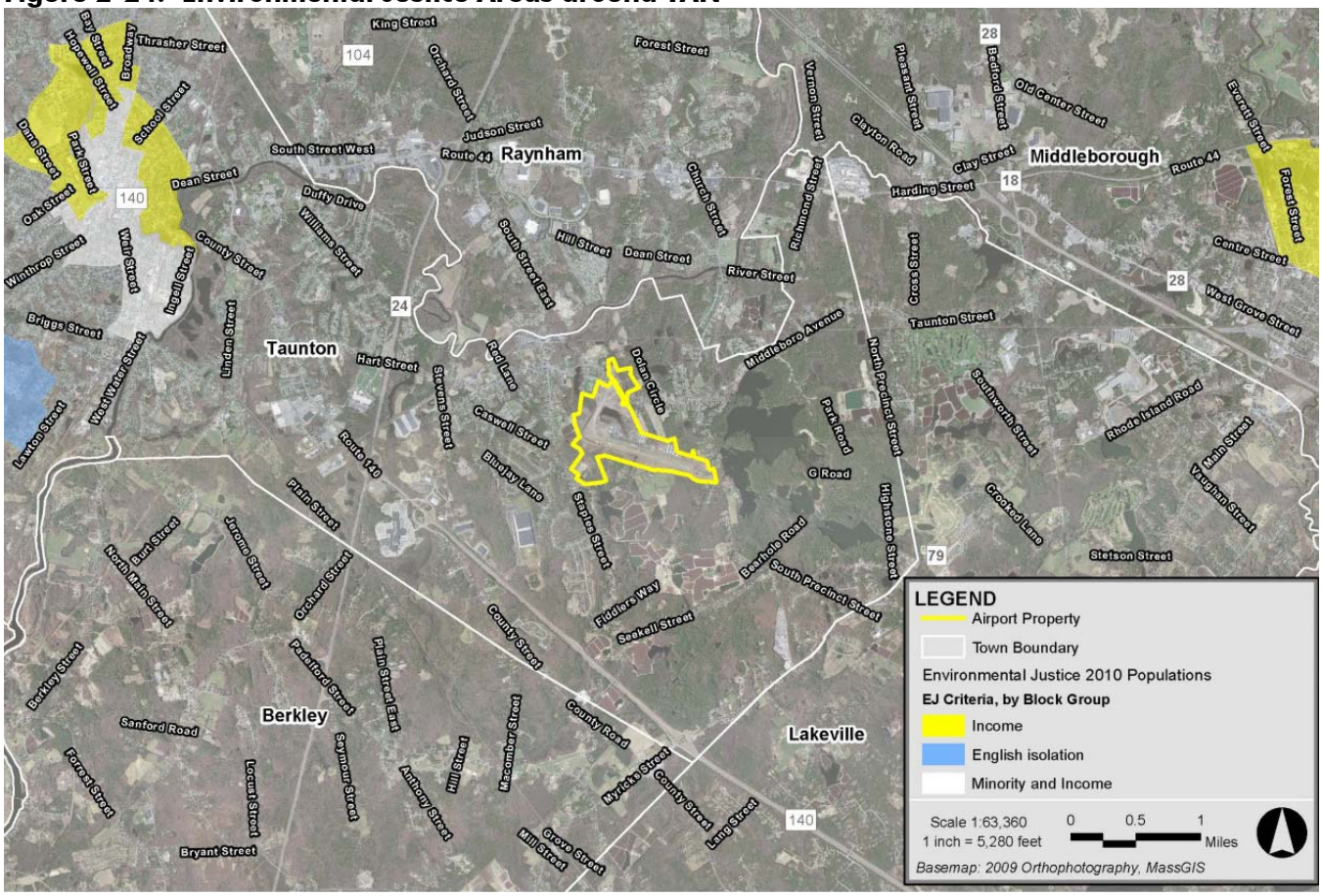
Order 5100.37A, Land Acquisition and Relocation Assistance for Airport Projects.

- Environmental Justice Policy of the Executive Office of Environmental Affairs, October 9, 2002.

According to the MassGIS Environmental Justice population layer, which represents neighborhoods across the state with high minority, non-English speaking, low-income, and foreign-born populations, the closest Environmental Justice populations are located more than three miles west of the Airport. These populations are shown in **Figure 2-24**.

Two public schools are located west of the Airport and within approximately one mile of the Airport. These schools include the Joseph H Martin Middle School located on Caswell Street and the East Taunton Elementary School located on Stevens Street.

Figure 2-24: Environmental Justice Areas around TAN



Source: Epsilon Associates.

Compliance Permits

The Airport has received a number of environmental permits and approvals over the years. The most recent environmental permits and approvals include the following:

Wetlands Protection Act

- On 8-17-2012 the Taunton Conservation Commission issued the Airport an Order of Resource Area Delineation (ORAD) (MassDEP File No. SE73-2516) confirming the boundaries of wetlands depicted on **Figure 2-21**. The ORAD remains valid until 8-17-15. The Airport has requested an extension of the ORAD. A hearing is scheduled for July 27, 2015.

- On 12-11-2013 the Taunton Conservation Commission issued the Airport an Order of Conditions (MassDEP File No. SE73-2565) authorizing construction of hangars and a new aircraft apron to support the new hangars, and a new stub taxiway and related safety area extending north from the turn in the existing parallel taxiway to Runway 30. Construction of this project commenced in August 2014.

Massachusetts Environmental Policy Act

- On 2-7-2014 the Massachusetts Office of Energy and Environmental Affairs (EEA) issued a Certificate on a Notice of Project Change (NPC) filed by the Airport rescinding the Scope of a Draft Environmental Impact Report (DEIR) (EEA File No. 14495). The DEIR Scope was rescinded at the request of the Airport because the previously proposed projects identified in the 2002 Master Plan had been substantially redesigned to reduce environmental impacts and thus no longer required an EIR.

CHAPTER THREE:

FORECASTS OF AVIATION ACTIVITY

3.1 INTRODUCTION

Forecasts must be reasonable and defensible. They serve as the basis of future facility requirements

Projecting future aviation demand is a critical element in the Airport Master Plan Update (AMPU) planning process since many of the ultimate proposals and recommendations of the master plan are largely based on aviation activity demand forecasts. The forecasts of aviation activity developed in this chapter will be used in subsequent tasks to analyze the Taunton Municipal Airport's (the Airport or TAN) ability to accommodate future activity and to determine the type, size, and timing of future airside and landside developments. This aspect of the master planning process, in essence, acts as the hub for the remainder of the plan. In many cases, the decision to proceed with projects is based on the anticipated levels of demand, including numbers as well as types of aircraft activity.

This chapter discusses the findings and methodologies used to project aviation demand at TAN for the next 20 years (2014 through-2033). While forecasting should consider the most accurate information available at the time the projections are completed, it is not an exact science. There are always likely to be some divergences of an airport's activity from a prepared forecast due to any number of factors that simply cannot be anticipated. However, when soundly established, the forecasts developed in a master plan will provide a sound, defensible and defined rationale to guide the analysis of future airport development needs and alternatives.

For this AMPU, 2013 will serve as the base year since it was the last completed calendar year prior to this effort. Forecasts will be generated for the near-term (2018), mid-term (2023), and long-term (2033) timeframes.

While the amount and type of aviation activity occurring at an airport are dependent upon many factors, they also usually reflect the services available to aircraft operators, the businesses located on the airport or within the host community, and the prevailing general economic conditions within the surrounding area. The TAN forecast analysis includes methodologies that considered historical aviation trends at the Airport, the surrounding region, and throughout the nation. Projections of aviation activity for TAN were prepared for the near-term (2018), mid-term (2023), and long-term (2033) timeframes. Specifically, the aviation demand forecasts developed for TAN in this study are documented in the following sections:

- Overview of the Airport Market Area
- National Aviation Trends
- Regional Trends
- Historical and Existing Aviation Activity
- Projections of Aviation Activity
- Summary

3.2 OVERVIEW OF THE AIRPORT MARKET AREA

It has been shown that there is a strong correlation between a given region's demographic / economic conditions and aviation demand within that region. This section will define the TAN airport market area and the factors that typically reflect and impact aviation activity projections.

3.2.1 Definition of the TAN Airport Market Area

An airport market area is defined as the actual geographic region served by a particular airport. For the Taunton Municipal Airport, the airport market area has been established by the Massachusetts Statewide Airport System Plan (MSASP) and is based on a 30 minute drive time from the airport. This is an industry standard metric that is based on the assumption that a user of an airport like TAN will travel approximately up to 30 minutes to utilize the facility, given road locations and types. Based on that standard, the airport market area for TAN includes approximately 40 municipalities located in three counties (Bristol, Plymouth, and Norfolk) in southeastern Massachusetts. The municipalities that are either completely or partially contained in the TAN airport market area include the following:

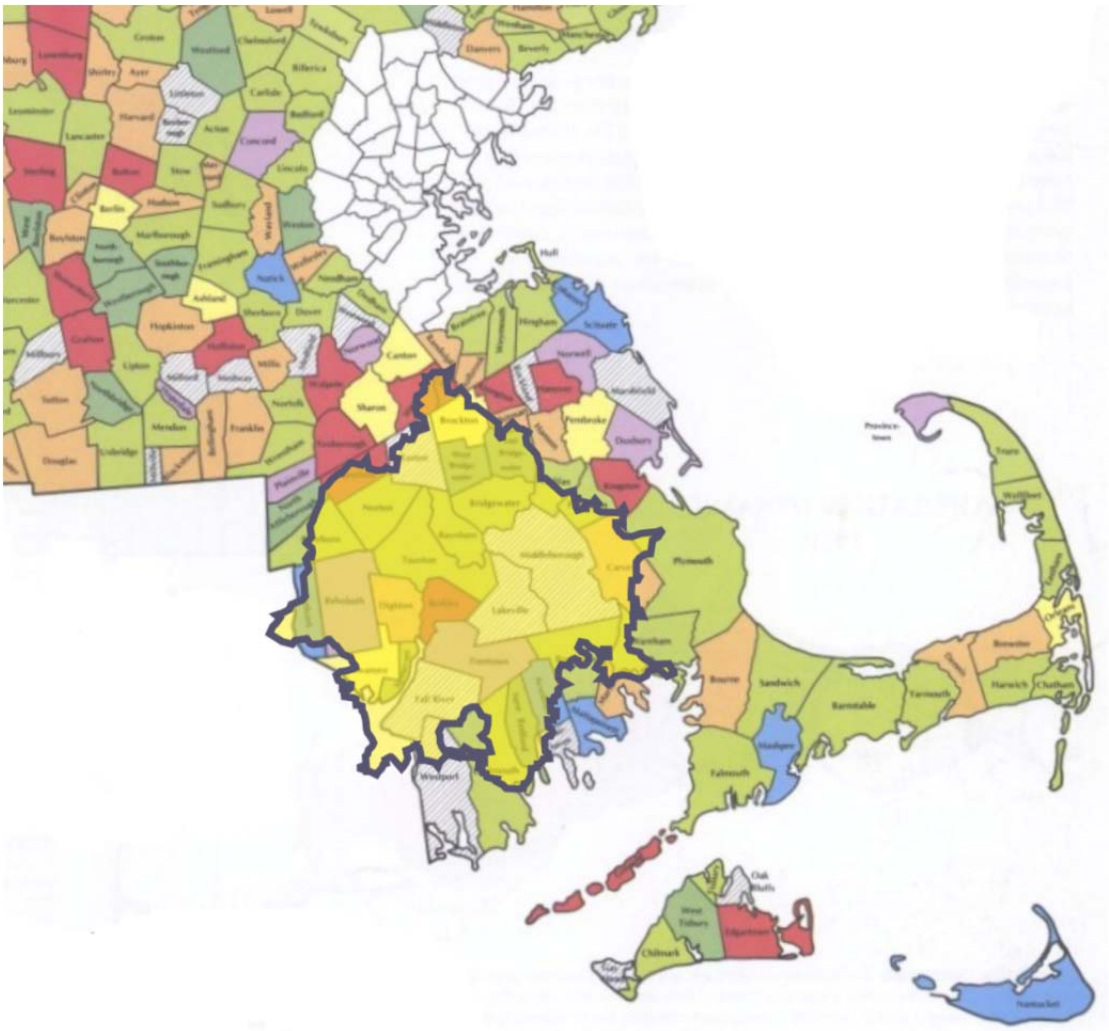
TAN's basic market area encompasses 40 towns in three counties in Southeast Massachusetts.

Massachusetts Municipalities

- Acushnet
- Attleboro
- Avon
- Berkley
- Bridgewater
- Brockton
- Carver
- Dartmouth
- Dighton
- E. Bridgewater
- Easton
- Fairhaven
- Fall River
- Freetown
- Halifax
- Holbrook
- Kingston
- Lakeville
- Mansfield
- Marion
- Middleborough
- New Bedford
- Norton
- North Attleboro
- Plymouth
- Plympton
- Seekonk
- Sharon
- Somerset
- Stoughton
- Swansea
- Randolph
- Raynham
- Rehoboth
- Rochester
- Wareham
- Taunton
- W. Bridgewater
- Westport
- Whitman

Figure 3-1 shows the airport market area identified for Taunton Municipal Airport. While the towns listed above are shown in this graphic, the counties are not for purposes of graphical clarity. Note that the counties are relevant to a later section that discusses Regional Trends.

Figure 3-1: Airport Market Area for TAN



Source: MSASP; *Historical Atlas of Massachusetts*, Wilkie and Tager, 1991.

3.2.2 National Aviation Trends

In preparing a forecast for TAN, it is important to have a general understanding of recent and anticipated trends in the overall aviation industry. National trends can provide important insights that can be leveraged for the development of aviation activity projections for an airport. Various data sources were utilized and examined to identify these trends. The sources utilized in this effort included the following:

- Federal Aviation Administration (FAA) - *FAA Aerospace Forecasts, 2014-2034*
- General Aviation Manufacturers Association (GAMA) - *General Aviation Statistical Databook, 2013*
- National Business Aircraft Association (NBAA) - *NBAA Business Aviation Fact Book, 2014* and earlier

- Honeywell Corporation – *22nd Annual Business Aviation Outlook, 2013*

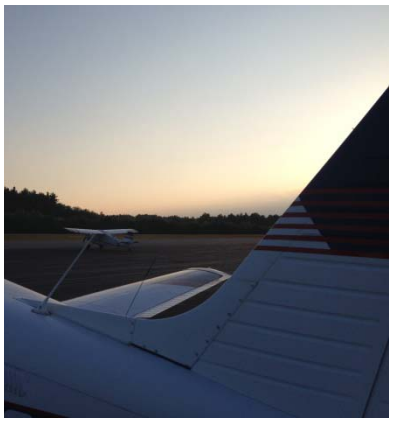
The following sections provide an overview of the general aviation sector of the aviation industry.

General Aviation (GA) Trends

At the national level, fluctuating trends related to general aviation usage and economic uncertainty resulting from the nation's and international business cycles all have significant impacts on general aviation demand levels. This section provides an overview of those general aviation trends, as well as some of the various factors that have influenced those trends in the U.S. and Massachusetts. These are important considerations in the development of projections of aviation demand for TAN.

General aviation aircraft are classified as all aircraft not flown by commercial airlines or the military. This includes an incredibly diverse array of flying that ranges from a personal vacation trip in a small single engine plane to an overnight package delivery to an emergency medical evacuation to a morning sightseeing flight to flight instruction that trains new pilots to helicopter traffic reports that keep drivers informed of rush-hour delays. Simply stated, general aviation encapsulates all of those individual unscheduled aviation activities that enrich, enhance, preserve, and protect the lives of citizens.

As defined by the FAA, general aviation activities are divided into six use categories:

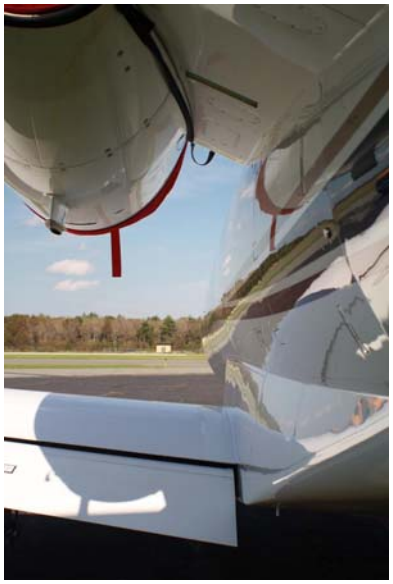


- *Personal* - About a third of all private flying in the United States is for personal reasons, which may include practicing flight skills, personal or family travel, personal enjoyment, or personal business.
- *Instructional* - All private flight instruction for purposes ranging from private pilot to airline pilot is conducted through general aviation.
- *Corporate* - About 12 percent of the total private flying in the U.S. is done in aircraft owned by a business and piloted by a professional. The majority of these flights are in jets and cover long distances, with some flying to intercontinental and international destinations. Businesses elect to fly these trips to save time and expand the geographic markets. It is estimated that almost 11 percent of the total private flying in the U.S. is done by business persons flying themselves to meetings or other events, primarily in piston or turboprop aircraft. Most of the pilots own or work for relatively small businesses and use the aircraft to accomplish missions that would otherwise take more time or would be infeasible.
- *Air Taxi* - When scheduled air service either is not available or inconvenient, businesses and individuals can charter aircraft from air taxi service providers. These flights save time and make it possible to fly directly to places that cannot be reached by scheduled service. (Note

that "air taxi" is also utilized as a commercial air service classification, which is discussed later.)

- Other – All other activities are classified as being "other." Given the diverse nature general aviation, this includes disaster relief, search and rescue, police operations, news reporting, border patrol, forest firefighting, aerial photography and surveying, crop dusting, and tourism activities, among many others.

Business Use of General Aviation



Business and corporate aviation are the fastest growing facets of general aviation, contributing $150 billion to U.S. economic output and employing more than 1.2 million people. Companies and individuals use aircraft as a tool to improve the efficiency and productivity of their business and personnel. Use of general aviation aircraft afford businesses direct control of their travel itineraries, their travel destinations and significantly reduce travel times and inconveniences often associated with scheduled airline service.

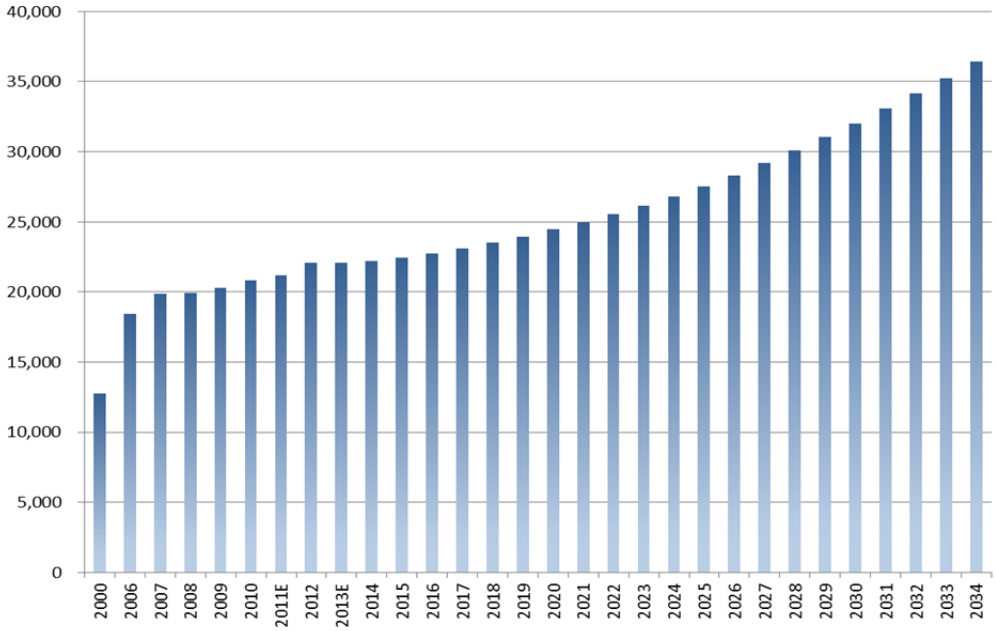
Corporate general aviation is also not the exclusive concern of Fortune 500 companies. In fact, according to the NBAA's *Business Aviation Fact Book 2014*, only 3 percent of the approximately 15,000 business aircraft registered in the U.S. are flown by these companies. The remaining 97 percent are actually operated by a broad cross-section of organizations, including government, universities, charitable organizations and businesses of all sizes. The vast majority of the U.S. companies that utilize business aircraft (85 percent) are small and mid-size businesses, many of which are based in the dozens of communities across the country where the airlines have reduced or eliminated service. The benefits of corporate general aviation are evidenced by the significant growth that business/corporate general aviation has recently experienced and are projected to continue. Honeywell's *22nd Annual Business Aviation Outlook, 2013* has projected four to five percent average annual industry growth through 2024. Additionally, the Outlook projects the following:

- Up to 9,250 deliveries of new business jets valued at over $250 billion expected through 2023
- Operators plan to replace 28 percent of their fleets with new jets in the next five years
- BRIC countries (Brazil, Russia, India and China) country purchase plan percentage leads all world regions
- Large cabin jets account for more than 55 percent of new purchase plans

Additionally, business aviation operations are a source of good jobs. Flights made by business airplanes require significant technical and operational support. Tens of thousands of pilots, maintenance technicians, schedulers, dispatchers, flight attendants, training professionals, airport employees and other support personnel are employed in business aviation.

Business use of general aviation aircraft ranges from small, single-engine aircraft rentals to multiple aircraft corporate fleets supported by dedicated flight crews and mechanics. Business aircraft usage by smaller companies has also escalated dramatically as various chartering, leasing, fractional ownership, interchange agreements, partnerships, and management contracts have emerged. FAA statistics depicted in **Figure 3-2** show the historical and projected growth in the number of general aviation turbine aircraft used predominantly for business use.

Figure 3-2: General Aviation Turbine Aircraft Growth 2000-2034



Source: *FAA Aerospace Forecasts, 2014-2034.*

Of particular note with respect to business aviation is the immense popularity of fractional ownership operations, which began in 1986 with the creation of a program that offered aircraft owners increased flexibility in the ownership and operation of aircraft. Such programs use current aircraft acquisition concepts, including shared or joint aircraft ownership, and provide for the management of the aircraft by an aircraft management company. The aircraft owners participating in the program agree not only to share their own aircraft with others having a shared interest in that aircraft, but also to lease their aircraft to other owners in the program. The aircraft owners use a common management company to provide aviation management services including maintenance of the aircraft, pilot training and assignment, and administration of the leasing of the aircraft among the owners.

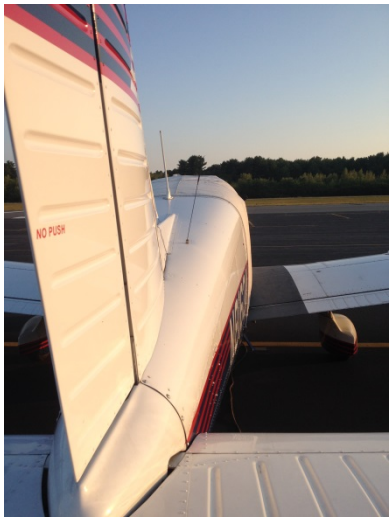
Even in an unsteady economy, fractional operators say business has continued to improve as existing customers re-enter the market or increase their fractional aircraft usage. In addition, they report an increasing number of new prospects are making the move to fractional ownership as an alternative to flying commercially

or owning a business jet outright. In the U.S., fractional-share ownership makes up 15% of business-aviation flights.

Eclipse 550 Very Light Jet (VLJ)

Growing segments of the business aircraft fleet mix include business liners and very light jets (VLJ). Business liners are large business jets, such as the Boeing Business Jet and Airbus ACJ, which are reconfigured versions of passenger aircraft flown by large commercial airlines. Labeled as "personal jets," VLJs are a relatively new category of aircraft that are small, six-seat jets costing substantially less than typical business jet aircraft. These aircraft are generally also significantly less demanding operationally in terms of runway length requirements. This has allowed VLJs to operate at smaller airports with shorter runways, resulting in those airports becoming viable options for these types of jet operations. Three such aircraft currently in operation are the Eclipse 550, Embraer Phenom 100, and Cessna Mustang, with several other models under development or awaiting certification.

Anticipated General Aviation Trends



Single engine aircraft at TAN

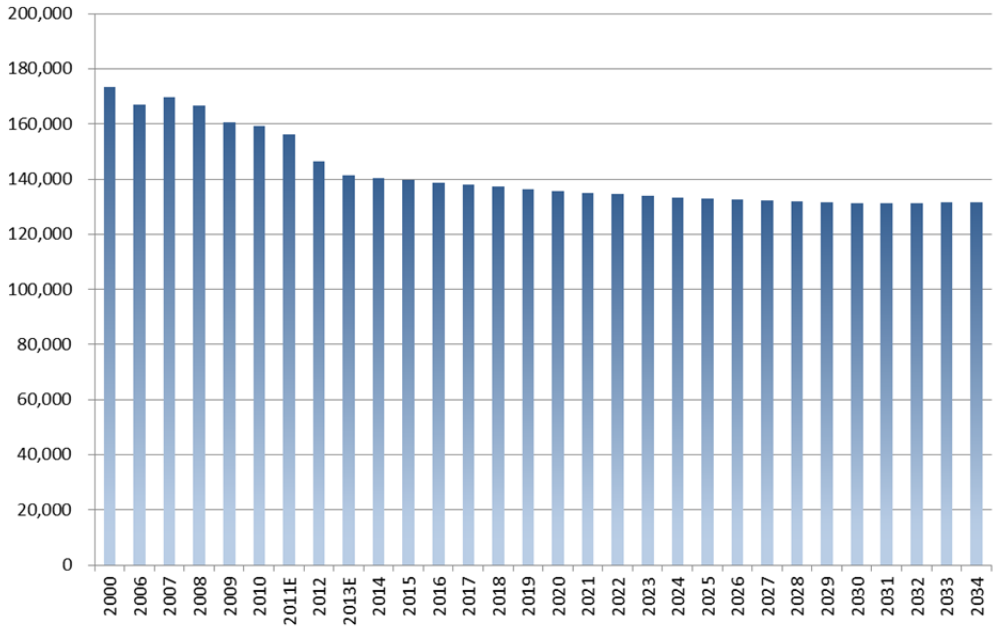
Two important national general aviation activity metrics that are continually monitored and updated by the FAA on an annual basis in the *FAA Aerospace Forecasts* include active aircraft fleet and active hours flown. These are discussed below.

Single and multi-engine piston aircraft experienced a decline in the number of aircraft between 2000 and 2013. Although still the largest portion of aircraft in the active fleet, the number of single engine aircraft fell from 149,422 in 2000 to 123,730 in 2013, a 1.4 percent average annual decline. During that same period, multi-engine piston aircraft had a much steeper decline, falling from 21,091 aircraft to 14,235, a 3.0 percent annual decrease. In total, active piston aircraft decreased at 1.6 percent annually over that time period. Much of this decline is attributed to the progressive retirement of older aircraft in combination with the relative high costs for new, replacement aircraft. In its annual aviation forecast, the FAA indicated that it expects the number of active piston general aviation aircraft to continue to decline, but by a lower rate than in the past decade. Over the next decade, the decrease in the number of piston aircraft is expected to be 0.5 percent per year and 0.3 percent over the next two decades. The result of these predictions show total piston aircraft (combined single and multi-engine) falling from 141,325 in 2013 to 131,615 in 2034. This is reflected in **Figure 3-3** below.

Remos GX Light Sport Aircraft

The FAA has also established a relatively new category of piston-engine aircraft - light sport aircraft. These aircraft are very small (usually holding only one or two people) and meet certain regulations set by the FAA restricting weight and performance. Aircraft which qualify as a light sport aircraft may be operated by holders of a sport pilot certificate. At the end of 2012, a total of 2,001 active special light-sport aircraft were estimated in this category. The forecast assumes about 4.1 percent annual growth of the fleet by 2034, to a total of 4,880 light sport aircraft.

Figure 3-3: General Aviation Piston Aircraft Growth 2000-2034



Source: *FAA Aerospace Forecasts, 2014-2034.*

As indicated previously, turboprop and jet aircraft experienced substantial growth between 2000 and 2013, increasing from approximately 13,000 to over 22,000 aircraft, over a 4.3 percent average annual increase over that period. Between 2003 and 2004, heavily influenced by economic recession and pressures on companies to reduce controllable costs, the overall production of jet aircraft declined slightly. Since that time, however, the numbers of jet aircraft have reassumed their growth pattern. One of the most important trends identified by the FAA in these forecasts is the strong growth anticipated in active general aviation jet aircraft. The active general aviation turboprop and jet aircraft fleet is anticipated to continue to increase dramatically over the projection period, to about 27,000 aircraft in 2024, with jet aircraft doubling in numbers by 2034. As stated within the FAA Aerospace Forecasts, 2014-2034:

Pilatus PC12 Turboprop

> *After growing rapidly for most of the past decade, and then slowing over the past few years, the most recent shipment activity indicates the modest growth continues in the overall general aviation aircraft market. While economic uncertainties still affect the business jet market, the rate of decline slowed down and a recovery is expected in the near term. The forecast calls for robust growth in the long term outlook, driven by higher corporate profits and the growth of worldwide GDP, though at rates slightly lower than those predicted last year. Continued concerns about safety, security, and flight delays keep business aviation attractive relative to commercial air travel. As the industry experts and prior year's survey results report a significant portion of piston aircraft hours are also used for business purposes, we predict business usage of general aviation aircraft will expand at a faster pace than that for personal and recreational use.*

Increased demand, especially for agricultural use turboprop aircraft also contributes to increased turbine fleet and hours.

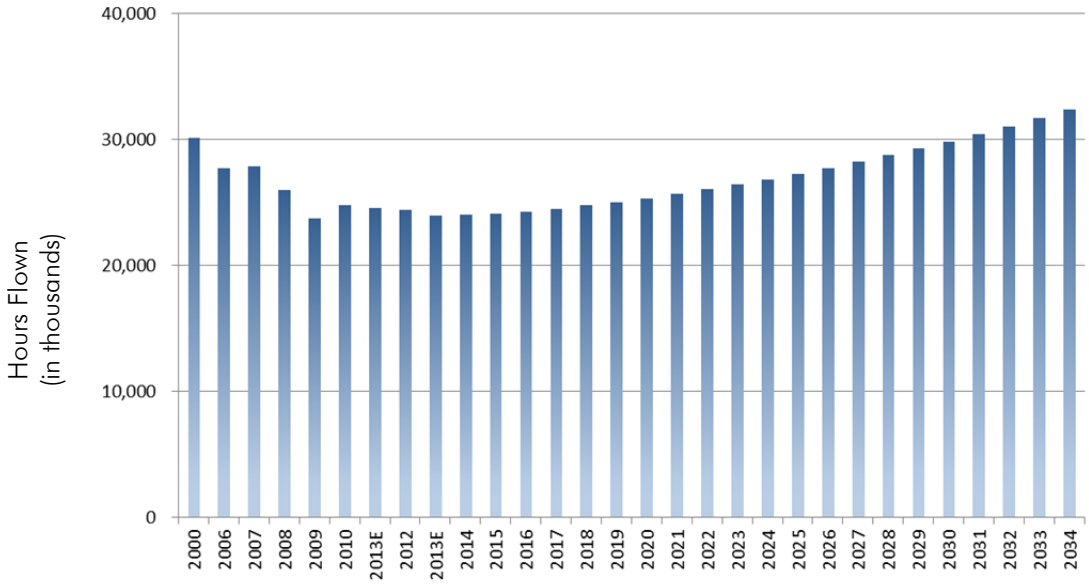
As a whole, business aviation is expected to grow faster than private or recreational aviation, driven by a growing U.S. and world economy. Additionally, as discussed above, turboprops and jets will fare better than piston aircraft, with continuing growth of about 3 to 4 percent per year. Even with the anticipated decline of piston aircraft during the 20-year planning period, growth in jet aircraft is expected to more than make up for the decline, resulting in a gain of total general aviation aircraft of 0.5 percent per year through 2034. This trend illustrates a movement in the general aviation community toward higher-performing, more demanding aircraft.

Cessna Citation Jet

The FAA also tracks and projects a valuable metric known as Active General Aviation and Air Taxi Hours Flown. This metric captures a number of activity-related data including aircraft utilization, frequency of use, and duration of use. Hours flown in general aviation piston aircraft experienced a significant decrease of 3.7 percent annually, from 2000 to 2013. Hours flown within this category are expected to continue to decline over the 20-year planning period albeit at a lesser rate of decline at 0.4 percent. For turboprop and jet aircraft, hours flown are expected to continue to grow at relative high rate of 3.2 percent per year from 2013 to 2034.

Figure 3-4 depicts general aviation hours flown from 2000 through 2013 as well as projected hours flown through 2034. As shown by the graph, hours flown during the period from 2007 to 2009 experienced dramatic decline spurred by the economic recession, impacting piston aircraft owners the most. As presented by the FAA, the CAGR of hours flown over the projection period is approximately 1.4 percent. Compared to the projected average annual growth rate of the general aviation active fleet of an estimated 0.6 percent, the difference from hours flown represents anticipated increases in utilization. Total hours flown by general aviation aircraft are estimated to reach 32.3 million by 2034, compared to 23.9 million in 2013.

Figure 3-4: Historic and Projected Total U.S. General Aviation and Air Taxi Hours Flown Hours Flown



Source: FAA Aerospace Forecasts, 2014-2034.

3.2.3 Regional Trends

Not all national trends are experienced to the same degree on a regional level. Therefore, additional data was collected and reviewed to identify potential growth areas in aviation demand for TAN. This data is focused heavily on socioeconomic development potential in and surrounding the TAN market area, because that type of data has shown to have direct correlation with aviation activity.

Regional Demographics

Aviation activity has traditionally been linked to various socioeconomic factors, such as population, employment and earnings. These linkages are related to the discretionary nature of personal and business travel as well as the recreational component of general aviation activity. **Table 3-1** reflects reliable data sources to provide historical levels and projections of these key socioeconomic indicators within TAN's market area. These data were taken from the *Complete Economic and Demographic Data Source* prepared by Woods and Poole Economics, Inc. In most cases, the Woods and Poole data provides a conservative estimate of growth. Additional data sources included the U.S. Census Bureau and the U.S. Bureau of Economic Analysis (BEA). It must also be noted that the data collected from these sources is aggregated on a county basis; therefore, for the purposes of this analysis, the airport market area for TAN was identified as being comprised of Norfolk County, Plymouth County and Bristol County in Massachusetts (see Figure 3-1). This is reflected in the table below.

Taunton Green

Table 3-1: Airport Market Area[1] Socioeconomic Data

Year	Population	Employment	Per Capita Personal Income
Historical			
2000	1,660,813	695,473	$37,150
2005	1,683,267	713,785	*na*
Current			
2013	1,749,344	730,858	$52,001
Projected			
2015	1,788,382	730,057	$53,101
2020	1,880,634	773,484	$56,076
2025	1,977,841	819,496	$59,218
2030	2,080,277	868,246	$62,537
CAGR[2] (2010-2030)	0.96%	1.16%	1.04%
Massachusetts			
CAGR[2] (2010-2030)	0.33%	*na*	*na*
United States			
CAGR[2] (2010-2030)	0.95%	*2.13%*	*1.18%*

Source: Woods & Poole Economics, Inc.; U.S. Census Bureau; U.S. Bureau of Economic Analysis
[1] Norfolk County, MA; Plymouth County, MA; Bristol County, MA.
[2] Compound Annual Growth Rate

Downtown Taunton

Population

Aviation demand is strongly tied to the number of people within an airport's market area. For both commercial service and general aviation activity, as the number of people living in a region grows, the demands for these services typically increase. Table 3-1 presents the most recent and forecasted population for TAN's market area, including Norfolk, Plymouth and Bristol counties in Massachusetts. Over the planning period, the population in TAN's market area is expected to increase 0.96 percent annually through 2030. This rate exceeds that of Massachusetts (0.33 percent), but mirrors the projected national rate (0.95 percent).

Employment

Levels of employment can also be excellent indicators for aviation demand in a geographic area. As with other metrics, current and forecasted levels for the airport market area were compiled and presented above in Table 3-1. TAN's market area accounts for approximately 26.1 percent of the total population of Massachusetts. The market area also comprises approximately 21.8 percent of the total number of persons employed in both states as well. Employment within the TAN's airport market area over the past 10 years has increased annually by 0.4 percent. Over the next 20 years, employment levels in the airport market area are expected to be higher than in the past, with an annual increase of 1.16 percent in employment.

Personal Income

Personal income reflects the sum of wages and salaries of workers within a defined geographic area as well as other sources of income. This is reflective of how positive the business climate is in a region. The growth in personal income relates to aviation activity in that corporate and private use of general aviation services is sometimes discretionary in nature. As with other demographic indicators, current and forecast personal income for the study area was compiled from the Woods and Poole data and presented above in Table 3-1.

Taunton Courthouse

Historically, the TAN market area has experienced a growth rate of 3.7 percent since 2000; this is higher than that of Massachusetts and the U.S., which are 3.4 percent and 3.2 percent, respectively. Over the next 20 years, the data shows that personal income growth in the airport market area is expected to increase 1.04 percent annually.

Within the context of this master plan forecasting effort, the projected growth rates for these demographics were applied to create various forecasting methodologies. These methodologies were then compared with other forecasting approaches developed through the use of aviation industry trends and FAA, as well as generally accepted forecasting principles.

Economic Developments

Economic development in the region can influence the future aviation demand at TAN by drawing more people to the area and contributing to growth in total income. Additionally, potential use of TAN by corporate aviation users could also increase as new companies locate operational bases in the region. Therefore, a brief review of recent economic growth within the airport market area was conducted as well as identifying potential growth areas near TAN.

- Taunton Development Corporation
  The Taunton Development Corporation is a non-profit private corporation responsible for the continuing development, marketing, management and maintenance of the Myles Standish Industrial Park and the Liberty & Union Industrial Park. Their stated mission includes the following:

Myles Standish Industrial Park

  - The retention and expansion of local industry by assisting them to improve competitiveness and efficient operation with introductions to new - means of financing, technological improvements, sources of qualified employees, and applicable training resources.
  - The recruitment of new companies through the marketing and promotion of Taunton as a City that is business receptive with available property and services for industrial growth.
  - The research and maintenance of an inventory of available land and existing space.
  - The development of, or participation in, marketing programs.

Liberty & Union Industrial Park

– The establishment of business outreach programs directly, or in conjunction with existing organizations, such as the Taunton Development Corporation, Taunton Area Chamber of Commerce, Heart of Taunton, The Neighborhood Corporation, etc.

Currently, the Myles Standish Industrial Park, which was opened in 1973 and is generally regarded as one the more successful industrial parks in Massachusetts, has approximately 100 companies with over 6,700 employees. The much younger Liberty & Union Industrial Park has eight companies and nearly 690 employees. It is also the proposed site for a future casino, where the Mashpee Wampanoag tribe has an option on 135 acres in total in Taunton, 93 of which are buildable. Note that both parks combined currently provide the City of Taunton with approximately $10 million in property taxes annually.

- <u>Project First Light Resort & Casino</u>
  Project First Light Resort & Casino is a $500 million resort casino proposed to be constructed within the Liberty & Union Industrial Park in East Taunton that could be open as early as 2016. Proposed by the Mashpee Wampanoag Tribe, the development is projected to occur in four phases:

Project First Light Report & Casino

  – Phase 1 – 150,000 SF casino; up to 14 restaurants; 10 retail stores; and over 5,000 parking spaces
  – Phase 2 – 300 room hotel
  – Phase 3 – 300 room hotel; restaurant
  – Phase 4 – Conference center; 300 room waterpark hotel;700 parking spaces

With construction anticipated to last up to five years, the project is anticipated to employ over 1,000 tradesmen. Phase 1 is also projected to create almost 2,700 permanent jobs with over $83 million in total payroll, generating over $187 million of direct annual economic benefit to the City of Taunton. When also considering both indirect and induced impacts, the overall benefit to Taunton for Phase 1 is estimated to be $272 million. The subsequent three phases of construction will add an additional $15.6 million, $20.6 million, and $27.4 million of annual economic impact for the community, resulting in a total annual economic impact for all phases to be an estimated $335 million.

Project First Light Report & Casino

It should be noted that the start of this project is dependent upon a favorable ruling from the U.S. Department of Interior that the Wampanoag's legal and historical status is consistent with a 2009 Supreme Court decision requiring any tribe seeking land into trust to prove it was under federal jurisdiction in 1934, the year the Indian

Reorganization Act was passed into law. This ruling is expected to occur sometime in late 2014.

- Downtown Taunton Foundation (DTF)
  The Downtown Taunton Foundation (DTF) is a place-based nonprofit Community Development Corporation serving the economically disadvantaged geographic area of Downtown Taunton. Its goal is the physical, social, and economic revitalization of Downtown Taunton through cultural and educational programming, historic preservation, the expansion of economic opportunities for low- to moderate-income persons, and the provision of decent housing affordable to low- to moderate-income persons. Achieving these goals will create economic opportunity and improve quality of life for Downtown's low- to moderate-income residents. The entire community will benefit from a revitalized Downtown which is more vibrant, viable, convenient, attractive, and safe.

Downtown Taunton

3.3 HISTORICAL AND EXISTING AVIATION ACTIVITY

Historical aircraft and operations data for TAN provide the baseline from which future activity at the Airport can be projected. While historical trends are not always reflective of future periods, historical data can provide insight into how local, regional, and national demographic and aviation-related trends may be tied to a given airport. The following sections include historical overviews of TAN's based aircraft (generally defined as an aircraft that is permanently stored at an airport) and aircraft operations (generally defined as either an aircraft landing or departure – hence a takeoff and a landing would count as two operations).

Since Taunton Municipal Airport does not have an Air Traffic Control Tower (ATCT), there is no formal mechanism for counting aircraft operations on a regular basis. As a result, activity levels are typically estimated by airport officials and verified by MassDOT Aeronautics Division during their annual airfield inspections (FAA Form 5010, *Airport Master Record*). That information is ultimately provided to the FAA for storage in a centralized federal database to be used by the FAA for the development of a Terminal Area Forecast (TAF) for the Airport. (Note that the TAF is developed by the FAA and combines historical airport operations data and FAA Form 5010 data to generate a long range forecast). For TAN, aircraft operational data is available for review and use through both the 5010 form, and the TAF (from 1990 to present). A copy of FAA Form 5010 as well as the FAA TAF data for TAN is included in **Appendix E**. The specific sources that have been utilized include the following:

- FAA Terminal Area Forecast (TAF) data for TAN *(Forecast Issued February 2014)*
- TAN FAA 5010 Data *(Inspection date 06/01/2012)*

It should be noted that at general aviation airports that do not have an ATCT, it is generally accepted that the FAA TAF serves as the baseline for historical operations and based aircraft. As available, that data can also be augmented with local reports, previous planning studies, etc.

3.3.1 Aircraft Operations

Annual aircraft operations represent the number of aircraft takeoffs and landings occurring at an airport during a calendar year. The historical operations data includes operations conducted by both based aircraft as well as operations conducted by itinerant aircraft. (Itinerant aircraft are defined as those that are based at other airports that arrive at TAN for a variety of reasons, including business, recreation, or flight training purposes.) Historical aircraft operations data for TAN are summarized below in **Table 3-2**.

Aircraft operations are divided into two categories: itinerant operations and local operations. The FAA defines a "local operation" as any flight performed by an aircraft flying in the local traffic pattern, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport. They are often associated with flight training operations. "Itinerant operations" are all other aircraft operations.

Table 3-2: Historic Annual Aircraft Operations

Year	Itinerant Air Taxi	Itinerant GA	Itinerant Military	Local GA	Local Military	Total
2004	80	20,000	0	35,000	0	55,080
2005	100	40,000	30	40,000	0	80,130
2006	100	60,000	40	50,000	0	110,140
2007	100	60,000	40	50,000	0	110,140
2008	100	60,000	40	50,000	0	110,140
2009	100	3,500	40	30,000	0	33,615
2010	100	3,400	40	28,000	0	31,515
2011	100	3,400	40	30,000	0	31,515
2012	100	3,400	50	30,000	0	33,550
2013[1]	100	3,400	50	30,000	0	33,550
CAGR[2]	2.51%	-17.87%	54.45%	-1.70%	0.00%	-5.36%

Source: FAA Terminal Area Forecast (TAF) data for TAN (2004 – 2013)
[1] 2013 has been identified as the Base Yea for the TAN Forecast. Note that 2013 operational data is a forecasted year in the TAF
[2] Compound Annual Growth Rate for years 2004 to 2013.

All aircraft operations at TAN are conducted by general aviation aircraft, which include all aircraft that are not used for commercial service or military purposes. Consequently, general aviation encompasses pleasure flying and flight training, along with business and corporate aviation activities. Itinerant general aviation operations at TAN have shown a marked decrease over the previous 10-year period; however, much of this has been attributed to a change in the operational reporting methodology. In addition, 2008 saw a severe economic recession that dramatically impacted aviation activity, not only at TAN, but also throughout the Commonwealth and the country as a whole.

Local general aviation at TAN has also shown a decrease in total operations, albeit to a much lesser degree than that of itinerant operations. This has also been largely attributed to an updated reporting methodology and the 2008 economic downturn. It should be noted that local operations are also heavily influenced by flight training operations based at the Airport. (A recent change in the Airport's flight training provider is anticipated to have a greater impact on local operational totals.) In general, total operations at TAN over the 10-year historical period have decreased from 55,080 to 33,550, an average annual growth rate of -5.36 percent. However, it should also be noted that since 2010 when the economy stabilized, operations at TAN have remained relatively consistent.

TAN has historically been home to a flight school that provides flight training for primary and advanced students, and leases space in the terminal building. While the most recent provider ceased operations in 2014, the Airport expects to have replacement established by the end of 2015.

There are also occasional operations by military aircraft at TAN, and there is a request that the airport be notified prior to military night operations. In addition, there are also occasional helicopter operations at the Airport, some conducted by MedFlight and the State Police as well as helicopters that fly in for maintenance.

3.3.2 Based Aircraft

Based aircraft at Taunton Municipal Airport have generally grown over the historical period. As shown in **Table 3-3** and based on the FAA Terminal Area Forecast (TAF) data

Based Aircraft at TAN

Table 3-3: Historic Based Aircraft

Year	Based Aircraft
2004	133
2005	154
2006	133
2007	147
2008	114
2009	127
2010	110
2011	111
2012	109
2013[1]	109
2013[2]	***117***
CAGR[3]	-2.19%

Source: FAA Terminal Area Forecasts
[1] 2013 has been identified as the Base Yea for the TAN Forecast. Note that 2013 operational data is a forecasted year in the TAF
[2] Actual aircraft count per TAN 3/13/2014.
[3] Compound Annual Growth Rate for years 2004 to 2013

The Airport experienced a significant increase in based aircraft in the early 2000s, largely due to extensive T-hangar development during that time period. Total based aircraft at TAN prior to 2004 was approximately 79, the majority of which were located on tiedowns. Since its high point in 2005, the airport has seen a decline in tiedown occupancy rates due to economic conditions, the aging single-engine general aviation aircraft fleet, and increased availability in T-hangars at other airports in the region.

It should also be noted that the source for the historical based aircraft data is the FAA TAF and the FAA 5010 data. The accuracy of this information is considered to be reasonable for a non-towered airport such as TAN. However, as part of this planning effort, a review of airport based aircraft records were undertaken in March 2014. That review indicated a total of 117 aircraft currently based at TAN; therefore, this was utilized as the total for the base year. However, with respect to based aircraft trend analyses, the projected TAF growth rates were utilized for forecasting purposes, but adjusted to reflect the more accurate based aircraft totals collected from the Airport.

3.4 PROJECTIONS OF AVIATION ACTIVITY

Projections of aviation activity are generated by employing historical data and incorporating assumptions, conditions, and trends. In truth, forecasting of any type is as much an "art" as a "science", and no matter how sophisticated, represents an "educated guess" of a particular point in time. Therefore, forecasts must be updated periodically and revised as necessary to reflect new conditions and developments.

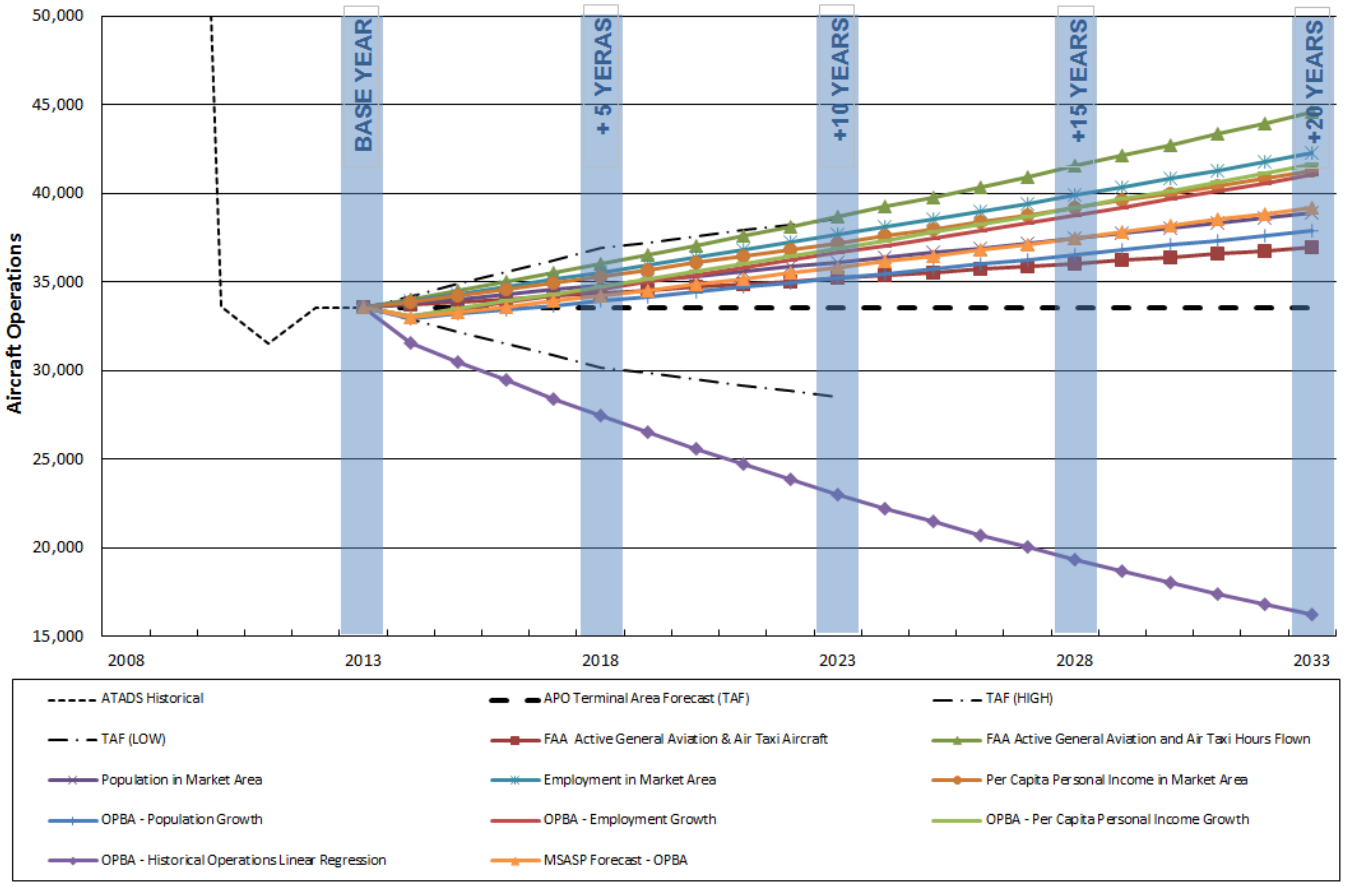
During a master planning effort, aviation activity forecasts are typically established by using a variety of assumptions that result in a wide range of outcomes. This is intentionally done in order to provide a broad view of future airport utilization potentials. Once that broad view has been established, then a careful examination of those assumptions is undertaken to determine which could be reasonably applied given that particular airport's current situation.

For TAN, two existing forecasts for the Airport were considered and ten different types of forecast methodologies were applied to the key master plan forecast metrics for assessment. These ten methodologies included the following and are reflected in **Figure 3-5** below:

- TAN Historical Data Linear Regression
- FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2014-2034)
- Population Growth in the Airport Market Area (Bristol, MA; Norfolk, MA; and Plymouth, MA)
- Employment Growth in the Airport Market Area (Bristol, MA; Norfolk, MA; and Plymouth, MA)

- Per Capita Personal Income Growth in the Airport Market Area (Bristol, MA; Norfolk, MA; and Plymouth, MA)
- Operations Per Based Aircraft (OPBA)– Population Growth in the Airport Market Area
- Operations Per Based Aircraft (OPBA)– Employment Growth in the Airport Market Area
- Operations Per Based Aircraft (OPBA)– Per Capita Personal Income Growth in the Airport Market Area
- Operations Per Based Aircraft (OPBA)– Aircraft Operations Linear Regression
- MSASP Forecasts (OPBA – FAA GA Forecast Growth)

Figure 3-5: TAN General Aviation Operations – All Forecasts (2014-2033)



Source: Airport Solutions Group.

Through this process that included coordination with key project stakeholders representing TAN, MassDOT Aeronautics, and the FAA, three forecast applications were identified for use in this master plan. It is also important to note that through this coordination process, it was decided that the TAN forecast be portrayed as a "range" in order to better account for the variabilities that are inherent in any forecasting effort. As such, high-, medium-, and low-growth forecast scenarios were established for each metric. The bases of these three scenarios are reflected in the following:

1. High-Growth Scenario - FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2014-2034); 1.44% average annual growth rate
2. Medium-Growth Scenario – Employment Growth in the Airport Market Area; 1.16% average annual growth rate
3. Low-Growth Scenario - APO Terminal Area Forecast (TAF) (Forecast Issued January 2014); 0.00% average annual growth rate

The identification of these three particular scenarios is important for TAN for several reasons. First, the High-Growth Scenario is based directly the FAA's national perspective of future trends for in general aviation aircraft operational hours flown. Since this encompasses the entirety of all aircraft operating at TAN, it is reasonable to attach the degree to which general aviation aircraft are projected to fly to future growth at the Airport. Second, the Medium-Growth Scenario is based on the regional economy, which is well-understood to be a primary driving factor in the growth of general aviation in a given region. In essence, the better the economic conditions, the greater the need for business aviation operations, as well as the amount of disposable income that is available for recreational flying. Therefore, it is reasonable to directly link growth at the Airport with economic growth in its market area. Third, the Low-Growth Scenario is based directly on the FAA TAF. This is important since, as part of the master planning process, the FAA is required to compare their TAF against any proposed master plan forecast prior to their approval for the purpose of ensuring consistency and reasonableness. Since the current TAF itself has been directly integrated into the forecast "range", this approach has been deemed appropriate and acceptable by the FAA.

The following sections provide a review of the primary forecast metrics identified for the Taunton Municipal Airport Master Plan process. Those forecast metrics include general aviation activity (including itinerant and local operations), commercial air service activity, military activity, based aircraft, and fleet mix. Within each section, the results of the three forecast scenarios described above are presented.

3.4.1 General Aviation Activity Forecast

The general aviation forecasts include those operations conducted by aircraft based at TAN (local) as well as operations conducted by aircraft based at other

airports (itinerant). The results for the High-Growth, Medium-Growth, and Low-Growth scenarios for itinerant general aviation operations at TAN for the master planning period (2014-2033) are presented in **Table 3-4**.

Generally, recessions and growth periods in the country's economic cycle have historically impacted general aviation operations more severely than air carrier operations. However, with more general aviation aircraft being used for dedicated business purposes nationally than in the past, the overall general aviation activity levels should ultimately become less sensitive to economic fluctuations than has been previously seen. Note that this could also extend to the flight training operations currently experienced and projected for TAN.

Table 3-4: Itinerant General Aviation Operations Forecast (2014-2033)

Year	Scenario 1 High-Growth[1]	Scenario 2 Medium-Growth[2]	Scenario 3 Low-Growth[3]
2013[4]	3,550	3,550	3,550
2014	3,600	3,592	3,550
2015	3,651	3,634	3,550
2016	3,702	3,676	3,550
2017	3,754	3,719	3,550
2018	3,807	3,762	3,550
2023	4,083	3,986	3,550
2028	4,378	4,222	3,550
2033	4,694	4,473	3,550
CAGR[5]	1.41%	1.16%	0.00%

Source: Airport Solutions Group.
[1] Based on FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2014-2034); 1.44% AAG
[2] Based on Employment Growth in the Airport Market Area; 1.16% AAG
[3] Based on APO Terminal Area Forecast (TAF) (Forecast Issued January 2014); 0.00% AAG
[4] Base Year – Actual Totals
[5] Compound Annual Growth Rate for years 2013 to 2033

The results for the High-Growth, Medium-Growth, and Low-Growth scenarios for local general aviation operations at TAN for the master planning period (2014-2033) are presented in **Table 3-5**.

Table 3-5: Local General Aviation Operations Forecast (2014-2033)

Year	Scenario 1 High-Growth[1]	Scenario 2 Medium-Growth[2]	Scenario 3 Low-Growth[3]
2013[4]	30,000	30,000	30,000
2014	30,432	30,349	30,000
2015	30,870	30,702	30,000
2016	31,314	31,059	30,000
2017	31,764	31,420	30,000
2018	32,221	31,785	30,000
2023	34,606	33,675	30,000
2028	37,168	35,678	30,000
2033	39,919	37,800	30,000
CAGR[5]	1.44%	1.16%	0.00%

Source: Airport Solutions Group.
[1] Based on FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2014-2034); 1.44% AAG
[2] Based on Employment Growth in the Airport Market Area; 1.16% AAG
[3] Based on APO Terminal Area Forecast (TAF) (Forecast Issued January 2014); 0.00% AAG
[4] Base Year – Actual Totals
[5] Compound Annual Growth Rate for years 2013 to 2033

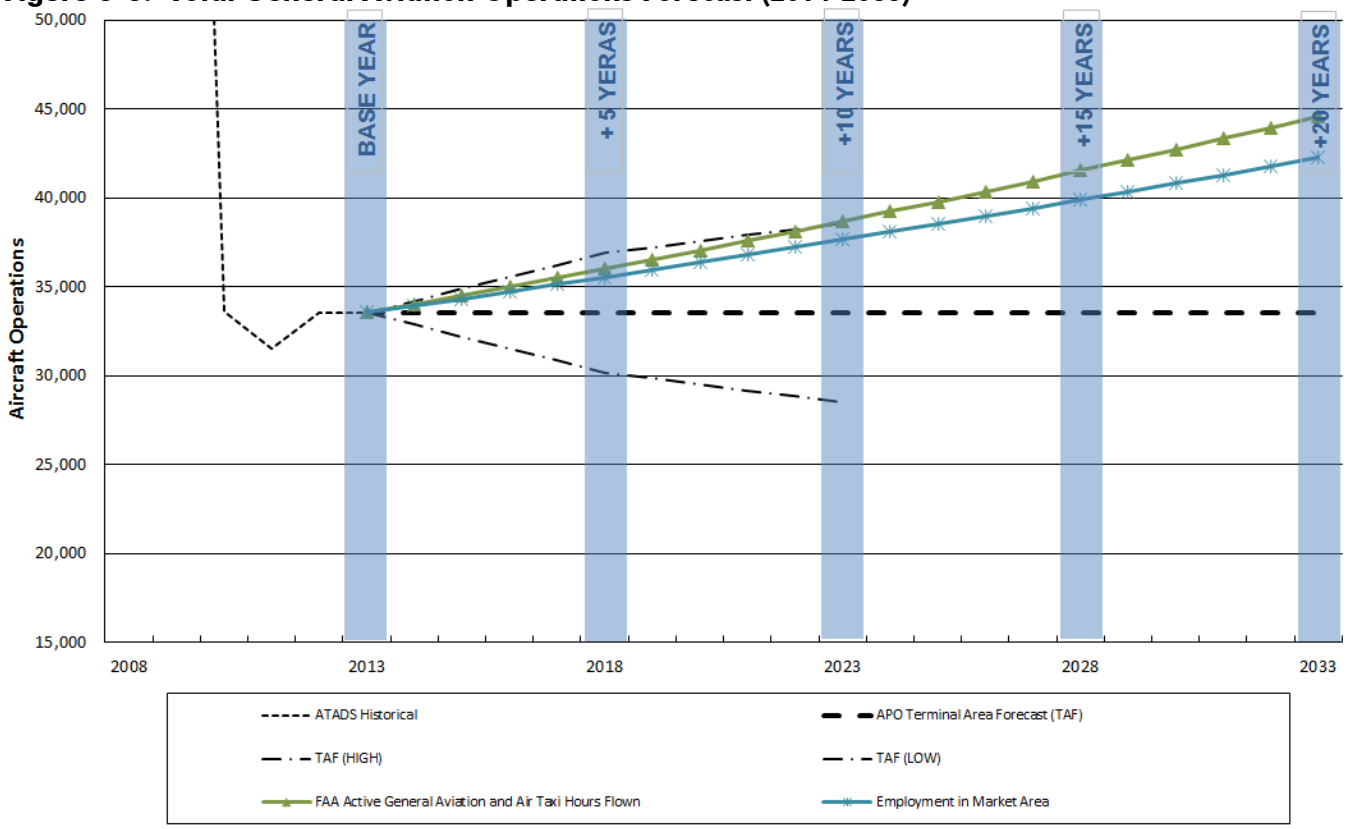
The total general aviation operations (local and itinerant combined) at TAN for the master planning period (2014-2033) based on the High-Growth, Medium-Growth, and Low-Growth scenarios for are presented below in **Table 3-6** and **Figure 3-6**.

Table 3-6: Total General Aviation Operations Forecast (2014-2033)

Year	Scenario 1 High-Growth[1]	Scenario 2 Medium-Growth[2]	Scenario 3 Low-Growth[3]
2013[4]	35,550	35,550	35,550
2014	34,032	33,941	35,550
2015	34,521	34,336	35,550
2016	35,016	34,735	35,550
2017	35,518	35,139	35,550
2018	36,028	35,547	35,550
2023	38,689	37,661	35,550
2028	41,546	39,900	35,550
2033	44,613	42,273	35,550
CAGR[5]	1.44%	1.16%	0.00%

Source: Airport Solutions Group.
[1] Based on FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2014-2034); 1.44% AAG
[2] Based on Employment Growth in the Airport Market Area; 1.16% AAG
[3] Based on APO Terminal Area Forecast (TAF) (Forecast Issued January 2014); 0.00% AAG
[4] Base Year – Actual Totals
[5] Compound Annual Growth Rate for years 2013 to 2033

Figure 3-6: Total General Aviation Operations Forecast (2014-2033)



Source: Airport Solutions Group.

3.4.2 Commercial Air Service Activity Forecast

The FAA TAF indicates that the Taunton Municipal Airport could experience very limited air taxi service throughout the planning period. Note that an air taxi operator is defined as one which carries cargo or mail on either a scheduled or charter basis, and/or carries passengers on an on-demand basis or limited scheduled basis. For TAN, an air taxi service would generally encompass small charter operators.

3.4.3 Military Activity Forecast

The FAA TAF indicates that the Taunton Municipal Airport could experience very limited military activities throughout the planning period. These would only be sporadic and not part of any formal operational program.

3.4.4 Based Aircraft Forecast

Based aircraft are those that are permanently stored at a particular airport. Estimating the number and types of aircraft expected to be based at TAN over the 20-year study period will impact the planning for future airport facility and infrastructure requirements. As the number of aircraft based at an airport increases, so too does the aircraft storage required as well as supporting infrastructure and services.

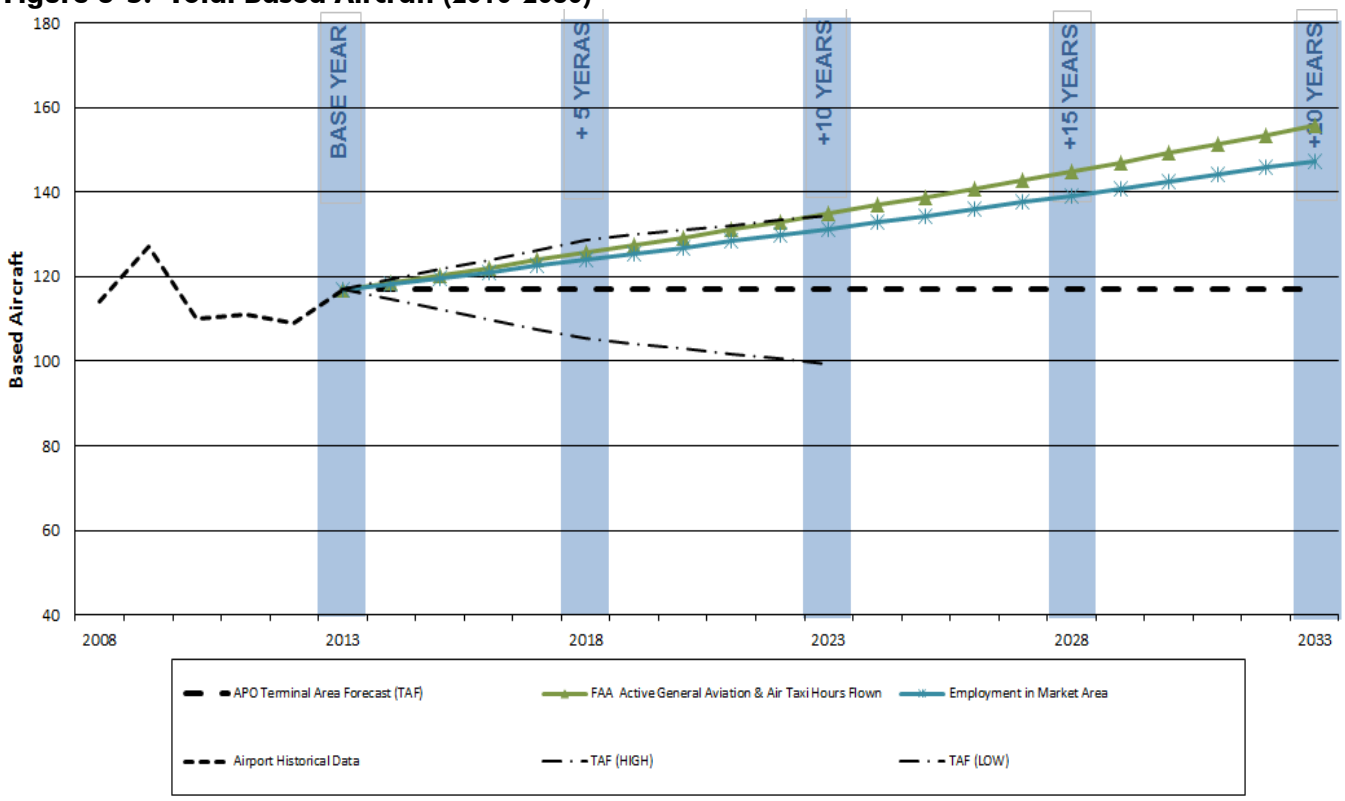
Based aircraft at TAN were projected using the three forecast scenarios described above. The results for the High-Growth, Medium-Growth, and Low-Growth scenarios for based aircraft at TAN for the master planning period (2014-2033) are presented in **Table 3-7**, and in graphical form in **Figure 3-7.** Note that in addition to the forecast scenarios, the figure also includes representations of MassDOT Aeronautics' historical based aircraft totals as well as the actual unadjusted FAA TAF.

Table 3-7: Based Aircraft Forecast (2014-2033)

Year	Scenario 1 High-Growth[1]	Scenario 2 Medium-Growth[2]	Scenario 3 Low-Growth[3]
2013[4]	117	117	117
2014	119	118	117
2015	120	120	117
2016	122	121	117
2017	124	123	117
2018	126	124	117
2023	135	131	117
2028	145	139	117
2033	156	147	117
CAGR[5]	1.44%	1.16%	0.00%

Source: Airport Solutions Group.
[1] Based on FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2014-2034); 1.44% AAG
[2] Based on Employment Growth in the Airport Market Area; 1.16% AAG
[3] Based on APO Terminal Area Forecast (TAF) (Forecast Issued January 2014); 0.00% AAG
[4] Base Year – Actual Totals
[5] Compound Annual Growth Rate for years 2013 to 2033

Figure 3-5: Total Based Aircraft (2010-2030)



Source: Airport Solutions Group.

The total based aircraft projected for TAN over the planning period were then allocated to six general aircraft categories – single-engine piston, multi-engine piston, turbine/jet, military, rotorcraft, and other – to develop a projection of TAN's based aircraft fleet mix through the planning period. The fleet mix projections were developed based on the fleet mix percentages reported by the Airport in 2014. Through the forecasting process, and based on anticipated migrations of the fleet mix, those percentages are anticipated to change slightly over the long-term. The existing and future based aircraft fleet mix percentages at TAN by the following:

Aircraft Categories	2014	2033
Single-engine piston aircraft	98.2 percent	90.0 percent
Multi-engine piston aircraft	0.9 percent	3.0 percent
Turbine / Jet aircraft	0.9 percent	5.0 percent
Helicopter	0.0 percent	2.0 percent
Military / Other	0.0 percent	0.0 percent
	100 percent	100 percent

Based on projected U.S. general aviation trends found in the FAA's *Aerospace Forecasts 2014 - 2034*, jet aircraft will continue to represent the fastest growing segment of the active aircraft fleet in the nation. Single and multi-engine aircraft, however, are predicted to grow more slowly, although they will remain the largest segments of the national fleet by number of aircraft. Helicopters are anticipated

to increase their market share by 2 percent over the 20-year forecast period. The projected trends in the U.S. general aviation fleet were used to develop projections of TAN's future based aircraft fleet mix utilizing the preferred based aircraft projection. The fleet mix determinations by scenario are presented below in **Table 3-8**, **Table 3-9**, and **Table 3-10**.

Table 3-8: Based Aircraft Forecast By Type (2014-2033) – *Scenario 1 High Growth*[1]

Aircraft Type	2013[2]	2018	2023	2028	2033
Single Engine	115	121	126	133	140
Multi-Engine	1	3	4	6	8
Jet/Turboprop	1	1	3	4	5
Helicopter	0	1	3	3	3
Military	0	0	0	0	0
Other	0	0	0	0	0
Total Aircraft	117	126	136	146	156

Source: Airport Solutions Group.
[1] Based on FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2014-2034); 1.44% AAG
[2] Base Year

Table 3-9 Based Aircraft Forecast By Type (2014-2033) – *Scenario 2 Medium Growth*[1]

Aircraft Type	2013[2]	2018	2023	2028	2033
Single Engine	115	119	122	127	133
Multi-Engine	1	2	4	6	7
Jet/Turboprop	1	1	3	3	4
Helicopter	0	1	3	3	3
Military	0	0	0	0	0
Other	0	0	0	0	0
Total Aircraft	117	123	132	139	147

Source: Airport Solutions Group.
[1] Based on Employment Growth in the Airport Market Area; 1.16% AAG
[2] Base Year

Table 3-10: Based Aircraft Forecast By Type (2014-2033) – *Scenario 3 Low Growth*[1]

Aircraft Type	2013[2]	2018	2023	2028	2033
Single Engine	115	112	109	107	105
Multi-Engine	1	2	4	5	6
Jet/Turboprop	1	1	2	3	4
Helicopter	0	1	1	1	2
Military	0	0	0	0	0
Other	0	0	0	0	0
Total Aircraft	117	117	117	117	117

Source: Airport Solutions Group.
[1] Based on APO Terminal Area Forecast (TAF) (Forecast Issued January 2014); 0.00% AAG
[2] Base Year

Given the opportunities in this business-friendly community and positive economic initiatives and expectations in the market area, it is likely that TAN will follow national trends for aircraft market share and see an influx of business aircraft and helicopters. The fleet mix projection shows a greater integration of turbines/jets over the planning period. This is consistent with FAA projections for the share of turbines/jets within the general aviation market segment. The FAA predicts that the declining market share of single and multi-engine piston aircraft at general aviation airports will be replaced by turbines/jet aircraft used for business travel.

3.4.5 Project First Light Resort & Casino Development Scenario

An additional forecast scenario was generated based the proposed development of a casino and resort in East Taunton. Since that development remains only a proposal at the time of this planning effort, it is only a hypothetical possibility. However, if this project were to move forward, it certainly could have a potentially significant impact on the Taunton Municipal Airport and therefore should be considered in this Master Plan Update. (Note that this forecast scenario is speculative and should only be utilized if and when the project moves forward.)

As described previously, the Project First Light Resort & Casino is a $500 million resort casino proposed to be constructed within the Liberty & Union Industrial Park in East Taunton that could be open as early as 2016. Such a large scale development would reasonably be expected to generate regional aviation demand by a variety of users. While much of this demand may be able to be accommodated by existing regional airport infrastructure (e.g. Logan International Airport, Hanscom Field, Plymouth Municipal Airport, etc.), these facilities are at least 40 to 60 minutes from the proposed project site via surface transportation. With TAN only eight minutes away from the casino site, there is a reasonable expectation that there will be some level of demand to utilize the Taunton Airport to accommodate business and corporate aircraft. Specifically, the project would be anticipated to generate general aviation demand for the following purposes:

- Construction & Maintenance: This scale of a construction project will generate interest from national construction companies that may or may not operate within the region (additionally, the project's architectural firm is based in Las Vegas). These companies will operate corporate aircraft.
- Business Administration: The project's primary financial backer has been identified as Genting Group, the parent company of Malaysian investors loaning money to the tribe for the casino development. These investors will operate corporate aircraft.
- Resort Operation: While this casino development is not projected to be a national/international destination resort such as Las Vegas, the project will generate aviation demand from entertainers, vendors, some customers and other visitors that will utilize corporate and other general aviation aircraft.

Table 3-11 and **Table 3-12** below present the operations forecasts and based aircraft forecasts for this Casino Development Scenario. Note that since this forecast is based on a development that has not yet occurred, it is obviously difficult to identify appropriate assumptions. However, based on a review of other similar casino developments in Maryland, Ohio and Oklahoma, it was determined that it would be reasonable to assume a 4 percent average annual growth rate for itinerant traffic and a 2 percent average annual growth rate for based traffic. That 2 percent growth rate was also assumed for the growth rate for based aircraft.

Table 3-11: Total General Aviation Operations Forecast (2014-2033) – *Casino Development Scenario*

Year	Itinerant Operations[1]	Local Operations[2]	Total Operations
2013[3]	3,550	30,000	33,550
2014	3,690	30,600	34,290
2015	3,835	31,212	35,047
2016	3,986	31,836	35,822
2017	4,143	32,473	36,616
2018	4,307	33,122	37,429
2023	5,229	36,569	41,798
2028	6,350	40,375	46,725
2033	7,714	44,578	52,292
CAGR[4]	3.96%	2.00%	2.24%

Source: Airport Solutions Group.
[1] Assumes 4.0% average annual growth rate
[2] Assumes 2.0% average annual growth rate
[3] Base Year – Actual Totals
[4] Compound Annual Growth Rate for years 2013 to 2033

Table 3-12: Based Aircraft Forecast By Type (2014-2033) – *Casino Development Scenario*[1]

Aircraft Type	2013[2]	2018	2023	2028	2033
Single Engine	115	123	131	142	153
Multi-Engine	1	3	4	6	9
Jet/Turboprop	1	3	4	6	9
Helicopter	0	1	3	3	3
Military	0	0	0	0	0
Other	0	0	0	0	0
Total Aircraft	117	130	142	157	174

Source: Airport Solutions Group.
[1] Assumes 2.0% average annual growth rate
[2] Base Year

While speculative in nature, this conservative forecast does show that if the construction of the Project First Light Resort & Casino were to move forward, it

could have an important impact on TAN. This would be largely realized in the increased amount of business/corporate aircraft that would likely desire to operate at the Airport in support of the casino development and operation. Therefore, it is important that this possibility likewise be carried forward through this Airport Master Planning Process.

3.5 SUMMARY

It is largely anticipated that TAN will see low to moderate growth during the 20-year planning period. Market area demographic trends indicate that the Airport activity will be consistent with national growth trends in general aviation. The forecasts established for this master plan are based on a range approach that identifies a high-growth, a medium-growth, and a low-growth scenario in order to help account for inherent uncertainty in the local, state and national economy. As such, **Table 3-13**, **Table 3-14**, and **Table 3-15** below provide summaries of each scenario's operational and based aircraft results, included operations by aircraft type.

It is important to note that this is an unconstrained projection which stipulates that all facilities necessary to accommodate growth will be constructed and that nothing will limit it. The following chapters of this Master Plan Update will explore the facility implications of accommodating the projected demand and design requirements. Additionally, although not part of this Master Plan's official forecast, the possible impacts on TAN associated with the proposed Project First Light Resort & Casino will be considered throughout this planning effort.

Table 3-13: Summary of Aviation Activity Forecasts (2014-2033) – *Scenario 1 High Growth*[1]

	2013[2]	2018	2023	2028	2033
Operations					
General Aviation	33,400	35,828	38,430	41,222	44,276
Single Engine	*31,440*	*33,239*	*34,784*	*36,192*	*38,475*
Multi-Engine	*912*	*1,141*	*1,320*	*1,603*	*1,921*
Turboprop	*742*	*958*	*1,202*	*1,477*	*1,786*
Jet	*272*	*292*	*738*	*1,165*	*1,251*
Helicopter	*34*	*198*	*386*	*785*	*843*
Military	50	50	50	50	50
Misc. Aircraft	*50*	*50*	*50*	*50*	*50*
Commercial Service	100	150	209	274	287
Air Taxi	*100*	*150*	*209*	*274*	*287*
Total Operations	**33,550**	**36,028**	**38,689**	**41,546**	**44,613**
Local Operations	*30,000*	*32,221*	*34,606*	*37,168*	*39,919*
Itinerant Operations	*3,550*	*3,807*	*4,083*	*4,378*	*4,694*
Based Aircraft by Type					
Single Engine	115	121	126	133	140
Multi-Engine	1	3	4	6	8
Jet/Turboprop	1	1	3	4	5
Helicopter	0	1	3	3	3
Military	0	0	0	0	0
Ultra Light	0	0	0	0	0
Total Based Aircraft	117	126	136	146	156

Source: Airport Solutions Group.
[1] Based on FAA Active General Aviation and Air Taxi Hours Flown (FAA Aerospace Forecasts FY 2014-2034); 1.44% AAG
[2] Base Year - Actual

Table 3-14: Summary of Aviation Activity Forecasts (2014-2033) – *Scenario 2 Medium Growth*[1]

	2013[2]	2018	2023	2028	2033
Operations					
General Aviation	33,400	35,387	37,491	39,720	42,083
Single Engine	*31,440*	*32,834*	*33,944*	*34,892*	*36,590*
Multi-Engine	*912*	*1,125*	*1,284*	*1,539*	*1,819*
Turboprop	*742*	*945*	*1,170*	*1,417*	*1,691*
Jet	*272*	*288*	*718*	*1,118*	*1,184*
Helicopter	*34*	*195*	*375*	*754*	*799*
Military	50	55	60	65	70
Misc. Aircraft	*50*	*55*	*60*	*65*	*70*
Commercial Service	100	105	110	115	120
Air Taxi	*100*	*105*	*110*	*115*	*120*
Total Operations	**33,550**	**35,547**	**37,661**	**39,900**	**42,273**
Local Operations	*30,000*	*31,785*	*33,675*	*35,678*	*37,800*
Itinerant Operations	*3,550*	*3,762*	*3,986*	*4,222*	*4,473*
Based Aircraft by Type					
Single Engine	115	119	122	127	133
Multi-Engine	1	2	4	6	7
Jet/Turboprop	1	1	3	3	4
Helicopter	0	1	3	3	3
Military	0	0	0	0	0
Ultra Light	0	0	0	0	0
Total Based Aircraft	117	123	132	139	147

Source: Airport Solutions Group.
[1] Based on Employment Growth in the Airport Market Area; 1.16% AAG
[2] Base Year - Actual

Table 3-15: Summary of Aviation Activity Forecasts (2014-2033) – *Scenario 3 Low Growth*[1]

	2013[2]	2018	2023	2028	2033
Operations					
General Aviation	33,400	33,400	33,400	33,400	33,400
Single Engine	*31,440*	*30,990*	*30,240*	*29,340*	*29,040*
Multi-Engine	*912*	*1,062*	*1,144*	*1,294*	*1,444*
Turboprop	*742*	*892*	*1,042*	*1,192*	*1,342*
Jet	*272*	*272*	*640*	*940*	*940*
Helicopter	*34*	*184*	*334*	*634*	*634*
Military	50	50	50	50	50
Misc. Aircraft	*50*	*50*	*50*	*50*	*50*
Commercial Service	100	100	100	100	100
Air Taxi	*100*	*100*	*100*	*100*	*100*
Total Operations	**33,550**	**33,550**	**33,550**	**33,550**	**33,550**
Local Operations	*30,000*	*28,517*	*26,840*	*25,162*	*25,162*
Itinerant Operations	*3,550*	*5,033*	*6,710*	*8,388*	*8,388*
Based Aircraft by Type					
Single Engine	115	112	109	107	105
Multi-Engine	1	2	4	5	6
Jet/Turboprop	1	1	2	3	4
Helicopter	0	1	1	1	2
Military	0	0	0	0	0
Ultra Light	0	0	0	0	0
Total Based Aircraft	117	117	117	117	117

Source: Airport Solutions Group.
[1] Based on APO Terminal Area Forecast (TAF) (Forecast Issued January 2014); 0.00% AAG
[2] Base Year - Actual

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CHAPTER FOUR:

AIRFIELD CAPACITY & FACILITY REQUIREMENTS

4.1 INTRODUCTION

A key step in the Airport Master Plan Update (AMPU) process is determining future requirements for airport facilities that will allow for airside and landside development over the term of the planning period. By comparing the existing conditions of an airport to its predicted growth patterns based upon both existing and future aircraft usage, an AMPU process can define requirements for runways, taxiways, aprons, hangars, terminals, and other related airport facilities to accommodate growth over the short-, intermediate-, and long-term planning periods.

An essential step in the process of estimating future airport needs is the determination of an airport's current capacity to accommodate anticipated demand. Such demand-capacity analyses aid in the identification of airport deficiencies, surpluses, and opportunities for future development. Ultimately, they yield information that is used to design the Airport Layout Plan (ALP) and set the stage for future facility development.

Facility Requirements analysis establishes what airside & landside development should be planned for over the next 20 years.

This chapter of the Taunton Municipal Airport (the Airport or TAN) AMPU identifies facility requirements for the Airport through 2033. Existing and future facility requirements and development standards are identified based on current Airport strategic development initiatives and by comparing the Airport's existing facilities to future facility needs based on forecasts of aviation demand presented in **Chapter Three: Forecasts of Aviation Activity**.

The Federal Aviation Administration (FAA) provides guidance for planning and design of airport facilities through Advisory Circulars (AC) that promote airport safety, economy, efficiency, and sustainability. Many of the facility requirements identified for TAN incorporate FAA planning and design standards presented in AC 150/5300-13A, *Airport Design*. Other FAA ACs were used to develop sections of this chapter and are cited throughout the document. **Chapter Five: Alternatives Analysis & Development Concepts** of this AMPU examines alternatives for development based on the facility requirements and development standards identified for TAN in this chapter.

4.2 AIRFIELD DEMAND-CAPACITY

"Airfield Demand Capacity" refers to the number of aircraft operations that a given facility can accommodate on either an hourly or yearly basis. (Note that capacity does not relate to the size or weight of aircraft.) The capacity of an airfield is primarily a function of the major aircraft operating infrastructure elements that comprise an airfield (i.e., runways and taxiways), as well as their alignment and configuration. It is also related to and considered in conjunction with wind coverage, airspace utilization, and the availability and type of navigational aids. Each of these components has been examined as part of the airfield demand capacity analysis. Upon completion of the analysis of these various elements, a review of existing facilities has been provided and any additional requirements necessary to meet the forecasted demand have been identified in this chapter.

Airfield capacity is defined as the theoretical number of aircraft operations that an airport can accommodate within a given period of time.

4.2.1 Capacity and Delay

Airfield capacity is generally defined as the number of aircraft operations that can be safely accommodated on the runway-taxiway system at a given point in time before an unacceptable level of delay is experienced. The ability of Taunton Municipal Airport's current airside facilities to accommodate aviation operational demand is described below and is expressed in terms of potential excesses and deficiencies in capacity. The methodology used for the measurement of airfield capacity in this study is described in FAA AC 150/5060-5, *Airport Capacity and Delay*. Through this approach, airfield capacity is defined in the following terms:

Delays that result from a deficiency in airfield capacity produce real losses with respect to time, money, and productivity.

- Annual Service Volume (ASV): A reasonable estimate of an airport's annual capacity (i.e., level of annual aircraft operations that will result in an average annual aircraft delay of approximately one to four minutes).
- Hourly Capacity of Runways: The maximum number of aircraft that can be accommodated under conditions of continuous demand during a one-hour period.

4.2.2 Airfield Operational Capacity Parameters and Assumptions

Calculating airfield operational capacity is developed by the methods, parameters, and assumptions described in FAA AC 150/5060-5, *Airport Capacity and Delay*. The calculations are based on the runway utilizations that produce the highest sustainable capacity consistent with existing air traffic rules, practices, and guidelines. The parameters and assumptions utilized within this analysis and described below include the following:

- Airfield layout (runway use configuration)
- Runway use
- Aircraft mix (based upon existing aircraft group demand)
- Percentage of arrival operations
- Touch-and-Go operations

- Number and location of exit taxiways
- Predominant meteorological conditions

Airfield Layout

The arrangement and interaction of airfield components (runways, taxiways, and ramp entrances) refers to the layout or "design" of the airfield. As described previously, Taunton Municipal Airport is served by two runways: Runway 12-30 and Runway 4-22. The primary runway, Runway 12-30, is served by a full-length parallel taxiway with four connector taxiways. The secondary or crosswind runway, Runway 4-22 is a seasonal turf/gravel runway that is accessed via an unmarked turf path.

The Airport's existing landside facilities are generally located on the north side of Runway 12-30, including the terminal building, airfield maintenance building/airport administration, tenant/fixed base operator (FBO) facilities, hangars, and apron areas. Most of these facilities are well situated to take advantage of the Airport's existing taxiway system.

Runway Use

The use configuration of the runway system is defined by the number, location, and orientation of the active runway(s) and relates to the distribution and frequency of aircraft operations to those facilities. Both the prevailing winds in the region and the existing runway complex at the Airport combine to dictate the utilization of the existing runway system. According to Airport management and other sources, the most utilized runway is Runway 12-30 due to its length, its surface, its instrument approaches, and since it is open year round. However, it should be noted that the crosswind runway (Runway 4-22) is considered to be the preferred runway by some aircraft types (e.g., taildraggers) due to the prevailing winds during the summer months. For this analysis, actual operational counts for Runway 4-22 were collected by several local tenants. These were then adjusted to account for those operations likely not captured by those observers. The estimated runway usage and annual operations at TAN are presented in **Table 4-1**.

Table 4-1: Estimated Runway Usage at TAN

	Annual Usage	Total Operations
Runway 4	1.75 %	587
Runway 22	5.25 %	1,761
Runway 4-22	*7.00 %*	*2,348*
Runway 12	26.57 %	8,915
Runway 30	66.43 %	22,287
Runway 12-30	*93.00 %*	*31,202*
Totals	100.00 %	33,550

Source: Airport Solutions Group.

Aircraft Mix Index

This index is used to develop an aircraft fleet mix, which is the relative percentage of operations conducted by the classes of aircraft that use an airport. The aircraft mix at TAN is made up of mostly single-engine and smaller multi-engine aircraft.

The Airport also has cited historical operations by a range of smaller business aircraft including TBM 700s, Pilatus, Cessna Citations, and others.

Percent Arrivals

Utilizing planning rules of thumb for general aviation airports without increased levels of based or transient training activity, it is typical to assume that the total annual arrivals will generally equal total departures and that average daily arrivals will equal average daily departures.

Touch-and-Go Operations

A touch-and-go operation refers to an aircraft maneuver in which the aircraft performs a normal landing followed by an immediate takeoff without stopping or taxiing clear of the runway. These operations are normally associated with flight training and are included in local operations figures. Given the flight training operations typically experienced at the Airport, touch-and-go (local) operations have been assumed to comprise approximately 25 percent of the general aviation operations at Taunton Municipal Airport (based on airport personnel estimates). This percentage of local touch-and-go operations is expected to remain relatively constant throughout the planning period.

Taxiway Factors

The capacity of a runway is greatly influenced by the ability of an aircraft to exit the runway as quickly and safely as possible. Therefore, the quantity and design of the exit taxiways can directly influence aircraft runway occupancy time and the capacity of the runway system. The number of exit taxiways for Runway 12-30 at Taunton Municipal Airport appears to be adequate for existing operations in that the runway is served by two exit taxiways as well as exits at each end (a total of four taxiway stubs). In addition, the runway has a paved full-length parallel taxiway (Taxiway A). TAN's turf runway (Runway 4-22) does not have any formal taxiway infrastructure other than a turf path to Taxiway A. Given that it does not have a parallel taxiway, aircraft operating on this runway must back-taxi. Through discussions with local pilots, the current conditions are deemed to be adequate given the frequency and type of aircraft operations realized on Runway 4-22.

Runway Instrumentation

The runway instrumentation included in the capacity calculations for TAN include area navigation (RNAV) and non-directional beacon (NDB) approach capabilities for the Airport's primary runway, Runway 12-30. It should also be noted that Runway 12-30 is to receive a localizer performance with vertical guidance (LPV) approach. Additionally, air traffic facilities, equipment, and services on the Airport and within the region are deemed to be adequate to carry out operations in a radar environment.

Weather Influences

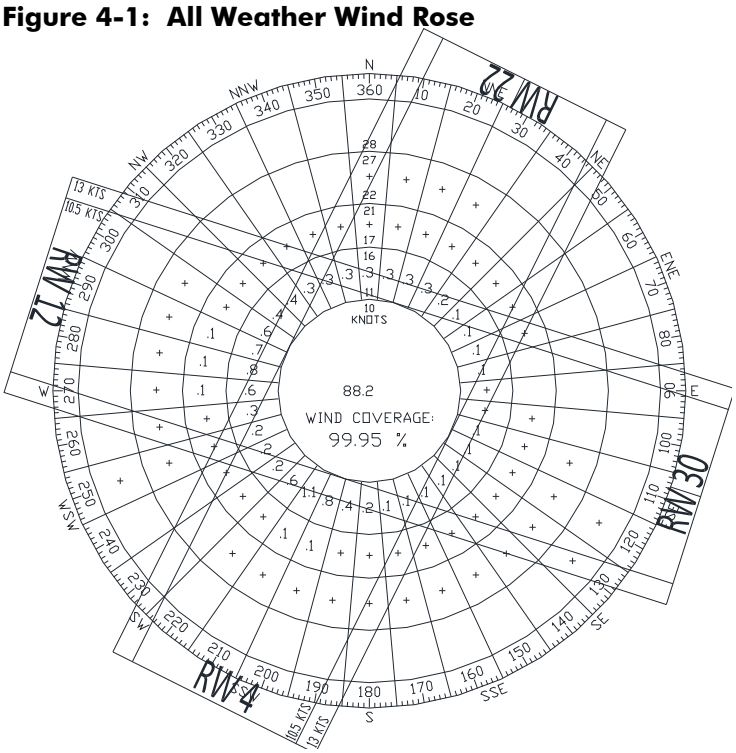
Climatological conditions specific to the location of an airport not only influence the layout of the airfield, but also affect the use of the runway system. Surface wind conditions have a direct impact on airport operations in that runways not oriented to take the maximum advantage of prevailing winds will restrict the

capacity of an airport to varying degrees. When landing and taking off, aircraft are able to operate properly on a runway as long as the wind component perpendicular to the direction of travel (defined as a crosswind) is not excessive (generally, this is specific to the operational requirements and capabilities of individual aircraft).

Surface wind conditions (i.e., direction and speed) generally determine the desired alignment and configuration of the runway system. Wind conditions affect all airplanes in varying degrees; however, the ability to land and takeoff in crosswind conditions varies according to pilot proficiency and aircraft type. It can be generally stated that the smaller the aircraft, the more susceptible it is to the effects of crosswinds. To determine wind velocity and direction at Taunton Municipal Airport, wind data from observations taken at the Airport over a ten year period (2000-2009) was obtained from the National Climatic Data Center and was utilized to construct new VFR, IFR and all-weather wind roses.

The allowable crosswind component is dependent upon the Runway Design Category (RDC) for the type of aircraft that utilize the Airport on a regular basis. According to the 2002 ALP, the future/ultimate ARC for Runway 12-30 is B-II. Based on FAA standards, this ARC requires that a 13-knot crosswind component be utilized for this analysis. The following illustration, **Figure 4-1**, illustrates the all-weather wind coverage wind rose generated for the Taunton Municipal Airport. Note that the desirable wind coverage for an airport's runway system is 95 percent. This means that the runway orientation and configuration should be developed so that the maximum crosswind component is not exceeded more than five percent of the time annually. (Note that this is a recommendation, not a requirement.)

Figure 4-1: All Weather Wind Rose



Source: Airport Solutions Group; National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72506 Taunton, MA

Based on the all-weather wind analysis for the Airport and as reflected in **Table 4-2**, the existing runway configuration provides the following wind coverage: 99.95 percent for the 13-knot crosswind component, 99.66 percent for the 10.5-knot crosswind component. Given this data, no additional runways are required at Taunton Municipal Airport due to a lack of wind coverage.

Table 4-2: All Weather Wind Coverage Summary

Wind Coverage Provided Under All Weather Conditions		
	10.5-knot	13-knot
Runway 4	75.71 %	77.34 %
Runway 22	83.88 %	85.70 %
Runway 4-22	94.98 %	97.23 %
Runway 12	75.68 %	77.51 %
Runway 30	88.75 %	90.98 %
Runway 12-30	94.21 %	96.69 %
Combined	99.66 %	99.95 %

Source: Airport Solutions Group; National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72506 Taunton, MA, Period of Record 2000-2009.

The Airport is served by two nonprecision approaches (an RNAV[GPS] and an NDB) to Runway 30, and circling approaches to Runway 12. To evaluate the effectiveness of these approaches, and analyze the potential benefits of implementing lower approach visibility minimums, an Instrument Flight Rules (IFR) wind rose has been constructed. **Table 4-3** quantifies the wind coverage offered by each runway end in consideration of typical IFR conditions (ceiling less than 1,000 feet and/or visibility less than three statute miles). From this IFR wind coverage summary, it can be concluded that Runway 12-30 provides adequate wind coverage during IFR conditions. The information provided by this analysis will be incorporated into the formulation of various future airside development alternatives and the ultimate development recommendations for the Airport.

Table 4-3: IFR Wind Coverage Summary

Wind Coverage Provided Under IFR Weather Conditions		
	10.5-knot	13-knot
Runway 4	85.08 %	85.83 %
Runway 22	75.12 %	75.75 %
Runway 4-22	98.00 %	99.00 %
Runway 12	88.75 %	91.16 %
Runway 30	83.90 %	86.26 %
Runway 12-30	93.07 %	95.92 %
Combined	99.62 %	99.94 %

Source: Airport Solutions Group; National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72506 Taunton, MA, Period of Record 2000-2009.

Finally, **Table 4-4** quantifies the wind coverage offered by each runway end in consideration of Visual Flight Rules (VFR) conditions (ceiling greater than or equal to 1,000 feet and/or visibility greater than or equal to three statute miles). From this VFR wind coverage summary, it can be determined that both runways

individually provide adequate (and nearly identical) wind coverage during VFR conditions.

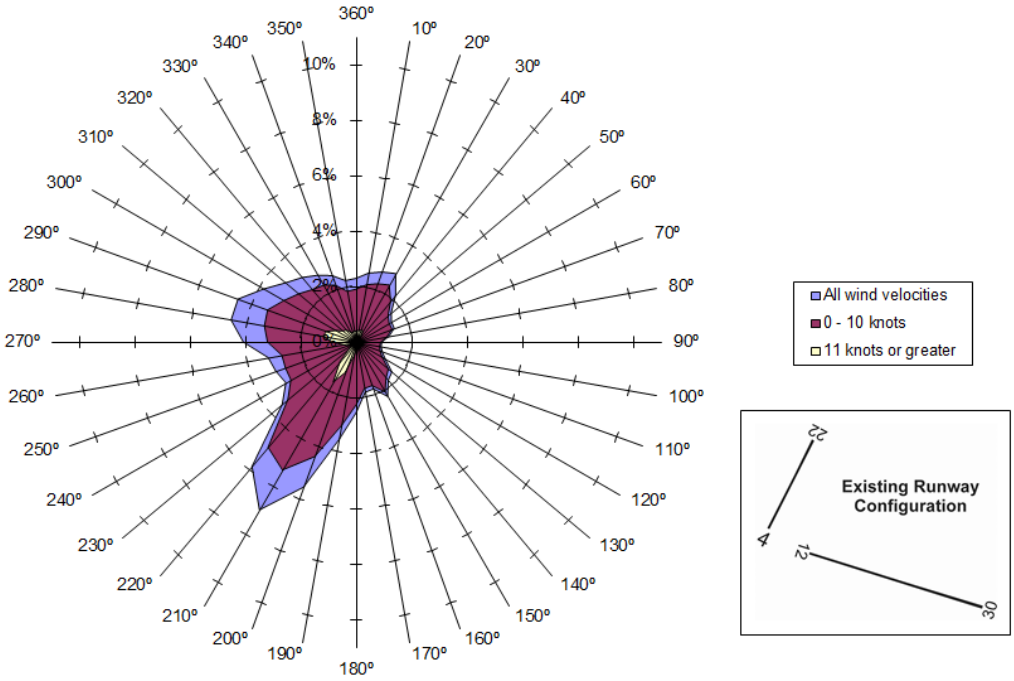
Table 4-4: VFR Wind Coverage Summary

Wind Coverage Provided Under VFR Weather Conditions		
	10.5-knot	13-knot
Runway 4	73.42 %	75.24 %
Runway 22	85.18 %	87.27 %
Runway 4-22	94.31 %	96.84 %
Runway 12	72.73 %	74.49 %
Runway 30	89.43 %	91.69 %
Runway 12-30	94.30 %	96.77 %
Combined	99.66 %	99.96 %

Source: Airport Solutions Group; National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72506 Taunton, MA, Period of Record 2000-2009.

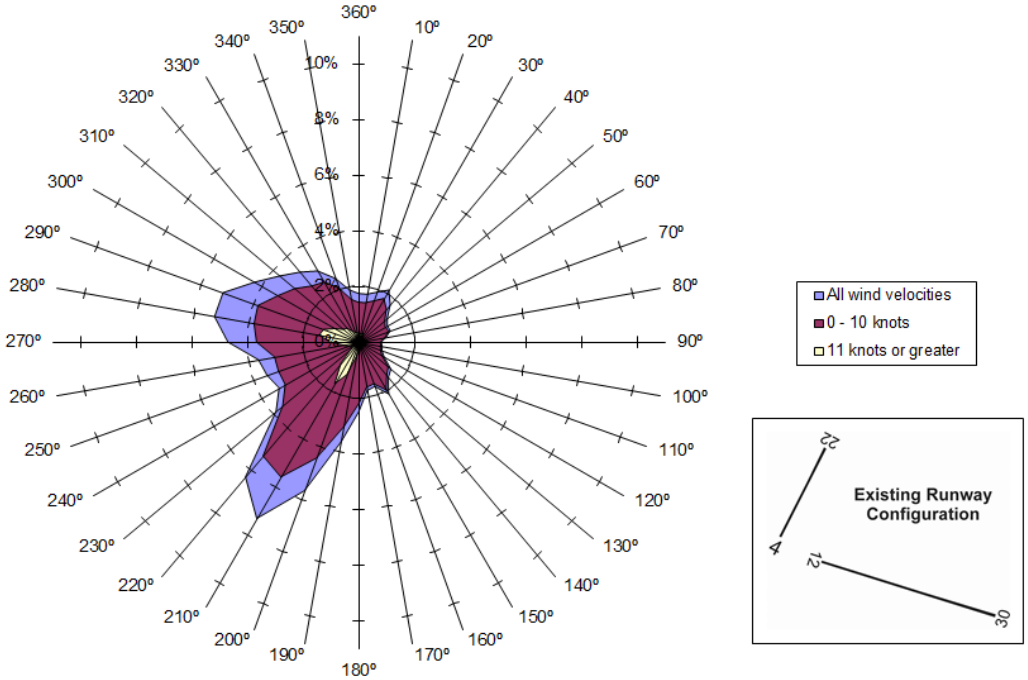
Beyond these wind rose percentage calculations, it should be noted that the winds in the vicinity of TAN are predominantly from the southwest during warmer weather (late spring, summer, early fall) and from the northwest the remainder of the year. **Figure 4-2**, **Figure 4-3**, and **Figure 4-4** illustrate the annual wind persistency trends at TAN that were examined based on all weather, VFR, and IFR weather conditions, respectively. **Figure 4-5** and **Figure 4-6** provide an illustration of all-weather wind persistency by month.

Figure 4-2: TAN All-Weather Annual Wind Persistency



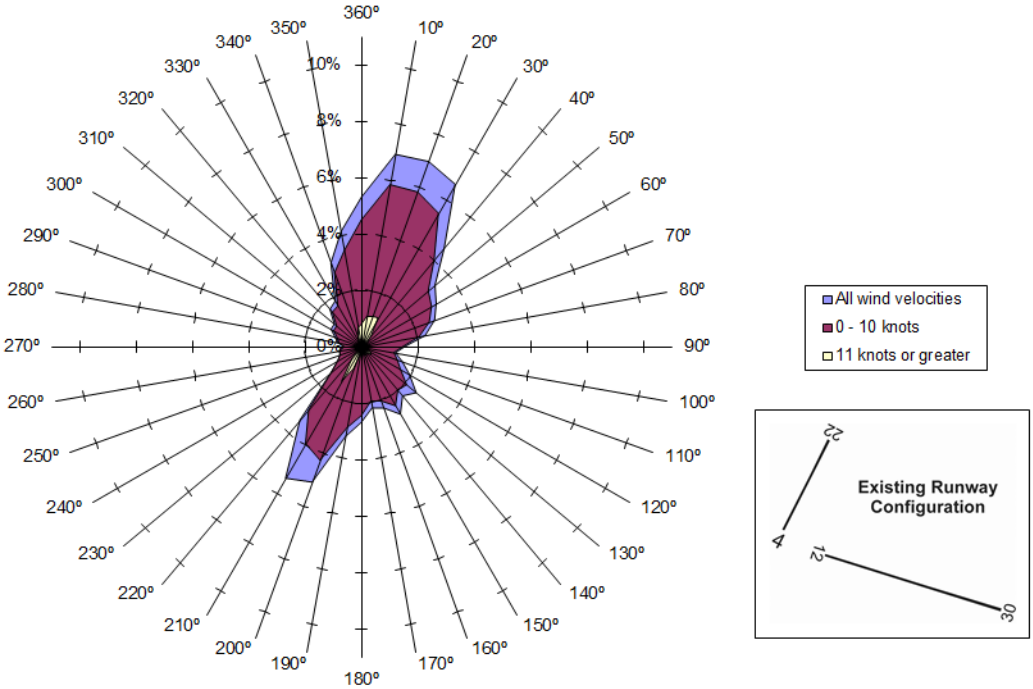
Note: This chart graphically depicts the relative percent of recorded wind occurrence by 10-degree direction of origin (relative to true north) and velocity (excluding calm conditions) as recorded at Station 72506, Taunton, MA, Period of Record 2000-2009. (66,708 observations)

Figure 4-3: TAN VFR Annual Wind Persistency



Note: This chart graphically depicts the relative percent of recorded wind occurrence by 10-degree direction of origin (relative to true north) and velocity (excluding calm conditions) as recorded at Station 72506, Taunton, MA, Period of Record 2000-2009. (54,727 observations)

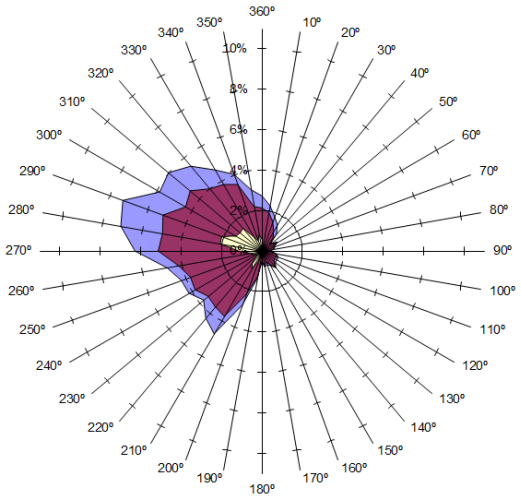
Figure 4-4: TAN IFR Annual Wind Persistency



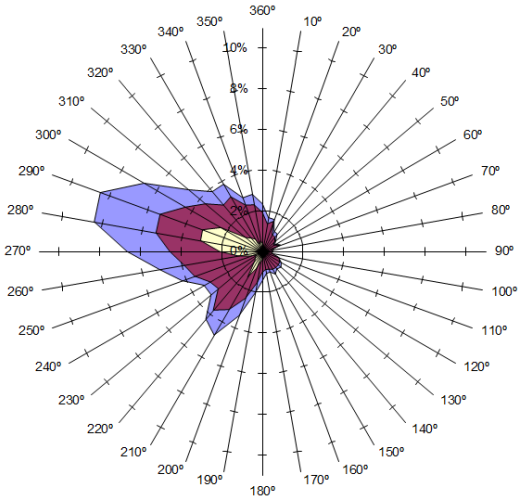
Note: This chart graphically depicts the relative percent of recorded wind occurrence by 10-degree direction of origin (relative to true north) and velocity (excluding calm conditions) as recorded at Station 72506, Taunton, MA, Period of Record 2000-2009. (10,325 observations)

Figure 4-5: TAN Monthly Wind Persistency (Jan-Jun)

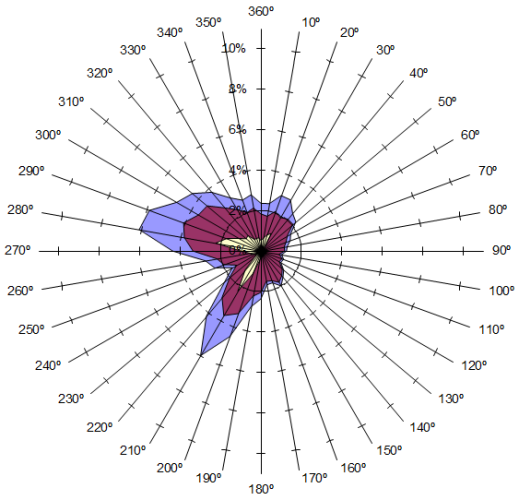
January



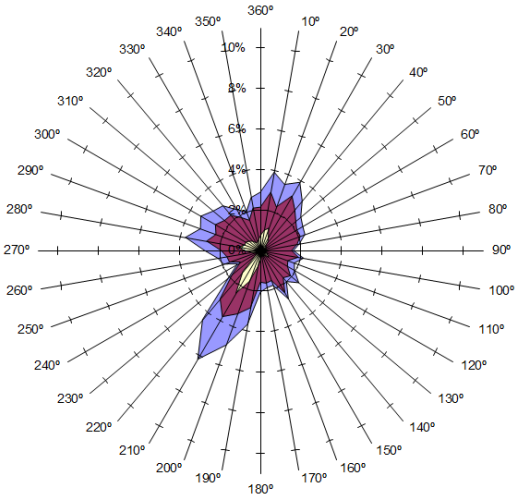
February



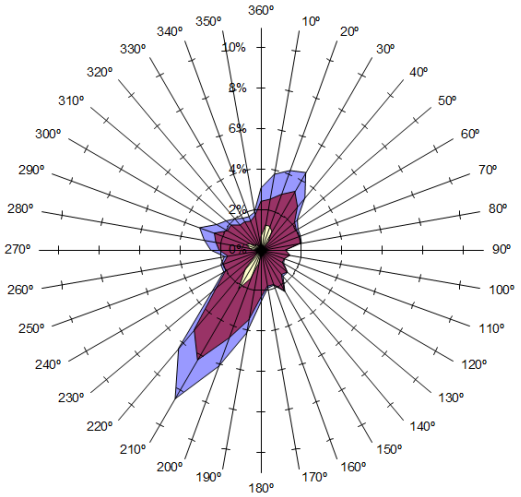
March



April



May



June

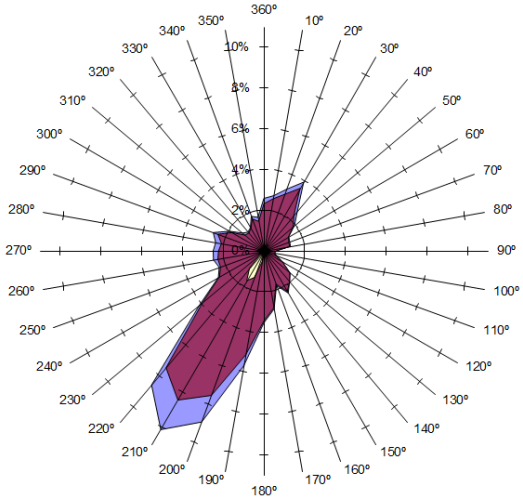


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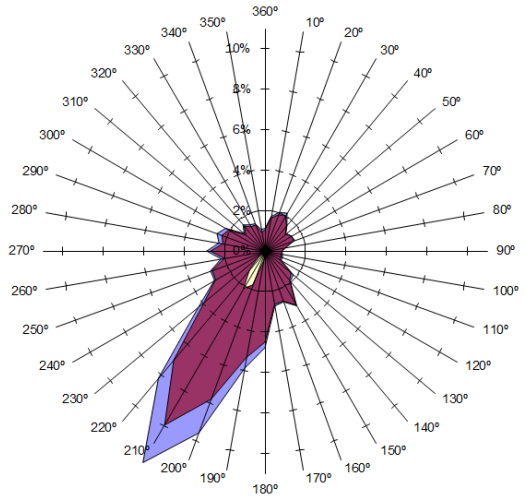
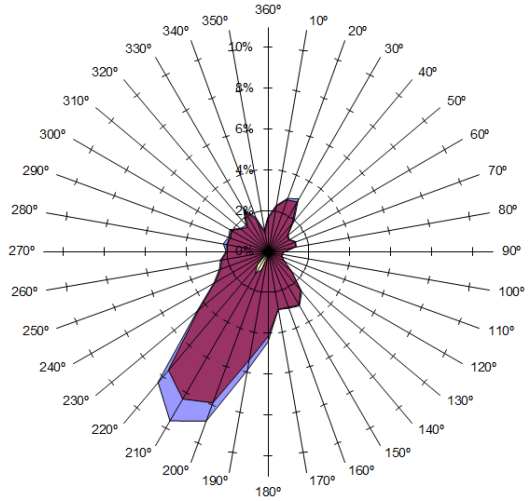
Figure 4-6: TAN Monthly Wind Persistency (Jul-Dec)

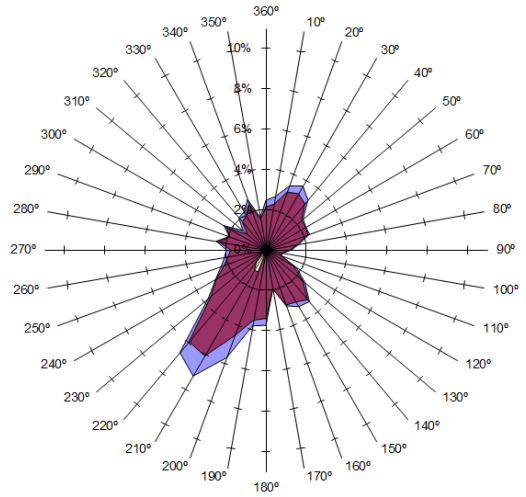
July



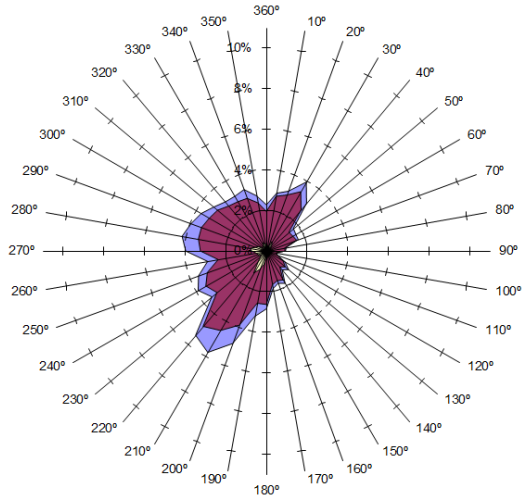
August



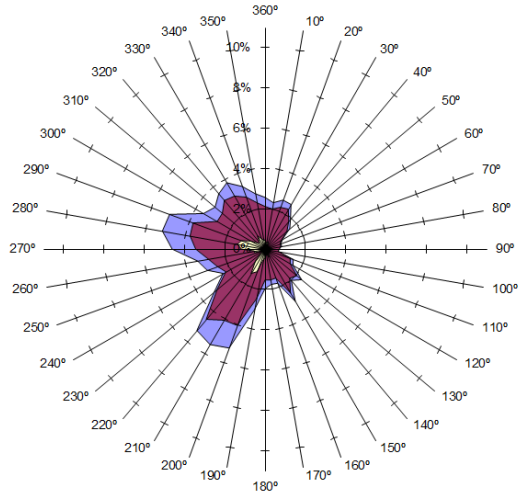
September



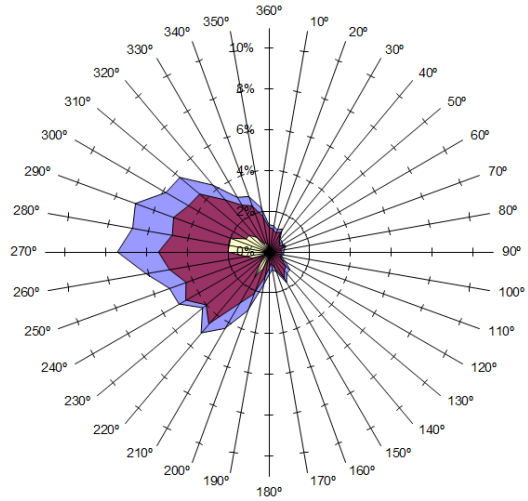
October



November



December



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4.2.3 Airfield Capacity Calculations

The capability of Taunton Municipal Airport to accommodate projected increases in aircraft operations was conducted in accordance with procedures contained in FAA AC 150/5060-5, *Airport Capacity and Delay*. The airfield capacity calculations in this section were performed using the parameters and assumptions discussed above. For portions of the capacity calculations, data from the aviation demand forecast as presented in **Chapter Three: Forecasts of Aviation Activity** was also utilized. Applying results generated from the analysis, the optimized capacity for the Airport's runway system can be described in terms of the following results:

- Annual Service Volume (ASV)
- Hourly Capacity of Runways (VFR and IFR)

The ASV is the maximum number of annual operations that can occur at the Airport before an assumed maximum operational delay value is experienced. The ASV is calculated based on the existing runway configuration, aircraft mix, and the parameters and assumptions identified herein. Utilizing this information and the guidance provided in FAA AC 150/5060-5, the ASV for existing conditions at TAN was calculated to be approximately 230,000 operations. Additionally, with respect to hourly runway capacity under the Airport's current runway configuration, Taunton Municipal Airport has a theoretical VFR capacity of roughly 77 operations per hour and a theoretical IFR capacity of approximately 57 operations per hour.

It should be noted that the ASV represents the existing airfield capacity in its present configuration, with one primary runway having nonprecision instrument approach capabilities and a seasonal, unpaved crosswind runway.

As presented in Chapter Three, TAN's current number of aircraft operations for the base year (2013) is 33,550 operations, equaling approximately 14.6 percent of the current ASV. The highest range of forecasted operations at TAN in the year 2033 is projected to be 42,273 or 18.4 percent of the current ASV. According to the FAA, the following guidelines should be used to determine necessary steps as demand reaches designated levels.

- <u>60 percent of ASV</u>: Threshold at which planning for capacity improvements should begin.
- <u>80 percent of ASV</u>: Threshold at which planning for improvements should be complete and construction should begin.
- <u>100 percent of ASV</u>: Airport has reached the total number of annual operations (demand) the airport can accommodate, and capacity-enhancing improvements should be made to avoid extensive delays.

Based upon existing and forecasted demand criteria, no additional capacity enhancing projects for the runway or taxiway system will be needed during the planning period.

4.3 AIRFIELD FACILITY REQUIREMENTS

Airfield facilities generally include those that support the transition of aircraft from flight to the ground or the movement of aircraft from parking or storage areas to departure and flight. This section describes the airside requirements needed to accommodate the current and projected general aviation and commercial service activity at Taunton Municipal Airport throughout the planning period.

Areas of particular focus include runway and taxiway dimensions, navigational aids, visual landing aids, and dimensional standards.

4.3.1 Airport Design Standards

The "design" or "critical aircraft" is defined as the largest aircraft or family of aircraft anticipated to utilize a given airport on a regular basis. The FAA defines "regular basis" as conducting at least 500 annual itinerant operations (defined as a takeoff or a landing). The selection of the design aircraft allows for the identification of the Airport Reference Code (ARC) for an airport, which itself is a coding system used to relate airport design criteria to the operational and physical characteristics of the types of aircraft intended to operate at that airport. Specifically, the ARC is an airport designation that signifies the airport's highest Runway Design Code (RDC), which itself is comprised of the following components:

- the Aircraft Approach Category (depicted by a letter and based on aircraft approach speed), and
- the Airplane Design Group (depicted by a Roman numeral and based on aircraft wing span and tail height).

Table 4-5 shows the Aircraft Approach Categories and Airplane Design Groups that comprise the Airport Reference Code system.

Table 4-5: Airport Reference Code System (ARC)

Aircraft Approach Category (AAC)		
Approach Category	Approach Speed	
A	< 91 knots	
B	91 knots - < 121 knots	
C	121 knots - < 141 knots	
D	141 knots - < 166 knots	
E	166 knots or more	
Airplane Design Group (ADG)		
Design Group	Wingspan	Tail Height
I	< 49 feet	< 20 feet
II	49 feet - < 79 feet	20 feet - < 30 feet
III	79 feet - < 118 feet	30 feet - < 45 feet
IV	118 feet - < 171 feet	45 feet - < 60 feet
V	171 feet - < 214 feet	60 feet - < 66 feet
VI	214 feet - < 262 feet	66 feet - < 80 feet

Source: FAA Advisory Circular 150/5300-13A

Beechcraft King Air C90

Cessna Citation V

Kitfox IV

For Taunton Municipal Airport, the current ARC as defined on the Airport's current ALP is a B-II, which reflects the B-II RDC designation for Runway 12-30. The B-II designation tends to be the most common ARC for general aviation airports in that it encompasses an expansive array of operators, uses and aircraft most typically found at those types of airports. Specifically, this designation represents a wide variety of smaller to mid-sized business aircraft, such as the Beechcraft King Air C90, a very common twin-turboprop business aircraft, and the Cessna Citation V, a common corporate jet aircraft. This designation also accounts for all single-engine piston aircraft, the most common operators at the Taunton Municipal Airport. Based on discussions with Airport management and operators, as well as on the updated airport forecasts presented in **Chapter Three: Forecasts of Aviation Activity**, it was determined that the RDC for Runway 12-30 (and therefore the ARC for Taunton Municipal Airport) should remain as a B-II.

Note that it is possible that Taunton could experience a change in design aircraft over the upcoming 20-year planning period. Due to uncertainty in the aircraft manufacturing and general aviation industries, it is difficult to pinpoint the exact aircraft which may represent the future design aircraft for the Airport. However, the Beechcraft King Air C90 and its RDC B-II designation is viewed as reasonable for the planning period, since it adequately reflects the current and projected nature of aircraft operations at TAN – that being a mix of small general aviation aircraft along with the occasional small to mid-sized business aircraft.

Additionally, the current RDC for Runway 4-22 has been identified on the TAN ALP as an A-I. This RDC generally reflects single-engine piston aircraft, the dominant operational type at Taunton Municipal Airport. The A-I designation for this runway is consistent with its current and projected usage patterns. Recent runway operational tracking data collected in 2013 by local tenants indicate that the largest tricycle gear aircraft to use Runway 4-22 regularly is a Cessna 172, with the majority of operations being by that of "taildraggers" (e.g., Citabria,

Piper J3, Aeronca, Kitfox, Stearman,etc.). It should be noted that the use of Runway 4-22 by taildraggers is largely due to their susceptibility to crosswinds. Given that Runway 4-22 has a turf/gravel surface, which typically precludes aircraft use larger than an A-I, it was determined that the RDC for this runway should remain as an A-I; however, it was also confirmed that this runway should have the additional designation as being for "small" aircraft operations only. This translates to aircraft that have a maximum certificated takeoff weight of 12,500 pound or less. The actual design aircraft for the runway has been identified as the Piper Cub J3, which is consistent with TAN's current ALP.

Piper Cub J3

The ARC and RDC recommendations provided above are consistent with the existing ALP and will not substantively change any proposed safety or design related projects shown on the current ALP. The following sections will address, among other things, existing and future safety and design requirements as they relate to the ARC and RDC designations.

4.3.2 Runway Orientation

The runway/taxiway configuration is the physical layout of the airfield system, including the number of runways, their orientation, and their locations relative to each other, as well as to the landside facilities. Each runway/taxiway configuration has a different capacity due to operational limitations and restrictions. For example, runways that converge or intersect have lower capacities than parallel runways since an aircraft on a converging runway must wait to land or takeoff until the aircraft on the second converging runway has either completed its landing or has cleared the path for aircraft arriving or departing from the other runway. The orientations of the runways at Taunton Municipal Airport effectively converge on each other since they do not allow for independent simultaneous operations (meaning that only one runway can be operational as a time). However, even though the Airport's runways and approach paths converge and reduce their potential capacity, the overall capacity of the airfield is substantially above the demand projected over for the planning period.

As noted in the previous section describing the area wind analysis, the orientation of the Airport's current runways either nearly meets or exceeds the crosswind coverage recommendation of 95 percent, both individually and in combination. Therefore, additional runways or alterations to the runway orientation based on wind coverage are not recommended for Taunton Municipal Airport.

4.3.3 Runway Length

The purpose of this section is to establish a recommended length for each runway at TAN based on a standardized FAA approach. Through FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, the FAA establishes a methodology for determining future requirements for runway length. As described below, this AC employs a five-step process to establish a recommended length for a given runway:

Step #1: Identify the critical design airplanes or airplane group.
Step #2: Identify the airplanes or family group that will require the longest runway lengths at maximum certificated takeoff weight (MTOW).
Step #3: Determine the method that will be used for establishing the recommended runway length.
Step #4: Select the recommended runway length through application of the appropriate determination methodology.
Step #5: Apply any necessary adjustment to the obtained runway length.

The following sections describe the application of each of these steps for determining a length requirement for both runways at Taunton Municipal Airport.

Runway 12-30 Length Recommendations

Step #1: Identify the critical design airplanes or airplane group &
Step #2: Identify the airplanes or family group that will require the longest runway lengths at maximum certificated takeoff weight (MTOW).

In **Section 4.3.1**, the critical design airplane for Runway 12-30 was identified as a Beechcraft King Air C90. This is an aircraft with an RDC of B-II and a maximum takeoff weight (MTOW) of 10,485 pounds. This is considered to be a "small" aircraft by the FAA since its MTOW is less than 12,500 pounds.

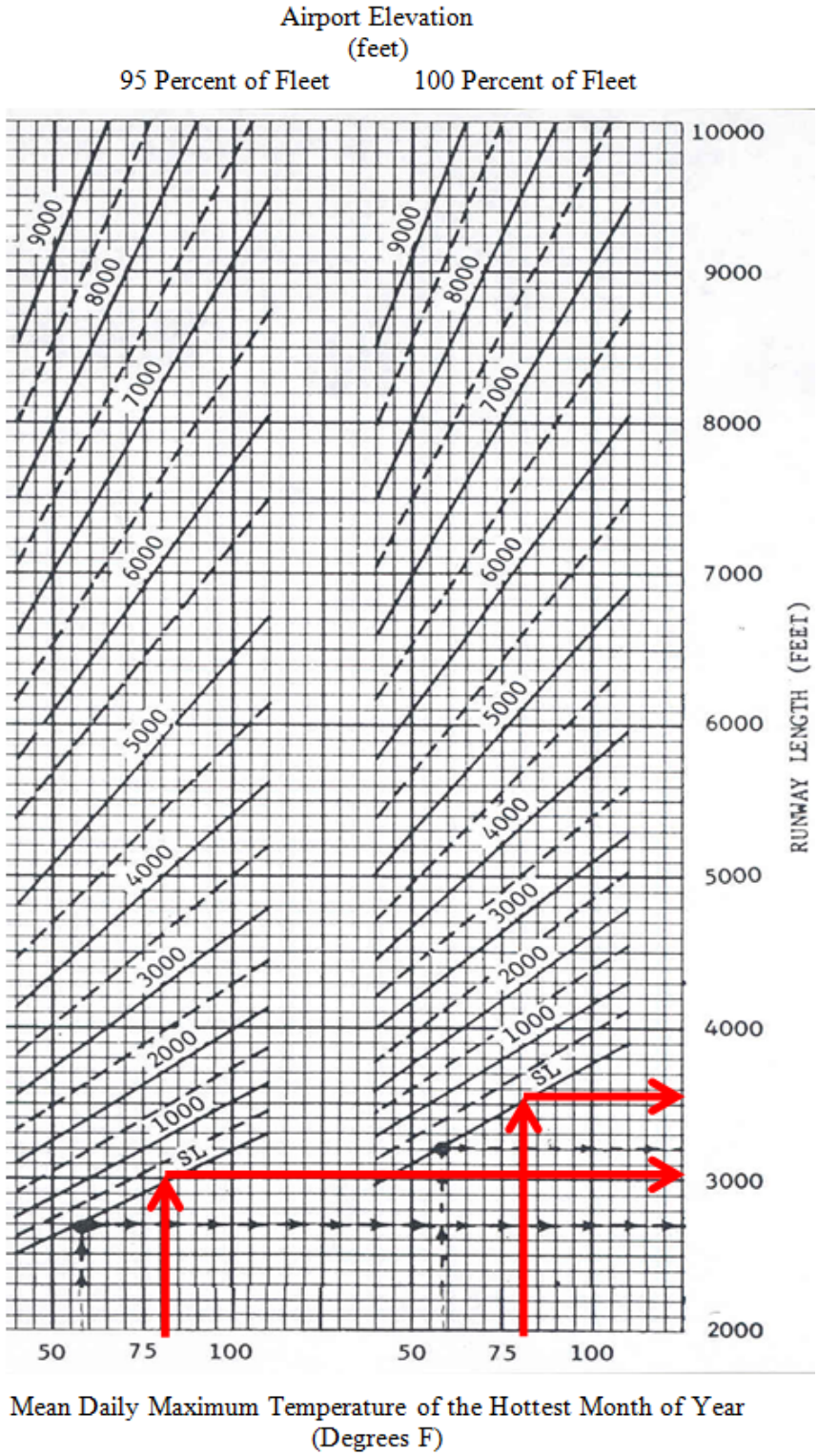
Step #3: Determine the method that will be used for establishing the recommended runway length; &
Step #4: Select the recommended runway length through application of the appropriate determination methodology; &
Step #5: Apply any necessary adjustment to the obtained runway length.

Step 3 simply involves identifying the appropriate runway length determination methodology provided in FAA AC 150/5325-4B that should be for the design aircraft. Based on Table 1-1 of the AC, the methodology described within Chapter 2 of the AC must be employed for this assessment. Step 4 is the actual runway length assessment, which is conducted through applying a series of runway or airport dependent factors to FAA runway length curves. For Taunton Municipal Airport, the key dependent factors include the following:

- Airport Elevation: 41.5 feet (Mean Seal Level - MSL)
- Mean Daily Maximum Temperature (hottest month): 82°F (August)
- Critical design airplanes: Small aircraft (12,500 pounds or less) with approach speeds of 50 knots or more

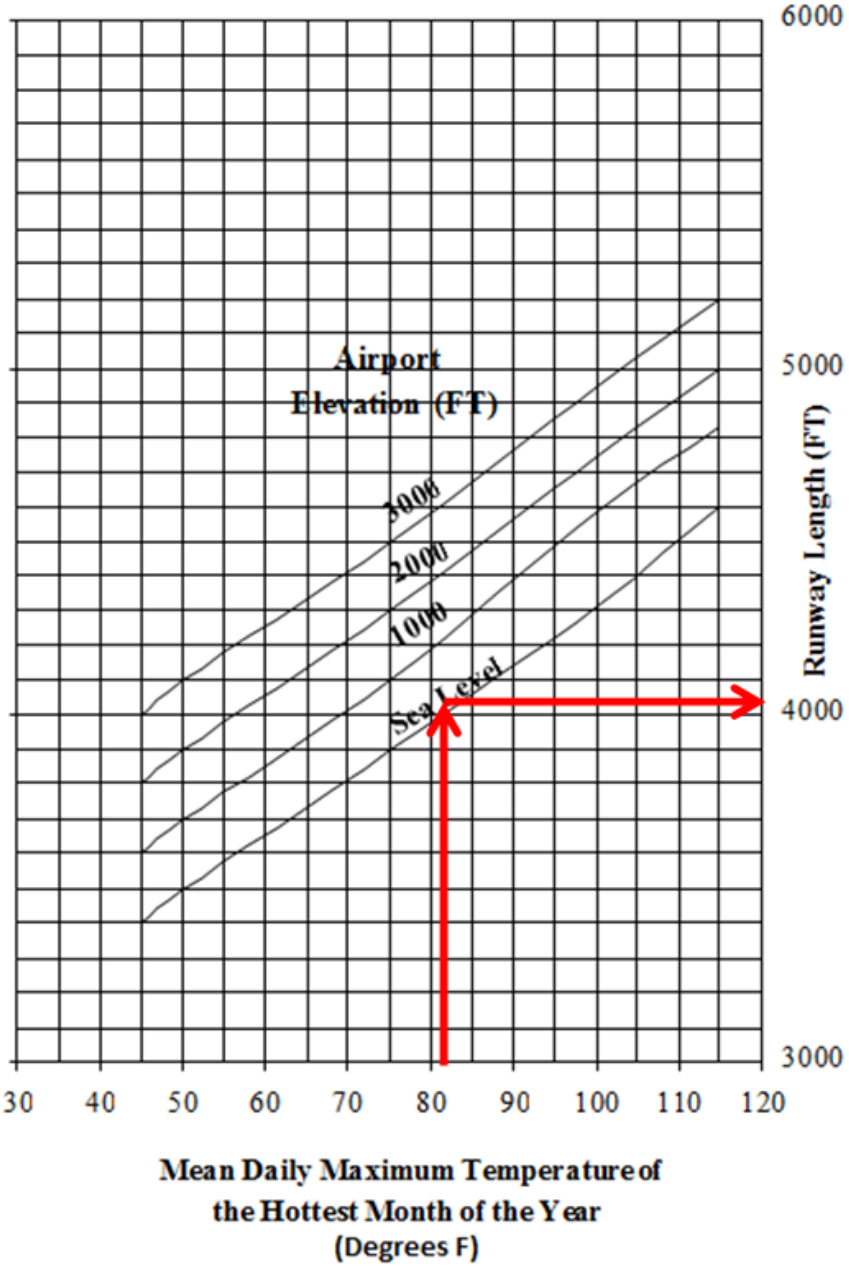
These dependent variables are then used as input into the FAA runway length curves for small airplanes with fewer than 10 passenger seats and for small airplanes with 10 or more passenger seats (see **Figure 4-7** and **Figure 4-8**, respectively).

Figure 4-7: FAA Runway Length Curve – Small Airplanes with Fewer than 10 Passenger Seats *(excluding pilot and co-pilot)*



Source: FAA AC150/5325-4B, Figure 2-1.

Figure 4-8: FAA Runway Length Curve – Small Airplanes Having 10 or More Passenger Seats *(excluding pilot and co-pilot)*



Source: FAA AC150/5325-4B, Figure 2-2.

Applying those variables to the FAA curves results in the following recommended runway lengths:

Small airplanes with less than 10 passenger seats:
95% of these small airplanes…… 3,050 feet
100% of these small airplanes…….. 3,550 feet
Small airplanes with 10 or more passenger seats…….. 4,050 feet

For Taunton Municipal Airport's current and projected fleet mix, as well as its location, the reasonable runway length for 100% of those small airplanes with fewer than 10 passengers. As defined within the FAA AC, this classification is appropriate for airports "primarily intended to serve communities located on the fringe of a metropolitan area." This definition is consistent with the character of Taunton Municipal Airport.

The fifth and final step of the FAA runway length determination process includes a review of eight potential variables that could impact an ultimate runway length requirement. However, none of these eight factors are relevant or appropriate for application at Taunton Municipal Airport.

Therefore, when following the process as stipulated in FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, and when considering the existing and projected design aircraft is the Beechcraft King Air C90, the recommended length for Runway 12-30 is 3,550 feet. Since Runway 12-30 is currently 3,500 feet long, it is reasonable to conclude that the existing runway length should be considered adequate for the planning period.

However, FAA AC 150/5325-4B also specifically advises the following:

> *b. Future Airport Expansion Considerations. Airports serving small airplanes remain fairly constant in terms of the types of small airplane using the airport and their associated operational requirements. However, it is recommended that the airport designer assess and verify the airport's ultimate development plan for realistic changes that, if overlooked, could result in future operational limitations to customers. The airport designer should at least assess and verify the impacts of:*
>
> > *(1) Expansions to accommodate airplanes of more than 12,500 pounds. Failure to consider this change during an initial development phase may lead to the additional expense of reconstructing or relocating facilities in the future.*

For Taunton Municipal Airport, this recommendation is particularly relevant since **Section 3.4.5** in **Chapter Three: Forecasts of Aviation Activity** presents an additional forecast scenario that is based on a proposed casino and resort development in East Taunton. If that project were to move forward (and as November 2014, casino development and permitting continues), it certainly would have a potentially significant impact on the Taunton Municipal Airport in that such a development would certainly expand the fleet mix for the airport. This would reasonably translate into a general increase in turbine aircraft operations, as well as an increase in the size of those aircraft operating at TAN.

In the short term, and given Runway 12-30's current length, the Airport should expect small aircraft turbine operations with passenger capacities of 10 or more. This could include the Beechcraft King Air A100 (essentially a slightly stretched version of the King Air C90), the King Air B200, the King Air 250, and the

Cessna Caravan, among others. In this scenario and based on the runway length analysis provided above, Runway 12-30 should have a length of 4,050 feet, making the current runway 550 feet deficient.

If the future feet mix were to progress into aircraft with a MTOW of greater than 12,500 pounds, FAA AC 150/5325-4B requires a modified methodology in determining a recommended runway length. As input to calculating runway length requirements, **Table 4-6** reflects the FAA AC 150/5325-4B defined families or groupings of aircraft that could be expected to operate at any given airport. The aircraft in this table represent 75 percent of the business jet fleet as defined by the FAA. Several of these aircraft have utilized TAN in the past and could be reasonably expected to operate at the Airport within the 20-year planning period, particularly if the casino development were to be completed.

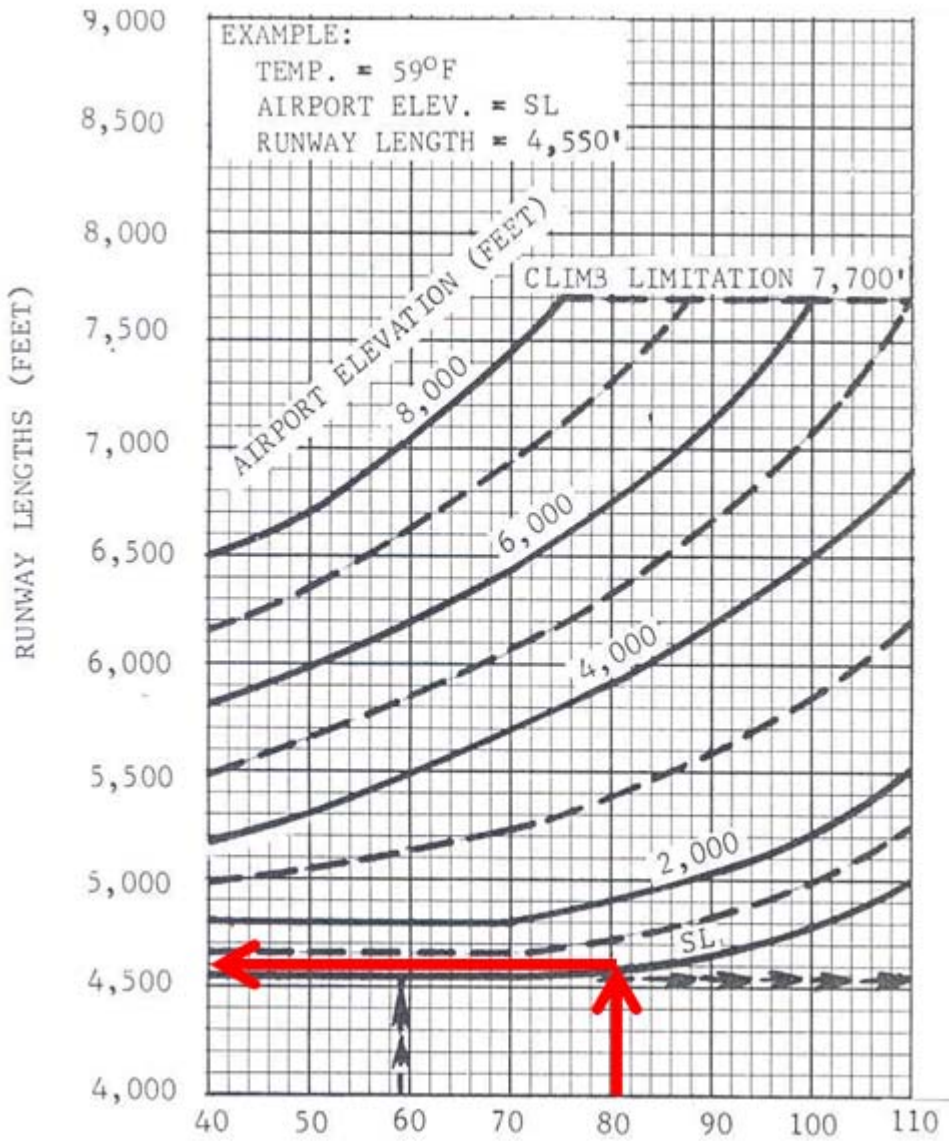
Table 4-6: FAA-Defined Family Groupings of Airplanes (75%)

Business Jets		Max Takeoff (lbs.)	RDC	Take-off Distance (ft)	Business Jets		Max Takeoff (lbs.)	RDC	Take-off Distance (ft)
Airplanes that Make Up 75 Percent of the Business Fleet									
Aerospatiale	Sn-601 Corvette	14,550	C-I	*na*	Dassault	Falcon 10	18,300	B-I	*na*
Bae	125-700	25,000	C-I	*na*	Dassault	Falcon 20	28,660	B-II	*na*
Beechcraft	400A	16,100	C-I	*na*	Dassault	Falcon 50/ 50 EX	39,700	B-II	4,890
Beechcraft	Premier I	12,500	B-I	*na*	Dassault	Falcon 900/ 900B	46,700	B-II	5,651
Beechcraft	2000 Starship	14,900	B-II	*na*	Israel Aircraft Industries	Jet Commande r 1121	16,800	C-I	*na*
Bombardier	Challenger 300	41,250	C-II	4,810	IAI	Westwind 1123/1124	23,500	C-I	*na*
Cessna	500 Citation/ 501Citation Sp	11,850	B-I	3,642	Learjet	20 Series	12,500	C-I	*na*
Cessna	Citation I/II/III	10,600	B-I	*na*	Learjet	31/31A/ 31A ER	15,500	C-I	3,266
Cessna	525A Citation II (CJ-2)	10400	B-I	4,183	Learjet	35/35A/36/ 36A	18,300	C-I	5,581
Cessna	550 Citation Bravo	13,300	B-II	3,600	Learjet	40/45	20,500	C-I	4,877
Cessna	550 Citation II	14,800	B-II	4,317	Mitsubishi	Mu-300 Diamond	14,630	B-I	*na*
Cessna	551 Citation II/Special	12,500	B-II	*na*	Raytheon	390 Premier	12,500	B-I	*na*
Cessna	552 Citation	15,100	B-II	*na*	Raytheon Hawker	400/400 XP	23,300	C-I	3,802
Cessna	560 Citation Encore	16,830	B-II	3,639	Raytheon Hawker	600	25,000	C-I	5,030
Cessna	560/560 XL Citation Excel	20,000	B-II	4,214	Sabreliner	40/60	19,612	B-I	5,663
Cessna	560 Citation V Ultra	23,000	C-II	5,605	Sabreliner	75A	24,000	C-II	6,298
Cessna	650 Citation VII	22,000	B-II	*na*	Sabreliner	80	23,300	C-II	6,200
Cessna	680 Citation Sovereign	30,300	C-II	3,650	Sabreliner	T-39	17,760	C-I	*na*

Source: Airport Solutions Group; FAA AC150/5325-4B, Table 3-1; FAA Aircraft Characteristics (12/11/2009); Aircraft Manufacturers Data

Similar to the runway length analysis described above, the same dependent variables (airport elevation and mean daily maximum temperature) are used as input into another FAA runway length curve that is designed for the aircraft listed in Table 4-4 and operating at a 60 percent load factor. (Note that the 60 percent load factor was chosen since it represents the shorter haul operations of these aircraft typically experienced at smaller airports in the Boston metropolitan area.) **Figure 4-9** shows the resultant recommended runway length is 4,600 feet, or 1,100 feet longer than the existing Runway 12-30.

Figure 4-9: FAA Runway Length Curve – 75 Percent of Fleet at 60 Percent Useful Load



Source: FAA AC150/5325-4B, Figure 3-1.

Recommended Runway 12-30 Length

Runway 12-30 currently is 3,500 feet long, which is adequate for that runway's existing and projected design aircraft (Beechcraft King Air C90). However, in compliance with the recommendation in FAA AC 150/5325-4B that small airports factor potential future runway length requirements beyond those that may be currently projected, the Taunton Municipal Airport should consider planning for a potential longer runway. Based on the FAA methodology, Runway 12-30 could require a total length ranging from 4,050 feet to 4,600 feet. As noted previously, this additional length would only be potentially required if anticipated area development initiatives were to come to fruition. Nevertheless, it is important that this possibility be reflected in this Airport Master Plan Update.

Runway 4-22 Length Recommendations

Step #1: Identify the critical design airplanes or airplane group &
Step #2: Identify the airplanes or family group that will require the longest runway lengths at maximum certificated takeoff weight (MTOW).

In **Section 4.3.1**, the critical design airplane for Runway 4-22 was identified as a Piper J3, which is consistent with the Airport's existing ALP. This aircraft has an RDC of A-I, a MTOW of less than 12,500 pounds, and an approach speed of 30 knots or more, but less than 50 knots.

Step #3: Determine the method that will be used for establishing the recommended runway length; &
Step #4: Select the recommended runway length through application of the appropriate determination methodology; &
Step #5: Apply any necessary adjustment to the obtained runway length.

For design aircraft of this size, Steps 3 through 5 are effectively condensed into the following paragraph:

> *204. SMALL AIRPLANES WITH APPROACH SPEEDS OF 30 KNOTS OR MORE BUT LESS THAN 50 KNOTS. The recommended runway length is 800 feet at mean sea level. Runway lengths above mean sea level should be increased at the rate of 0.08 x airport elevation above mean sea level to obtain the recommended runway length at that elevation.*

Given that the Airport elevation is 41.5 feet MSL, the resultant recommended length for Runway 4-22 is 804 feet. This means that the existing listed length of 1,900 feet exceeds the minimum required length by 1,096 feet. (It should be noted that a runway's actual length can exceed the length recommended by FAA AC 150/5325-4B.)

Runway Length Recommendations

TAN's current ALP shows a proposed ultimate runway length of 3,500 feet for Runway 12-30. Based on the runway length analysis presented above, that runway length is deemed to be adequate for the 20-year planning period. However, it is also recommended that the Taunton Municipal Airport consider long-term alternatives to protect for a potential extension that would extend Runway 12-30 from 3,500 feet to a maximum length of 4,600 feet, or some length in between. Note that this potential extension could only become practicable if increased aviation demands due to potential area development initiatives are realized.

Runway 4-22, the secondary/crosswind runway, is currently 1,900 feet. Through application of the FAA runway length requirement methodology, it was determined that the runway length should be maintained to at a minimum of 804 feet.

4.3.4 Runway Width

The required width of a runway is defined in FAA AC 150/5300-13A, *Airport Design*, and is a function of the Runway Design Code (RDC) and the instrumentation available for the approach. Runway 12-30 is currently 75 feet wide, has an RDC of B-II and is equipped with multiple nonprecision instrument approaches. According to the FAA AC, the recommended width for Runway 12-30 is 75 feet. Therefore, the existing condition meets the FAA standard and no changes are required.

Runway 4-22, which has a current width of 60, has an RDC of A-I, does not have any instrument approaches and is limited to small aircraft operations. According to the FAA advisory circular, the recommended width for Runway 4-22 is 60 feet. Therefore, the existing condition meets the FAA standard and no changes are required.

4.3.5 Pavement Strength

There are several factors that must be considered when determining appropriate pavement strength for a given runway. These factors include, but are not limited to aircraft loads, frequency and concentration of operations, and the condition of subgrade soils. Runway pavement strength is typically expressed by common landing gear configurations. Example aircraft for each type of gear configuration are as follows:

- Single-wheel – each landing gear unit has a single tire, example aircraft include light aircraft and some business jet aircraft.
- Dual-wheel – each landing gear unit has two tires, example aircraft are the Boeing 737, Boeing 727, MD-80, CRJ 200, and the Dash 8.

- Dual-tandem – main landing gear unit has four tires arranged in the shape of a square, example aircraft are the Boeing 707 and KC135.

The aircraft gear type and configuration dictates how aircraft weight is distributed to the pavement and determines pavement response to loading. It should be noted that operations by aircraft that exceed a runway's pavement strength will degrade the pavement prematurely and create wear issues that require more aggressive pavement maintenance. The published pavement strengths and other attributes of the runways at TAN are presented in **Table 4-7**.

Table 4-7: Runway Pavement Attributes for TAN

	Runway 12-30	Runway 4-22
Length and Width	3,500' x 75'	1,900' x 60'
Bearing	107.68°/287.68° True	26.55°/206.55° True
Effective Gradient	0.20%±-	0.0%±-
Surface Type	Bituminous Concrete	Turf Gravel
Surface Condition	Good	Poor
Pavement Strength	SW 21,000 lbs	NA

Source: Airport Solutions Group; TAN ALP; FAA Form 5010.

The single-wheel configuration is appropriate for application to Runway 12-30. At present, the runway pavement is in good condition and its current strength is sufficient to accommodate Runway 12-30's critical aircraft. Therefore, no modification to pavement strength is currently recommended. However, when Runway 12-30 is next reconstructed (currently scheduled for 2018), this recommendation should be revisited to ensure that it remains correct. Runway 4-22's surface is turf/gravel (i.e. non-paved).

4.3.6 Taxiways

A taxiway system must allow for safe and efficient aircraft movement to and from the runways and the aprons that serve passenger terminals, hangars, and general aviation facilities. The taxiway system at Taunton Municipal Airport is based on a full parallel taxiway (Taxiway A) for Runway 12-30. It also includes taxiway connectors between the runway and Taxiway A, as well as a new taxiway (Taxiway B) to a new eastside hangar development area. There is also an undefined turf taxiway that provides access to Runway 4-22. All taxiways (except for the turf taxiway) are equipped with full signage, medium intensity taxiway lighting (MITL), and taxiway centerlines.

Taxiway design requirements are established by the Taxiway Design Group (TDG) criteria defined in FAA AC 150/5300-13A, and are based on the overall Main Gear Width (MGW) and the Cockpit to Main Gear (CMG) distance of the critical or design aircraft. As described in previous sections, the design aircraft for Runway 12-30 is the Beechcraft King Air C90, while Runway 4-22's design aircraft is a Piper J3. Both of these aircraft have a TDG of 1A, which has a

taxiway width requirement of 25 feet, or 10 feet narrower than the current condition on Taxiway A.

However, it should be noted that, as was described in the runway length section, Taunton Municipal Airport could reasonably be expected to experience operations of larger aircraft in the future, particularly as regional development initiatives continue to proceed. To be consistent with the runway length analysis, a TDG of 1B or 2 also should be considered for the following reasons:

- TAN's taxiways are 35 feet wide and a width reduction to 25 feet could have a dramatic impact on larger aircraft within the overall TDG 1 category if they were to occasionally operate at TAN. These aircraft include the Cessna Citation X, and several Gulfstream variants, as well as those of Bombardier.
- A TDG of 1B or 2 reflects typical turbine aircraft that TAN could be expected to attract, included many in the Cessna Citation small to mid-sized jet family;
- Taxiway A is not scheduled for reconstruction until 2025, at which time the final taxiway width determination will be made.

Based on discussions with the FAA, the ALP will reflect the current design standards. However, given the uncertainty related to a likely shift in the Airport fleet mix as related to potential economic development initiatives in the local area, combined with Taxiway A not scheduled for reconstruction until 2025, the ultimate determination of the taxiway classification should be made closer to that reconstruction date. **Table 4-8** highlights the attributes of the existing taxiway system.

Table 4-8: TAN Taxiways

	Taxiway A	Taxiway A Stubs	Taxiway B	Taxiway (undefined turf)
Associated Runway	Runway 12-30	Runway 12-30	Runway 12-30	Runway 4-22
Type	Full Parallel	Connectors	Connector	Connector
Location	Northside	Northside	Northside	Northside
Length	3,500'	325'	200'	900' (est.)
Width (existing)	35'	35'-40'	35'	25' (est.)
Width (standard)	25'[1]/35'[2]	25'[1]/35'[2]	25'[1]/35'[2]	25'
RW-TW Centerline Separation (current)	199.5'	NA	NA	NA
RW-TW Centerline Separation (standard)	240'	NA	NA	NA
Taxiway Safety Area	79'	79'	79'	49'
Taxiway Object Free Areas	131'	131'	131'	89'
Lighting	MITL	MITL	MITL	MITL

Source: Airport Solutions Group; TAN ALP; FAA Form 5010; FAA AC 150/5300-13A.
Notes: [1] 25' width reflects TDG categories 1A and 1B.
[2] 35' width reflects TDG category 2.

Recommendations for the existing taxiway system at TAN include the following:

- The current runway-taxiway separation between Taxiway A and Runway 12-30 is 199.5 feet, while the minimum separation requirement per FAA AC 150/5300-13A is 240 feet. In 2002 as part of the Taunton Municipal Airport's last Master Plan Update, the FAA issued a "Modification to Airport Standards" for the runway-taxiway separation allowing for this nonstandard condition to be maintained (see **Figure 4-10**). This modification was issued due to the significant costs and environmental impacts that would be incurred in order to bring the Airport into compliance with the FAA design standard. (Note that the modification actually reflects 197 feet as the current runway-taxiway separation. When Taxiway A was reconstructed in 2005, the centerline was shifted 2.5 feet.)

Figure 4-10: FAA Modification to Airport Standards Notification for Runway – Taxiway Separation at the Taunton Municipal Airport

MODIFICATION TO AIRPORT STANDARDS

Airport: Taunton Municipal Airport, Taunton, Massachusetts

Deviation Summary:
Reduce runway/taxiway separation distance between Runway 12-30 and taxiway A

Standard: AC 150/5 300-13, table 2-1

Deviation: To allow the separation distance between Runway 12-30, centerline to taxiway A centerline to be 197 feet in lieu of the standard of 240 feet.

Justification:
The taxiway is an existing taxiway reconstructed in 1960. To obtain the required separation distance, would require the relocation of a stream that runs parallel to a portion of the taxiway. It will have a negative impact on aircraft parking. It would not be reasonably possible due to the impact to the existing wetlands.
The Runway Safety Area, and the Runway Obstacle Free Zone are satisfied by the most demanding aircraft Beach King Air (C-90)).

Additional Deviation Filed:
Master Plan Report (Page 4-2)
Edward & Kelcey letters dated April 30, 2002 and May 17, 2002.

It is recommended that the Modification to Airport Design Standard be approved. The modification is based or our understanding of the operation and configuration of the airport and/or current anticipated aircraft size and volume for the next five to ten years. Any significant change in aircraft size or volume may result in the modification being restudied.

Recommended By: William M. Cox **Date:** 6/26/02

Source: FAA.

As part of the 2014 Master Plan Update, it is recommended that this nonstandard condition be reexamined and alternatives explored to bring the runway-taxiway separation into compliance (or possibly closer to compliance) with the current FAA design standards.

- Connecting stubs associated with Taxiway A are 40 feet wide, where only 25 feet is required by the FAA design standards for the design standards. It is recommended that this be reviewed and adjusted as part of the alternatives analysis.
- TAN's taxiway identifiers or designations do not match the standard approach for identifying taxiways. Per FAA AC 150/5340-18F, *Standards for Airport Sign Systems*, it is recommended that the taxiway identifier system be developed in a simple and logical fashion and that connecting taxiways should reflect the primary taxiway that they support. Therefore, it is recommended that the taxiways be re-identified to reflect the current standards for identification.

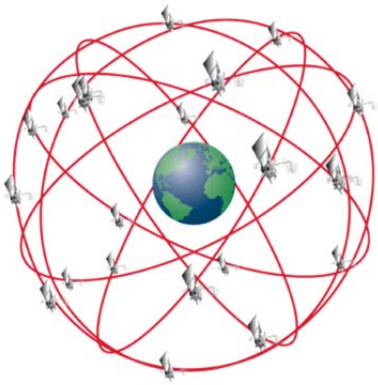
It should also be acknowledged that additional taxiways may be necessary in the future to access any newly developed apron and hangar areas. Any proposed landside development should include taxiways or taxilanes (used to access various apron areas, including tiedowns and hangars) if they are intended to provide aircraft access to the airfield. Future taxiways or taxilanes to meet this need will be illustrated on the future Airport Layout Plan.

4.3.7 Navigational Aids (NAVAIDS)

Navigational aids (NAVAIDs) are any visual or electronic devices, airborne or on the ground, that provide point-to-point guidance information or position data to aircraft in flight. Airport NAVAIDs provide guidance to a specific runway end or to an airport. An airport is equipped with precision, non-precision, or visual capabilities in accordance with design standards that are based on safety considerations and airport operational needs. The type, mission, and volume of activity used in association with meteorological, airspace, and capacity considerations determine an airport's eligibility and need for various NAVAIDs.

Instrument NAVAIDs

This category of NAVAID provides assistance to aircraft performing instrument approach procedures to an airport. An instrument approach procedure is defined as a series of predetermined maneuvers for guiding an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually.



Global Positioning Satellite System

Runway 30 is equipped with straight-in RNAV (Global Positioning System [GPS]) approach in addition to a Non-Directional Beacon (NDB) approach. All approaches at TAN allow pilots to circle-to-land to other runway ends, albeit typically at higher minimums.

The level and complexity of instrument approach capabilities at TAN are considered to be inadequate for the level and type of service offered by the Airport. Specifically, the Airport requires a vertical guidance approach for more sophisticated aircraft operations. In support of that desire, the Massachusetts Department of Transportation (MassDOT) – Aeronautics Division sponsored an airspace survey in 2012 as a precursor for establishing a Localizer Performance with Vertical Guidance (LPV) approach for TAN. An LPV would be an enhancement to the existing RNAV approach that would provide vertical guidance to the existing horizontal guidance. The establishment of the LPV is currently in process within the FAA.

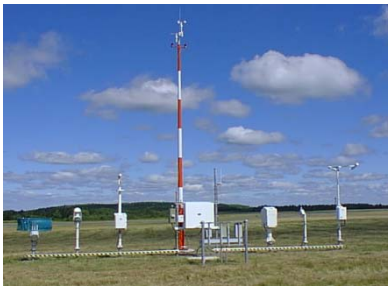
Additionally, while still operational, NDB approaches are becoming less common due to their lack of precision and the cost of maintaining ageing and obsolete equipment. Therefore, the Airport should anticipate this approach being decommissioned at some future date. However, it is also recommended that the Airport continue to maintain all of its approaches and their ancillary support features.

MIRLS

Visual Landing Aids

Visual landing aids provide aircraft guidance to and alignment with a specific runway end, once the airport is within a pilot's sight. Visual landing aids at TAN currently include the following:

- Runway Lighting – Runway 12-30 is equipped with Medium Intensity Runway Lighting (MIRL). Additionally, Runway 30 is equipped with Runway End Identifier Lights (REILs). These lighting systems will remain adequate throughout the 20-year planning period; however, REILs for Runway 12 should also be installed.
- Other Runway Lighting and Guidance – Several additional NAVAIDs and visual aids are available at the Airport to assist landing aircraft at night and in poor weather conditions. NAVAIDs include a rotating beacon and an Automated Surface Observing System (ASOS). These systems should be maintained during the 20-year planning period as they play a crucial role in the Airport's operation. The Airport's primary lighted wind cone is located south of Runway 12-30. Additionally, a Remote Communications Outlet (RCO) or a remote transmitter/receiver (RTR) could be considered for TAN to provide communication access to Flight Service Stations or terminal air traffic control facilities.
- Visual Glide Slope Indicators (VGSI) – Only Runway 30 is currently equipped with visual approach slope indicators (VASIs). Over the planning period, the older VASI unit should be replaced by newer precision approach path indicators (PAPI) units. Additionally, Runway 12 should likewise have a PAPI unit installed to assist in the visual portion of its aircraft approaches.



ASOS

PAPIs

4.3.8 Dimensional Standards

Dimensional standards include measurements that account for physical runway and taxiway characteristics as well as safety related areas. Several of these standards (contained in FAA AC 150/5300-13A) are shown in **Table 4-9**, which presents the FAA design criteria for TAN's runways based on their respective RDCs during the planning period. As described in previous sections, the design aircraft for Runway 12-30 is the Beechcraft King Air C90, which has an RDC B-II group category, while Runway 4-22's design aircraft (Piper J3) has an RDC of A-I Small.

Recommended improvements to maintain these safety clearances on the airfield will be shown on the ALP prepared for this Airport Master Plan Update.

Table 4-9: FAA Design Criteria for TAN

Criteria	Runway 12-30 (RDC B-II) Requirements	Runway 4-22 (RDC A-I Small) Requirements
Runway Width	100 feet	60 feet
Runway Centerline to:		
- Taxiway Centerline	240 feet	150 feet
- A/C Parking Area	250 feet	125 feet
Runway Object Free Area (ROFA):		
- Width	500 feet	250 feet
- Length Beyond Runway End	300 feet	240 feet
Runway Safety Area (RSA):		
- Width	150 feet	120 feet
- Length Beyond Runway End	300 feet	240 feet
Taxiway Width	25 feet	25 feet
Taxiway Centerline to:		
- Fixed or Movable Object	65.5 feet	44.5 feet
Taxiway Object Free Area (TOFA) - Width	131 feet	89 feet
Taxiway Safety Area (TSA) - Width	79 feet	49 feet

Source: FAA AC 150/5300-13A

The following provides additional clarification to some of the criteria listed in the Table 4-8, in addition to introducing other standards that are also important to the design of the runway and taxiway system at TAN.

Runway Object Free Area

The Runway Object Free Area (ROFA) is a two-dimensional FAA-defined runway safety standard that requires the clearing of objects within a specific area around a given runway. Specifically, the ROFA requires the clearing of all above-ground objects protruding above the nearest point of the RSA. Exceptions to this requirement include objects that need to be located in the ROFA for air

navigation or aircraft ground maneuvering purposes. In those cases, objects must meet FAA frangibility requirements.

As shown in Table 4-8, Runway 12-30's ROFA is 500 feet wide and extends 300 feet beyond its ends. Runway 4-22's ROFA is required to be 250 feet wide and extend 240 feet beyond its ends. Both existing runways are in full compliance with current ROFA requirements.

Runway Safety Area

The Runway Safety Area (RSA) serves as an area of enhanced safety if an aircraft were to overrun, undershoot, or veer off the paved runway surface. It also provides greater accessibility for fire-fighting and rescue equipment during such incidents. According to the FAA's definition, the RSA should be cleared, graded, have no potentially hazardous ruts or surface variations, and be capable of sustaining the weight of the runway's design aircraft in dry conditions. This area should also be drained through application of appropriate grading or storm drains. (Note that general requirements for grading of the RSA are 0 to –3 degree grade for the first 200 feet from the runway end, with the remaining longitudinal grade ensuring that no part of the RSA penetrates the approach surface or drops below a –5 degree grade.) Objects that must be located in the RSA for air navigation or aircraft ground maneuvering purposes must meet FAA frangibility requirements.

As shown in Table 4-8, Runway 12-30's RDC B-II dictates that the runway's RSA be 150 feet wide and extend 300 feet beyond its ends. Runway 4-22's RSA is required to be 120 feet wide and extend 240 feet beyond its ends. Both existing runways are in full compliance with current RSA requirements.

Obstacle Free Zones

The Obstacle Free Zone (OFZ) is a three-dimensional volume of airspace that supports the transition of ground-to-airborne operations (or vice versa). The OFZ clearing standards prohibit taxiing and parked airplanes and other objects, except frangible NAVAIDs or fixed-function objects, from penetrating this zone. The OFZ consists of a volume of airspace below 150 feet above the established airport elevation and is centered on the runway and extended runway centerline.

The Runway Obstacle Free Zone (ROFZ) consists of a volume of airspace centered above the runway centerline, above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The ROFZ extends 200 feet beyond each end of the runway and has a width that varies with approach visibility minimums and the size of aircraft using the runway.

Runway Protection Zones

A Runway Protection Zone (RPZ) is an area off the runway end intended to enhance the protection of people and property on the ground. RPZ size is a

function of critical aircraft and the visibility minimums established for the approach to the runway. Visual runways have smaller RPZs because the landing minimums are higher and the runway is not used during periods of reduced visibility. Essentially, the greater precision of the approach, the lower the visibility minimums for landing, the larger the resulting RPZ. The existing RPZs at TAN will be evaluated in **Chapter Five: Alternatives Analysis & Development Concepts** and any required modifications, including the acquisition of land to be compatible with airport uses, will be identified. The RPZ contains two sub-areas; these areas are discussed as follows:

- Runway Object Free Area (OFA) - The runway OFA is a two-dimensional ground area surrounding the runway that prohibits parked aircraft and objects, except NAVAIDs and objects with locations fixed by function, from locating there. According to FAA design guidelines shown in Table 4-8, the OFA for RDC B-II runways should extend 300 feet beyond each runway end and have a width of 500 feet. For RDC A-I Small runways, the OFA should extend 240 feet beyond each runway end and have a width of 120 feet.
- Controlled Activity Area - The controlled activity area is the portion of the RPZ beyond and to the sides of the runway OFA. It is recommended that an airport control, in fee, this activity area. The controlled activity area should be free of land uses that create glare and smoke. Also, the construction of residences, fuel-handling facilities, churches, schools, and offices is not recommended in the RPZ's controlled activity area. Roads are typically not recommended in the RPZ. **Table 4-10** shows the existing RPZ dimensions and Part 77 approach slopes for each runway end at TAN. Since lower visibility minimums are not called for during the planning period, larger RPZ dimensions are not required.

Table 4-10: Runway Protection Zones (RPZs) for TAN

Runway	Type of Approach	Approach Visibility Minimums	Inner Width	Outer Width	Length	Part 77 Approach Slope
12	Visual	NA	500'	700'	1,000'	20:1
30	Non-precision	1 mile	500'	700'	1,000'	34:1
4	Visual	NA	250'	450'	1,000'	20:1
22	Visual	NA	250'	450'	1,000'	20:1

Source: TAN ALP; FAA Form 5010; FAA AC 150/5300-13A

Part 77 Obstruction Standards

Federal Aviation Regulations (FAR) Part 77 exists to identify objects which may be hazardous to air navigation. These standards apply to the use of navigable airspace by aircraft and to existing or planned air navigation facilities (airports). Note that the FAA grant assurances signed by the Taunton Municipal Airport Commission require that the imaginary surfaces be cleared of all obstructions, to the extent feasible. An obstruction may be an existing or proposed manmade object, object of natural growth, or terrain. Any changes to the airfield must provide the obstacle clearance necessary to meet the requirements designated in FAR Part 77. The critical surfaces are identified in drawings associated with the ALP and are described in **Chapter Two: Inventory of Existing Conditions**. Existing Part 77 surfaces will be evaluated during the development of the ALP, any penetrations will be addressed and identified for removal or marking.

Airport Design Approach Surfaces

FAA AC 150/5300-13A, *Airport Design*, defines specific approach airspace surfaces that are separate from Part 77, and are designed to protect the use of the runway in both visual and instrument meteorological conditions near the airport. These approach surfaces are defined by each runway's current approach type (i.e., visual, nonprecision instrument, etc.), and typically are trapezoidal in shape, extending away from the runway along the centerline and at a specific slope. In order to establish the location of a runway threshold, the associated approach surface must be clear of all obstructions. If it is not clear, either the obstructions must be removed, or the runway threshold must be relocated until its associated approach surface is clear.

Analysis of existing *Airport Design* approach surfaces is contingent upon the availability of aerial survey data along the extended runway centerlines. For the Taunton Municipal Airport, there is limited data available related to Runway 12-30' approaches, which shows that this runway's approach surfaces are clear. There is more extensive data available for Runway 4-22, which indicates that there are significant penetrations to the approach surfaces on both ends of the runway. Alternatives to addressing this issue will be discussed in **Chapter Five: Alternatives Analysis & Development Concepts.**

4.4 LANDSIDE FACILITY REQUIREMENTS

This section describes the landside facility requirements needed to accommodate TAN's general aviation activity throughout the planning period. Areas of particular focus include the terminal building, hangars, aprons and tie-down areas, automobile parking, access, as well as the various associated support facilities.

4.4.1 Terminal / Administration Building

As described in Chapter Two, the 1,600 square foot terminal building at TAN is located at the end of Westcoat Drive. The building itself has several offices, a flight planning room, a counter area and bathrooms. It has been recognized that the existing terminal building is antiquated, that its systems are progressively failing, that it does not conform to the Americans with Disabilities Act (ADA) requirements, and that it is not designed to meet the long-term needs of TAN; therefore, the Airport must plan for its ultimate replacement.

TAN Terminal Exterior (landside)

For general aviation airports such as TAN, terminal building programming and design is different than that of commercial service airports. A facility at a general aviation airport typically must be designed for maximum flexibility since the demands at such an airport can vary dramatically over time. In general, such a facility should provide accommodations for the following purposes:

- Airport Administration Spaces – at a general aviation airport, a terminal building is also typically used as the airport's administration building. This would include space for the airport manager's office, other offices for airport support staff, storage space for airport operations, and a reception counter. (Currently, TAN's administrative functions are located within the Airport's Airfield Maintenance Facility.)
- Public Spaces – these would include public bathrooms, a waiting area, vending areas, and a possible airfield observation area.
- Pilot Spaces – these would include a flight planning room, a pilots' lounge, and a quiet room.
- Shared Spaces – these would be areas available for all building users (administration, pilots, passengers, and the general public) and typically would include a conference room, a kitchenette, and a locker room with shower.
- Tenant Spaces – depending on the type of tenant, these would include office space and circulation space. (Note that a restaurant tenant would have much larger spatial requirements.)
- Building Support Spaces – these would include building mechanicals, janitorial support, and circulation.

TAN Terminal Corridor

TAN Terminal Basement

With respect to actual spatial requirements associated with the above functions, the Massachusetts Department of Transportation (MassDOT) Aeronautics Division has recently initiated an administration building program at selected Massachusetts airports, of which TAN is one. This program included a building programming effort that detailed the future spatial requirements for a new terminal/administration building at the Taunton Municipal Airport (see **Table 4-11**).

Table 4-11: TAN Terminal/Administration Building Spatial Requirements

Ideal Building Program per MassDOT Aeronautics Planning			
Administration Space (SF)		**Public Space (SF)**	
Service Counter	90	Lobby/waiting area	200
Manager's Office	210	Restrooms	180
Admin Support Space	140	Observation Area	TBD
Ops/Linemen's Office	200	Subtotal public space	380
Storage	180		
Subtotal admin space	820		
Shared Space (SF)		**Pilots' Space (SF)**	
Meeting/Conference Room	550	Flight Planning Area	TBD
Kitchenette	150	TSA offices	180
Locker Room	200	Security screening	TBD
Subtotal shared space	900	Subtotal pilots space	180
Tenants' Space (SF)		**Building Support Space (SF)**	
Tenant Offices/Training Rooms	1,650	Electrical	80
Tenant Circulation	410	Mechanical	80
Subtotal tenant space	2,060	Janitor's Closet	60
		Headend Room	80
		Circulation	1,680
		Subtotal support	1,980
TOTAL GROSS SPACE (SF)			**6,320**

Source: Fennick-McCredie Architecture, Massachusetts Department of Transportation, Aeronautics Division - *Strategic Master Plan for Administration Building Program at Massachusetts Airports* - State Project # 2013-TERM-BLDG, April 17, 2014.

While the building program indicates an ideal spatial requirement of greater than 6,300 square feet, the actual buildings that are being proposed for construction by MassDOT will have a maximum footprint of 5,500 square feet. Therefore, for TAN, a 5,500 square foot building has been programed to be designed in 2016 and to be constructed in 2017. The *Strategic Master Plan for Administration Building Program at Massachusetts Airports* provides preliminary design concepts and layouts for a prototypical 5,500 square foot terminal/administration building (see **Figure 4-11** and **Figure 4-12**). Note that the footprint associated with this design concept will be utilized in the following chapter.

Airside and landside access to the new terminal/administration building is an important feature also to be considered. It is recommended that the new building be sited to maximize ease of access to the transient aircraft apron, and to the flight training based aircraft apron. Those aprons should be accessed by multiple taxilanes/taxiways in order to provide convenient and efficient access to the airfield and multiple entrance/exit paths for pilots to follow.

Figure 4-11: View of Prototypical Terminal/Administration Building *(5,500 sf)*

Landside View 1

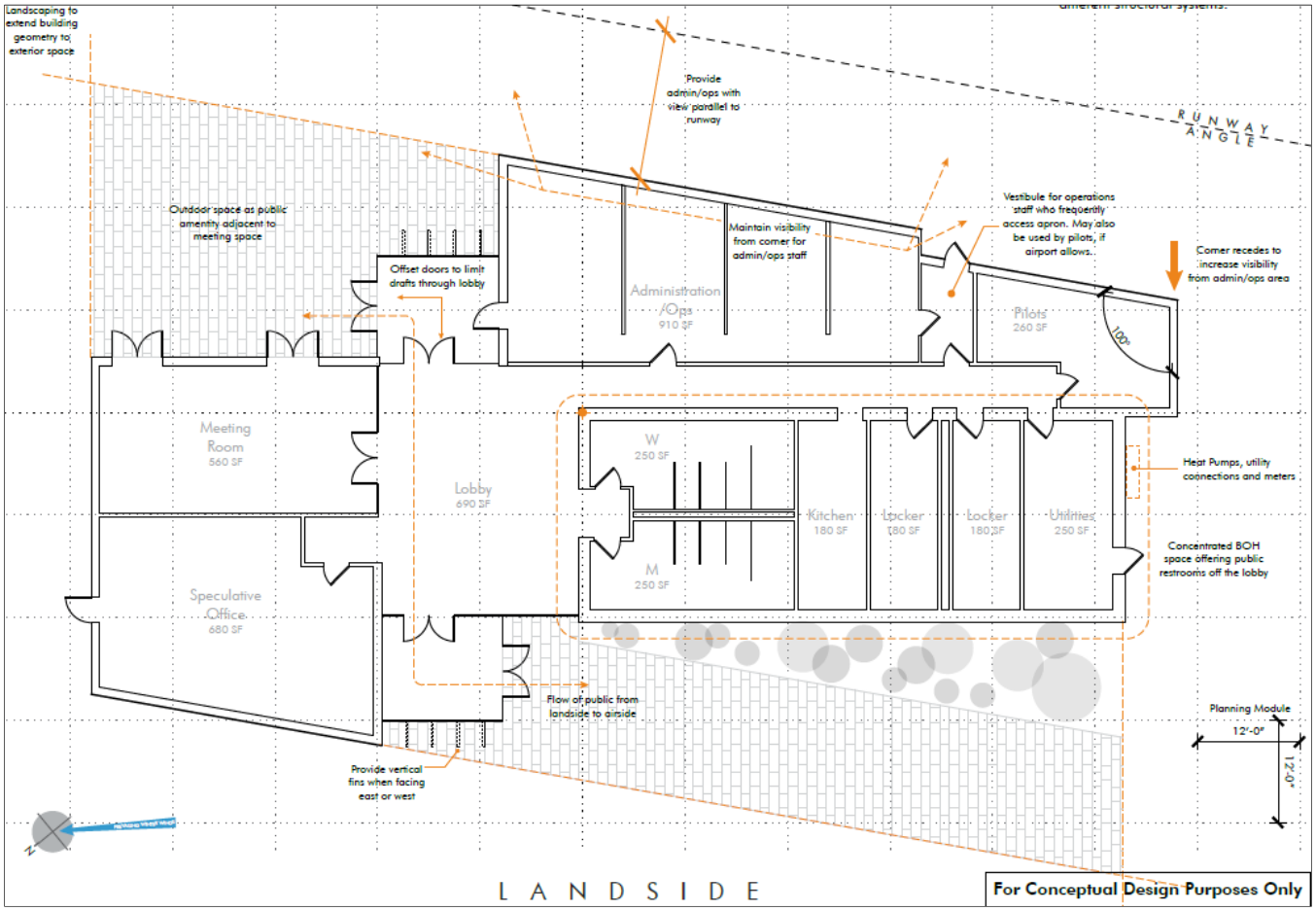
Landside View 2

Airside View 1

Airside View 2

Source: Fennick-McCredie Architecture, Massachusetts Department of Transportation, Aeronautics Division - Strategic Master Plan for Administration Building Program at Massachusetts Airports - State Project # 2013-TERM-BLDG, April 17, 2014.

Figure 4-12: Prototypical Terminal/Administration Building Layout *(5,500 sf)*



Source: Fennick-McCredie Architecture, Massachusetts Department of Transportation, Aeronautics Division - Strategic Master Plan for Administration Building Program at Massachusetts Airports - State Project # 2013-TERM-BLDG, April 17, 2014.

Public vehicle access to the new building should be provided from the Airport access road through the existing parking lot. Based on general planning guidelines, a minimum of 44 automobile parking spaces should be provided for the new terminal/administration building. (Note that the Airport's current automobile parking lot can accommodate approximately 87 cars, which is nearly double the minimum requirement.)

The location of the newly developed terminal/administration building, as well as taxiways, aircraft aprons and vehicle parking areas intended to access the new building will be discussed further in the following chapter. This discussion will include the basic layout of these facilities in relation to one another, but not detailed design requirements.

4.4.2 Hangars

Utilization of hangar space at airports varies as a function of local climate, security, and owner preferences. The trend in general aviation aircraft (single or multi-engine) is toward newer, more sophisticated and consequently, more expensive aircraft. Therefore, many aircraft owners reasonably prefer enclosed hangar space to locating their aircraft on outside tiedowns. This is particularly true in states like Massachusetts, where harsh, cold-weather climates can wreak havoc on aircraft stored outside.

Based aircraft are routinely stored at airports in a variety of hangar types. The type of hangars needed is usually determined by aircraft size, the type of aircraft owner (business or leisure), and the region of the country. Following are the types of hangars currently at or anticipated to be constructed at TAN:

T-hangars (example)

- T-hangars – This hangar type generally consists of a large structure having multiple T-shaped units for lease to individuals. At TAN, there are 11 T-hangar buildings (approximately 94,000 square feet) that have a total of 76 individual hangar units.

Commercial Hangar (example)

- Box Hangars – This hangar type generally includes individual, unattached, clear-span hangar units that are typically designed to accommodate one or two smaller aircraft. There are currently three, unattached single-unit hangars (a total of approximately 3,400 square feet) that are each designed to accommodate one small aircraft.

Corporate Hangar (example)

- Conventional Hangars – This classification typically includes larger, clear-span hangars capable of holding multiple aircraft, depending on their size. These hangars can be solely for the purpose of storing aircraft, or can house a variety of businesses that are located on the airport, including American Aero, K&K Aircraft, and Superior Aero Service. There are currently six conventional hangars at TAN that account for an estimated total of 28,500 square feet of hangar space.
- Corporate Hangars – These are similar to conventional hangars, but typically have an attached office and are used by one tenant only. These hangars can house just one or more corporate aircraft (i.e. turboprops and jets), depending on the owner's needs. TAN currently has no corporate hangars.

The demand for aircraft storage hangars is dependent upon the number and type of aircraft expected to be based at the airport in the future. For planning purposes, it is necessary to estimate hangar requirements based upon forecasted operational activity. Note that it is assumed that larger, higher value based aircraft are more likely to be stored in a hangar, as well as 100% of the based multi-engine aircraft fleet. Additionally, it is assumed that 100% of larger, higher value itinerant aircraft would prefer to be located in a hangar. Based on those assumptions, the hangar space requirements by aircraft type can be found below in **Table 4-12**.

Table 4-12: Aircraft Hangar Requirements for TAN

	2013	2018	2023	2028	2033
Based Aircraft Demand					
Single Engine	115	121	126	133	140
Multi-Engine	1	3	4	6	8
Jet / Turbine	1	1	3	4	5
Helicopter (3%)	0	1	3	3	3
TOTAL	117	126	136	146	156
T-Hangars					
Single Engine (90%) (1,200 sf)	83	87	91	108	113
Multi-Engine (50%) (1,400 sf)	1	1	2	3	4
Jet / Turbine (0%)	0	0	0	0	0
Helicopter (0%)	0	0	0	0	0
TOTAL DEMAND (aircraft)	84	88	93	111	117
TOTAL DEMAND (SF)	101,000	105,800	112,000	133,800	141,200
EXISTING T-HANGARS (SF)	97,465	97,465	97,465	97,465	97,465
Commercial/Corporate Hangars					
Single Engine (10%) (1,200 sf)	9	10	10	12	13
Multi-Engine (50%) (1,400 sf)	0	1	2	3	4
Jet /Turbine (100%) (5,000 sf)	1	1	3	4	5
Helicopter (100%) (1,800 sf)	0	1	3	3	3
TOTAL DEMAND (aircraft)	10	13	18	22	25
TOTAL DEMAND (SF)	15,800	20,200	35,200	44,000	51,600
EXISTING HANGARS (SF)	28,300	28,300	28,300	28,300	28,300
Itinerant Aircraft					
TOTAL DEMAND (SF)	0	0	12,000	12,000	12,000
EXISTING HANGARS (SF)	0	0	0	0	0
TOTAL EXISTING HANGARS (SF)	**125,765**	**125,765**	**125,765**	**125,765**	**125,765**
TOTAL DEMAND (SF)	**116,800**	**126,000**	**159,200**	**189,800**	**204,800**
SURPLUS/DEFICIENCY (SF)	**8,965**	**-235**	**-33,435**	**-64,035**	**-79,035**

Source: Airport Solutions Group.

Based on the analysis above, TAN's current hangar infrastructure requires expansion over the long term to accommodate the forecasted demand for T-hangars and commercial/corporate hangars.

4.4.3 Apron and Tiedown Areas

The apron area requirements shown in this section were developed according to the guidance provided in FAA AC 5300-13A, *Airport Design*. Note that consideration must be made in the overall apron requirements for aircraft parking, taxilanes, adjacent taxiways, proximity to buildings and fueling areas. The apron layout should be designed to accommodate all aircraft using the airport, including turbo-prop and jet aircraft. A planning criterion of 4,000 square feet per based aircraft and 6,500 square feet per transient aircraft was used.

Currently, TAN's aircraft aprons lay immediately north of Runway 12-30, located from midfield towards the Runway 12 threshold. When considering the manner in which these aprons are currently managed as well as how they would be managed given appropriate demand, there is currently an estimated 38,210 square feet of transient apron space available at TAN. For based aircraft, there is currently an estimated 133,300 square feet.

TAN Aircraft Apron

For planning purposes, when considering the projected demand for hangar space, 20 percent of the based single-engine aircraft total will be used to determine the parking apron requirements of based aircraft. This assumption is based on both current operational patterns being experienced at TAN, as well as based aircraft trends that are being experienced within Massachusetts and the region. The aircraft apron parking requirements for based and itinerant aircraft are presented in **Table 4-13** below.

Table 4-13: Aircraft Apron Requirements for TAN

	2013	2018	2023	2033
Based Aircraft Apron Demand (SF)	92,000	106,500	104,000	60,000
Based Aircraft Apron Available (SF)	133,300	133,300	133,300	133,300
SURPLUS/DEFICIENCY (SF)	**41,300**	**26,800**	**29,300**	**73,300**
Transient Apron Demand (SF)	13,000	13,000	6,500	6,500
Transient Apron Available (SF)	38,210	38,210	38,210	38,210
SURPLUS/DEFICIENCY (SF)	**25,210**	**25,210**	**31,710**	**31,710**

Source: Airport Solutions Group.

Based on this analysis, it is apparent that TAN currently has an overall surplus of aircraft apron space. However, it should be noted that these are generalized totals and do not account for the efficiency with which these aprons are configured or located, nor do they consider their condition. The Alternatives Analysis will evaluate the efficiency of the apron layout, orientation and overall maneuvering space.

4.4.4 Automobile Parking

Automobile parking is primarily available at the Airport's main parking lot located at the end of the Airport's main entrance (Westcoat Drive), near the terminal building and airfield maintenance building. There are 87 marked parking spaces available in this lot, in addition to areas that are informally used for auto parking located near the Airport's businesses and hangars. This is considered to be adequate capacity for the Airport throughout the planning period.

TAN Access & Auto Parking

4.4.5 Airport Access

The Airport has currently has one entrance, which provides access from the north off Middleboro Avenue via Westcoat Drive. The access drive's pavement is considered to be in Fair condition, although the first 500 feet or so of the drive is in poor condition (note that this section was not paved at the time of the access

drive's last paving). It should also be recognized that a new entrance off of South Precinct Street is currently being established for a new hangar development area located immediately north of the Runway 30 threshold. This new development area is isolated from the rest of the TAN's landside facilities and thus requires its own access point. Additionally, there is a through-the-fence point of access off of Middleboro Avenue via the "King Hangar." Vehicular landside access to TAN is considered to be adequate throughout the planning period.

4.5 AIRPORT SUPPORT FACILITIES

Current conditions at the Airport and possible future developments may impact aviation support facilities. Potential requirements necessary to meet deficiencies or address future needs for facilities that support the Airport's infrastructure and basic services are detailed below.

4.5.1 Fuel Storage Facilities

As a primary revenue source for the operation and maintenance of the Taunton Municipal Airport, aviation fuel plays a critical role for the Airport. TAN's existing 10,000-gallon underground 100LL Avgas fuel storage tank is owned, operated, and maintained by the Airport. It provides adequate capacity to accommodate both existing and projected demand. Fuel is currently dispensed only by Airport personnel (due to a requirement by the local Fire Marshal) and during specific hours during the day. Additionally, it should be noted that turbine aircraft operations are projected to increase throughout the planning period; therefore, it is reasonable to assume that there will be an increasing level of demand for Jet-A fuel, which is presently not available at TAN. Recommendations for fuel storage at TAN include the following:

- Explore potential for expanding hours of fuel farm operation;
- Explore potential for establishing self-service fueling; and
- Plan for the potential future installation of a Jet-A fuel tank.

4.5.2 Airport Security

Airport security is essential to the safe operation of any airport. Several recommendations have been made in this plan to deter unauthorized access to restricted airport areas and improve safety. Some of these recommendations include:

- Perimeter security fencing – TAN has a complete chain linked security fence that encompasses the entirety of the Airport's property to deter unauthorized access and prevent animal incursions. Unfortunately, vegetation continues to encroach upon that fence, including compromising it in several locations (due to falling trees, etc.). The fence must be appropriately maintained by repairing compromised sections and

clearing away vegetation. Note that this could include the establishment of a complete or partial service road along the fence line to help maintain and preserve the existing fence.

- Controlled access – The number of gates and access points should be evaluated and minimized. Frequently used gates near the terminal area already have card reader access while less frequently used gates around the airport perimeter are locked. Improvements to the access controls could include enhanced monitoring.
- Enhanced surveillance – Selected areas of the airport should be monitored by video or camera surveillance. Cameras or systems with improved capabilities are recommended in sensitive areas.
- Area Lighting - Improved lighting in the terminal area to enhance safety and security should be considered.
- Security Checks - Regular airport staff patrols along the Airport perimeter are recommended to conduct maintenance operations and security inspections.

TAN Access Gate

Taunton Municipal Airport does not have a perimeter road, but there are some dirt roads on the airport infield which are utilized by airport vehicles to conduct maintenance operations and security inspections. It should be noted that several sections of the airport security fence lie within wetlands, making the establishment of a perimeter road in those areas very difficult, if not impossible. Limited area lighting around the terminal, hangars, FBO facilities, and aircraft apron areas is also employed to enhance security, although it could be improved. The Airport also relies on local law enforcement officials to provide regular patrols on and around the facility.

4.5.3 Airfield Maintenance Facilities

The Airport has an airfield maintenance facility located to the north of Runway 12-30 and west of the existing terminal building. This 4,440 sf facility accommodates some of the Airport's heavy maintenance and snow removal equipment, while also serving as the equipment maintenance shop. This building is considered to be adequate to fulfill the needs of the Airport throughout the planning period. However, it should also be acknowledged that the airfield and snow removal equipment that is not able to be stored in the building due to space limitations is generally stored outside next to the building. In order to minimize the deterioration of that equipment that must still be stored outside, the Airport may consider the construction of a cold storage structure to protect the equipment from the elements.

4.5.4 Aircraft Rescue and Fire Fighting (ARFF)

The Airport does not have any Airport Rescue and Fire Fighting (ARFF) equipment. Since TAN does not support FAR Part 139 air carrier operations, it is

not required to have ARFF equipment or a dedicated ARFF facility. Emergency response services are provided by the City of Taunton Fire Department, which has a fire station (East Taunton Station, on Middleboro Avenue at Butler Avenue) that is located 1.2 miles from the Airport terminal area.

4.6 PROJECT FIRST LIGHT RESORT & CASINO DEVELOPMENT SCENARIO

Introduced in **Chapter Three: Forecasts of Aviation Activity**, Project First Light Resort & Casino is a $500 million resort casino proposed to be constructed in East Taunton as early as 2016. As stated in that chapter, an additional forecast scenario was generated based on the potential for that development; however, since the casino remains only proposed at this time, that scenario was not accepted by the FAA as part of the official forecast for this Master Plan Update.

Yet, if this project were to move forward, it certainly could have a significant impact on the Taunton Municipal Airport, including on its future facility and service requirements. Therefore, following is a brief summary of the potential impacts that the casino development could have on the facility and service requirements for the Airport. These requirements are being included for planning purposes only and will not be part of the final recommended plan for TAN. Nevertheless, potential development scenarios based on these requirements will be considered in **Chapter Five: Alternatives Analysis & Development Concepts** if only to provide long-term planning considerations if the casino product were to move forward.

4.6.1 Airfield Demand-Capacity Implications

The Project First Light Resort & Casino is not anticipated to impact the Taunton Municipal Airport's projected airfield demand-capacity significantly beyond than what was presented above in Section 4.2. Airfield capacity would remain well below critical capacity thresholds throughout the planning period and the runways' existing wind coverage would remain appropriate. Therefore, the casino development would not require any modifications to the analysis.

4.6.2 Airfield Requirements Implications

Since aircraft activities associated with the proposed casino development are not projected to be significantly different than the current forecasted aircraft types and activities, there is limited potential for there to be any modifications to the Master Plan airfield requirements for the planning period. Specifically, the Airport's future Airport Reference Code (ARC), Runway Design Code (RDC) or Taxiway Design Group (TDC) would remain the same as presented above in Section 4.3, meaning that FAA Airport Design standards and requirements would not change from that previously described. Additionally, the runway length and width analyses would not differ, nor would future NAVAID requirements. One area that could be impacted is with respect to Runway 12-30's pavement strength, where increased

frequency of turbine traffic would require a more rigorous review of pavement strength requirements at the time of the runway's next reconstruction (currently scheduled for 2018).

4.6.3 Landside Requirements Implications

The proposed casino development project has the greatest potential to impact the Taunton Municipal Airport's landside requirements due to changes in the based and itinerant aircraft projections. Specifically, these impacts would be experienced in hangar and aircraft apron requirements. These are reflected below in **Table 4-14** and **Table 4-15**.

Table 4-14: Aircraft Hangar Requirements for TAN (Casino Scenario)

	2013	2018	2023	2028	2033
Based Aircraft Demand					
Single Engine	115	123	131	142	153
Multi-Engine	1	3	4	6	9
Jet / Turbine	1	3	4	6	9
Helicopter (3%)	0	1	3	3	3
TOTAL	117	130	142	157	174
T-Hangars					
Single Engine (90%) (1,200 sf)	83	88	95	115	124
Multi-Engine (50%) (1,400 sf)	1	1	2	3	5
Jet / Turbine (0%)	0	0	0	0	0
Helicopter (0%)	0	0	0	0	0
TOTAL DEMAND (aircraft)	84	89	97	118	129
TOTAL DEMAND (SF)	101,000	107,000	116,800	142,200	155,800
EXISTING T-HANGARS (SF)	97,465	97,465	97,465	97,465	97,465
Commercial/Corporate Hangars					
Single Engine (10%) (1,200 sf)	9	10	10	13	14
Multi-Engine (50%) (1,400 sf)	0	1	2	3	4
Jet /Turbine (100%) (5,000 sf)	1	3	4	6	9
Helicopter (100%) (1,800 sf)	0	1	3	3	3
TOTAL DEMAND (aircraft)	10	15	19	25	30
TOTAL DEMAND (SF)	15,800	30,200	40,200	55,200	72,800
EXISTING HANGARS (SF)	28,300	28,300	28,300	28,300	28,300
Itinerant Aircraft					
TOTAL DEMAND (SF)	0	12,000	24,000	36,000	48,000
EXISTING HANGARS (SF)	0	0	0	0	0
TOTAL EXISTING HANGARS (SF)	**125,765**	**125,765**	**125,765**	**125,765**	**125,765**
TOTAL DEMAND (SF)	**116,800**	**149,200**	**181,000**	**233,400**	**276,600**
SURPLUS/DEFICIENCY (SF)	**8,965**	**-23,435**	**-55,235**	**-107,635**	**-150,835**

Source: Airport Solutions Group.

Table 4-15: Aircraft Apron Requirements for TAN (Casino Scenario)

	2013	2018	2023	2033
Based Aircraft Apron Demand (SF)	92,000	106,500	104,000	60,000
Based Aircraft Apron Available (SF)	133,300	133,300	133,300	133,300
SURPLUS/DEFICIENCY (SF)	**41,300**	**26,800**	**29,300**	**73,300**
Transient Apron Demand (SF)	13,000	13,000	26,000	39,000
Transient Apron Available (SF)	38,210	38,210	38,210	38,210
SURPLUS/DEFICIENCY (SF)	**25,210**	**25,210**	**12,210**	**-790**

Source: Airport Solutions Group.

Beyond hangars and apron requirements, no changes are anticipated to the facility requirements beyond those already detailed for the terminal building, airport parking or airport access.

4.6.4 Airport Support Facilities Implications

The proposed casino development project would not have any dramatic impacts on the Airport's support facility requirements, other than to possibly accentuate them. For example, increased turbine / corporate aircraft operations at TAN would heighten the need for the Airport to offer Jet-A fueling, and to enhance general Airport security. It would also generally increase the need to offer expanded aircraft support services, such as rental cars, crew cars, 24-hour fueling, deicing, and other traditional fixed base operator (FBO) services.

4.7 TAUNTON AIRPORT SURVEY

As part of Taunton Municipal Airport Master Plan Update, an online airport survey was conducted starting in November 2013 to solicit data and responses from interested stakeholders. The survey contained 28 questions and/or opportunities for response that encompassed a range of topics, including personal respondent data, airport management, airport operations, future airport needs and requirements, airport funding, among others. This section contains summaries of some of the key findings of that survey effort as related to potential facility improvements at the Airport. (A complete listing of all survey responses for all questions has been provided in **Appendix F**.)

A total of 61 responses were collected, and the breakdown of the types of respondents is provided below in **Table 4-16** (note that each respondent could fit into more than one respondent category).

Table 4-16: TAN Survey Respondents Breakdown

Respondent's Relationship to TAN	% of Respondents
Pilot	61.67%
Airport User	58.33%
Aircraft Owner	51.67%
Tenant	35.00%
Neighbor	11.67%
Other interested party	11.67%
Business Owner	6.67%
Airport Employee/Representative	6.67%

Source: Airport Solutions Group.

Table 4-17 presents the results to Question 8 - *Please estimate your total percentage of annual runway use at Taunton Municipal Airport*.

Table 4-17: Question 8 Response

Runway	Estimated Annual Use[1]	Estimated Annual Operations by Respondents
Runway 12	21.1%	804
Runway 30	56.9%	2,304
Runway 4	9.2%	281
Runway 22	12.8%	411
Totals:	**100.0%**	**3,800**
Avg Op per Pilot Respondent:		*100/year*

Note: [1] Annual usage percentages were normalized so that all added up to 100%.
Source: ASG.

Table 4-18 presents the results to Question 9 - *Do you currently have to make aircraft performance concessions in order to operate at Taunton Municipal Airport?*

Table 4-18: Question 9 Response

Answer	% Response
Yes	10.3%
No	74.4%
Not Applicable	15.3%

Source: Airport Solutions Group.

Table 4-19 presents the results to Question 15 - *Is the size and location of the Taunton Municipal Airport adequate for your existing/future business needs?*

Table 4-19: Question 15 Response

Answer	% Response
Yes	68.2%
No	13.6%
Not Applicable	18.2%

Source: Airport Solutions Group.

Table 4-20 presents the results to Question 19 - *Is Taunton Municipal Airport important to your future business growth and opportunities?*

Table 4-20: Question 19 Response

Answer	% Response
Yes	47.6%
No	33.3%
Not Applicable	19.1%

Source: Airport Solutions Group.

Table 4-21 presents the results to Question 20 - *Please rate the following facilities and services for Taunton Municipal Airport*. Note that answers have been arraigned in order of greatest perceived need (i.e., "needs to improve" plus "poor").

Table 4-21: Question 20 Response

Airport Facilities & Services	Very Good	Good	Needs to Improve	Poor	I don't know
Terminal Facilities	0.00%	10.20%	32.65%	55.10%	2.04%
Airport Communications	4.17%	25.00%	22.92%	45.83%	2.08%
Fuel Services	8.16%	22.45%	28.57%	38.78%	2.04%
Airport Newsletter	4.08%	28.57%	24.49%	32.65%	10.20%
NAVAID - Unicom	4.44%	35.56%	13.33%	37.78%	8.89%
Airport Maintenance Operations	16.67%	35.42%	16.67%	29.17%	2.08%
Airport Security	17.02%	44.68%	27.66%	6.38%	4.26%
Instrument Approaches	10.87%	39.13%	28.26%	2.17%	19.57%
Flight Training Services	8.33%	52.08%	16.67%	10.42%	12.50%
Runway Lengths	27.08%	52.08%	16.67%	2.08%	2.08%
NAVAID - NDB	6.98%	53.49%	11.63%	6.98%	20.93%
Hangars	23.40%	57.45%	14.89%	0.00%	4.26%
Ramp Area	20.83%	62.50%	14.58%	0.00%	2.08%
Maintenance Services	36.96%	43.48%	6.52%	4.35%	8.70%
General Pavement Condition	16.67%	72.92%	10.42%	0.00%	0.00%
NAVAID - ASOS	23.40%	68.09%	4.26%	0.00%	4.26%
Taxiways	27.08%	66.67%	2.08%	2.08%	2.08%

Source: Airport Solutions Group.

Table 4-22 presents the results to Question 23 - *How would you rate the importance of the following proposed facility improvements for Taunton Municipal Airport?* Note that answers have been arraigned in order of greatest perceived importance.

Table 4-22: Question 23 Response

Airport Facilities & Services	High Importance	Low Importance	No Importance	I don't know
Establish 24hr self-service fueling (100LL)	76.60%	17.02%	6.38%	0.00%
Improve Runway 4-22 condition	70.21%	14.89%	14.89%	0.00%
Terminal building improvements	70.21%	21.28%	8.51%	0.00%
Restaurant / food service	60.42%	33.33%	4.17%	2.08%
Install runway end wind socks	57.45%	31.91%	10.64%	0.00%
Purchase roller for Runway 4-22	56.52%	30.43%	8.70%	4.35%
Extend water and sewer to airport terminal area	41.67%	37.50%	14.58%	6.25%
Aircraft storage - T-hangars	35.56%	40.00%	17.78%	6.67%
Install Remote Communications Outlet (RCO)	33.33%	26.67%	24.44%	15.56%
Establish Jet-A fueling	30.43%	32.61%	30.43%	6.52%
Ground transportation (rental cars, taxi service, etc.)	29.79%	51.06%	17.02%	2.13%
Improve airport security (fencing, lights, CCTV, etc.)	27.66%	29.79%	38.30%	4.26%
Airport access road improvements	24.44%	64.44%	11.11%	0.00%
Extend Runway 12-30	23.91%	34.78%	39.13%	2.17%
Widen Runway 12-30	23.91%	39.13%	34.78%	2.17%
Aircraft storage - box style hangars	23.91%	45.65%	21.74%	8.70%
Assistance for self-service fueling operation	13.33%	53.33%	31.11%	2.22%
Aircraft storage – tie downs	13.04%	43.48%	34.78%	8.70%
Deicing services	4.35%	34.78%	54.35%	6.52%

Source: Airport Solutions Group.

The results of the survey presented above as well as other relevant issues included in the full survey results (in **Appendix F**), will be integrated into **Chapter Five: Alternatives Analysis & Development Concepts.**

4.8 MASSACHUSETTS STATEWIDE AIRPORT SYSTEM PLAN RECOMMENDATIONS

In 2011, the Massachusetts Department of Transportation (MassDOT) Aeronautics Division completed the Massachusetts Statewide Airport System Plan (MSASP) in order to provide an airport system that accommodates demand, supports economic and transportation needs, and maximizes funding resources while being conscious of environmental issues for the Commonwealth of Massachusetts. The MSASP segmented the system by establishing roles of for each of the 37 airports included in the plan, and then subsequently establishing facility and service objectives for those individual roles. Those objectives took the form of some policy initiatives as well as specific facility recommendations that an airport within a given role should have for it to function appropriately within that role. Following is a listing of those facility and service recommendations that was provided for the Taunton Municipal Airport.

- TAN must maintain its runway and taxiway pavements.
- TAN should work to establish complete controlling interest of its Runway Protection Zones (RPZs).
- TAN should pursue the construction a new terminal/administration building.
- TAN should work to promote aviation education outreaches through such activities as open houses and fly-ins.
- TAN should improve its airport location signage by working with MassDOT.
- TAN should strive to meet the Facility and Service Objectives for the Community/Business Airport role. These are reflected in **Table 4-23**.

Table 4-23: MSASP Facility and Service Objectives – Community / Business

Airport Criteria	*Minimum Objective*
Airside Facilities	
Primary Runway Length	3,200' or greater
Primary Runway Width	To Meet ARC Criteria
Taxiway	Partial parallel and/or Turnarounds
Approach	Non-Precision
Lighting	MIRL and Taxiway Reflectors
Visual Aids	Rotating Beacon; Wind Indicator
NAVAIDS	REILS; VGSI (PAPI/VASI)
Weather	ASOS or AWOS as needed
Landside Facilities	
Hangar Spaces – Based Aircraft	50% of Based Fleet
Hangar Spaces – Transient Aircraft	Not an Objective
Apron Spaces	50% of Based Fleet + 50% of Transient
Terminal/Administration Building	Terminal/Administration Building
Auto Parking Spaces	Airport Reports Sufficient Parking
Services	
Fixed Base Operator (FBO)	Limited Service
Fuel	Avgas (100LL) as needed
Terminal/Pilot	Phone; Restrooms
Ground Transportation Services	On-Site Courtesy Car
Security	Current GA Security Plan
Others	Snow Removal and De-Icing is desirable

Source: 2011 Massachusetts Statewide Airport System Plan (MSASP)

A review of these objectives with respect to future development alternatives will be provided in Chapter Five.

4.9 FACILITY REQUIREMENTS SUMMARY

A variety of improvements are needed at TAN over the 20-year planning period. For ease of reference, **Table 4-24** provides a summary of the facility development needs identified in previous sections. The facilities outlined in this chapter will undergo further review and evaluation in the following chapters to determine if it is feasible to accommodate the requirements. Alternatives for development will be reviewed and a recommended concept will be presented and illustrated on the ALP.

Table 4-24: Facility Requirements Summary

	2013	2018	2023	2033
Dimensional Standards				
Runway 12-30	B-II	B-II	B-II	B-II
Runway 4-22	A-1 (small)	A-1 (small)	A-1 (small)	A-1 (small)
Runway Length/Width				
Runway 12-30	3,500' x 75'	3,500'-4,600' x 75'	3,500'-4,600' x 75'	3,500'-4,600' x 75'
Runway 4-22	804' x 60'	804' x 60'	804' x 60'	804' x 60'
Instrument Approaches				
Runway 12-30	1 mi / 1 mi	1 mi / 1 mi	1 mi / 1 mi	1 mi / 1 mi
Runway 4-22	1 mi / 1 mi	1 mi / 1 mi	1 mi / 1 mi	1 mi / 1 mi
Taxiway / Runway Separation				
Taxiway A	199.5'	240'[1]	240'[1]	240'[1]
Aircraft Hangars				
T-Hangars (SF)	101,000	105,800	112,000	141,200
Corporate Hangars (SF)	15,800	20,200	35,200	51,600
Itinerant Hangars (SF)	0	0	12,000	12,000
Future Additional Need (SF)	*0*	*235*	*33,435*	*79,035*
Aircraft Apron				
Based Aircraft (SF)	92,000	106,500	104,000	60,000
Itinerant Aircraft (SF)	13,000	13,000	6,500	6,500
Future Additional Need (SF)	*0*	*0*	*0*	*0*

Source: Airport Solutions Group.
Notes: [1] Taxiway A currently has a Modification of Standard for a taxiway separation of 197' where 240' is required. The potential for meeting that standard will be examined in the Chapter Five.

Additionally, the following improvements will be considered in the next chapter, listed in no particular order:

- Runway12-30 Length and Width
- Runway 4-22 Length and Width
- Runway Airspace Surface Compliance Requirements
- Terminal Building Replacement
- NAVAID Replacements and Upgrades
- Aircraft Fueling Operations
- Aircraft Fueling Offerings (i.e. Jet-A)
- Airport Utilities
- Airport Access Road Improvements
- Apron Space Location and Rehabilitation
- Hangar Space Location and Use
- Airport Security Upgrades
- Other Airport Services

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CHAPTER FIVE:

ALTERNATIVES ANALYSIS & DEVELOPMENT CONCEPTS

5.1 INTRODUCTION

The purpose of this chapter of the Airport Master Plan Update (AMPU) is to present development alternatives and development recommendations for the Taunton Municipal Airport (the Airport or TAN) in terms of concepts and reasoning. It is the culmination of the previous chapters that began with **Chapter Two: Inventory of Existing Conditions**, which accumulated the baseline of existing airport data; continued to **Chapter Three: Projections of Aviation Demand**, which presented the outlook for the future in terms of forecasting operational activity; and resulted in **Chapter Four: Airfield Capacity & Facility Requirements**, which defined the facilities that would be needed assuming the required future demand and that the Airport could provide them.

The Alternatives Analysis is a regimented process by which development options are identified and the final Recommended Plan is established. The Recommended Plan is what is ultimately included on the resulting Airport Layout Plan (ALP)

This chapter examines alternative development concepts and employs evaluation criteria to select a preferred development scenario to meet the identified facility requirements. The overall objective of this analysis is to identify a set of feasible development options that allows the Airport to meet projected levels of aviation demand. Following their identification, each alternative is evaluated in order to provide recommended improvements that meet demand while also providing for future flexibility. Additionally, this chapter provides a description of the various factors and influences, which will form the basis for the Airport's long-term development program.

In concert with the role of the Airport and community input received during the planning process, several basic assumptions have been established that are intended to direct the development of the Airport in the future.

Assumption One. The Airport will be developed and operated in a manner that is consistent with local ordinances and codes, federal and state statutes, federal grant assurances, and federal agency regulations (e.g., Federal Aviation Administration, Environmental Protection Agency, among others).

Assumption Two. This assumption recognizes that in its current role, the Airport will continue to serve as a facility that accommodates general aviation activity, including corporate and flight training activities.

Assumption Three. This assumption relates to the size and type of aircraft that utilize the Airport and the resulting setback and safety criteria used as the basis for the layout of associated airport facilities.

- Runway 12-30: The design aircraft for this runway was identified in the previous chapter as the Beechcraft King Air C90, a common twin-turboprop business aircraft with a maximum takeoff weight of 10,485 pounds. The aircraft has a wing span of 53 feet 8 inches, a tail height of 14 feet 3 inches and an approach speed of approximately 102 knots, resulting in a Runway Design Code (RDC) of **B-II**. This is consistent with the existing Airport Layout Plan (ALP).

- Runway 4-22. As identified in the previous chapter, the design aircraft for Runway 4-22 was identified as the Piper Cub J3, a small, light aircraft having a "taildragger" landing gear configuration. It was selected as a typical representative of all small taildraggers. This aircraft has a maximum takeoff weight of 1,220 pounds, a wing span of 35 feet 3 inches, an overall height of 6 feet 8 inches and an approach speed of approximately 43 knots, resulting in an RDC of **A-I small**. Note that this is a slight change from the existing ALP, which identifies this runway as having an RDC of A-I, without the "small" designation. (This modification was explained in the previous chapter.)

Assumption Four. This assumption relates to the need for the Airport to accommodate aircraft operations with great reliability and safety. This indicates that the Airport's runway system should be developed with instrument approach guidance capabilities, to accommodate forecasted operations as safely as possible under most weather conditions that are prevalent within the local area.

Assumption Five. Because the amount of landside development area at any airport is at a premium, the fifth assumption is that the plan for future airport development should strive to make most efficient use of the available area for aviation-related activities, including general aviation facilities and passenger terminal facilities. Aviation use areas should be developed to be compatible with surrounding land uses.

Assumption Six. The sixth assumption focuses on the relationship of the Airport to off-airport land uses and the compatible and complementary development of each. To the maximum extent possible, future facilities will be designed to enhance the compatibility of the operation of the Airport with the local environs.

Assumption Seven. The seventh assumption is based on the need for the Airport to remain financially self-sufficient. Specifically, the Airport should establish long-term plans that anticipate and align with reasonable future industry trends. In doing so, the Airport will be able to establish and execute a financial plan to ensure its long-term financial growth and prosperity.

Goals and Objectives for Development

Accompanying these assumptions are several goals and objectives that have been established for purposes of directing the plan and establishing continuity in the future development of the Airport. These goals and objectives take into account several categorical considerations relating to the needs of the Airport, both in the short-term and the long-term, including safety, noise, capital improvements, land use compatibility, financial and economic conditions, public interest and investment, and community recognition and awareness. While all are project oriented, some obviously represent more tangible activities than others; however, all are deemed important and appropriate to the future of the Airport. Note that these goals are designed to augment the AMPU objectives defined in **Chapter One: Introduction**.)

- Provide effective direction for the future development of the Airport through the preparation of a rational, reasonable, and implementable plan.
- Prepare a plan that allows the Airport to fulfill the mission of facilitating and enhancing local and regional general aviation services by "right-sizing" to meet future demand.
- Accommodate the forecasted demand for aviation activity in a safe and efficient manner by providing the necessary airport facilities and services.
- Preserve the additional development potential of the Airport beyond the forecasted aviation demand to account for possible future aviation service and facility demand increases resulting from still unforeseen area economic development initiatives (i.e., First Light Casino).
- Ensure that the future development of the Airport will accommodate a variety of general aviation activities ranging from small general aviation users to flight training to corporate aviation.
- Plan and develop the Airport so that it is capable of accommodating the future needs and requirements of the Taunton Municipal Airport Commission (TMAC), the City of Taunton and the larger surrounding service area in order to support regional economic development activities.
- Encourage and protect the public and private investment in land and facilities.

5.2 PREVIOUS STUDY RECOMMENDATIONS

An update to TAN's ALP was completed in December 2009 that contained several projects that have not yet been constructed or implemented. As part of this AMPU, these projects should be reviewed and be considered as part of this alternatives analysis chapter. Some of the recommended projects identified on the 2009 ALP addressed key demand and operational/safety requirements for the Airport. Following are descriptions of these proposed projects.

- Runway Protection Zone (RPZ) Easement Acquisition. Areas were identified for possible easement acquisition to prevent the establishment of land uses incompatible with the Airport. These areas that lie off-Airport, but within the existing Runway Protection Zones for the approach ends to Runway 4, Runway 22 and Runway 30.
- Automated Weather Observing System (ASOS) Relocation. In order to open up a landside development area for future hangars, two potential sites were identified for a possible relocation of TAN's existing ASOS.
- Bypass Taxiway. A bypass taxiway was proposed on the approach end to Runway 30. Since there is not enough room in this area for a run-up pad due to the close proximity of wetlands, it is assumed that this bypass would be established to provide an area of run-ups while not hindering airfield operational flow. *(Note: the Airport now limits run-ups to the terminal area, making this recommendation unnecessary.)*
- Taxiway A Extension. Taxiway A was shown to be extended to the west to provide paved access to the existing approach end of Runway 4, as well as a taxiway access point for the proposed Southside hangar development area.
- Southside Hangar Development. A large, T-hangar development area was proposed to be constructed on Airport property located southwest of Runway 12-30. Airside access would be via a new end-around taxiway on the approach end to Runway 12, and landside access would be gained from Caswell Street. *(Note: This area was deemed not developable for aviation purposes in a subsequent FAA EA. See details below.)*
- Westside Turf Apron and Hangar Development. A new turf apron and hangar development was proposed to be located northwest of Runway 4-22. This development would require a supporting turf taxiway connector to the approach end of Runway 22. It would also need a new road that would provide access to the site from Middleboro Avenue.
- Existing Landside Area Hangar Development. Three locations within the exiting landside development area were reserved for future hangar development.
- Terminal Expansion Area. An area around the existing terminal was reserved for the potential expansion of the existing terminal building.
- Reserved for Future Aviation Related Use. Three areas on the Airport were reserved for future aviation related uses. These included an area north of the approach end to Runway 30, the existing site of the ASOS, and the clearing located to the east of the Runway 22 threshold. Areas were not identified for possible non-aviation related uses.
- Supplemental Wind Cones. Two additional locations for wind cones were identified on the ALP. The first is located to the east of the existing segmented circle, while the second is west of Runway 4-22.
- Visual Approach Slope Indicator (VASI). A VASI was proposed for the approach end of Runway 12.
- Parachute Drop Zone. A parachute drop zone was proposed that is 150 yards wide, with a 10 yard center landing area.

5.3 EVALUATION OF ALTERNATIVE DEVELOPMENT SCENARIOS

To facilitate the selection of a preferred airfield development scenario, a set of evaluation criteria have been identified for use in this analysis. Through an assessment that incorporates these criteria, the potential benefits and impacts of the various alternative development scenarios can be compared, contrasted, and incorporated into the selection process. The evaluation criteria selected for this analysis include the following:

- Safety/Operational Factors. Each alternative is evaluated to determine its ability to safely accommodate future demand for aircraft, vehicles, and other relevant factors based on the specific facility being evaluated. This criterion evaluates alternative development concepts based on anticipated improvements to operational safety, capacity, and delay, as well as tenant convenience, and other relevant planning considerations.

- Economic Factors. Historic infrastructure investment, the remaining useful life of existing airport facilities, anticipated alternative project cost differentials, and property acquisition requirements are economic factors considered in this metric. These factors provide a basis for comparing the cost-effectiveness and economic ramifications of development scenarios.

- Environmental Factors. A broad evaluation of environmental factors associated with development is part of the review and comparison of alternatives. Relevant environmental factors including, but not limited to, noise, wetland, and contamination impacts, are evaluated in greater detail for the preferred alternative. Additional considerations also include potential physical impacts to the surrounding community.

- Implementation Feasibility. There are often factors, both tangible and intangible, that can impact an airport's ability to implement certain development scenario. Community and political acceptance are examples of implementation feasibility factors taken into consideration in this analysis. Alternative facility development concepts identified for TAN are evaluated relative to each other based on the anticipated feasibility of their implementation.

Where appropriate, alternative development scenarios are quantitatively and qualitatively evaluated based on these factors. Each airfield alternative component is ranked relative to the others (not independently) in order to compare/contrast them all in each category. In addition to the evaluation criteria used above, select improvements were presented to the Airport in order to receive feedback and input on the demand for and preferred location of each facility. Landside development alternatives were not evaluated in the same fashion as airfield alternatives, but sites were compared and contrasted with one another. The results of this analysis are used to select preferred development alternatives for specific facility recommendations identified in **Chapter Four**.

5.4 AIRSIDE DEVELOPMENT CONCEPTS & ALTERNATIVES

Because all other airport functions relate to and revolve around the basic runway/taxiway layout, airside development alternatives must first be carefully examined and evaluated. While it is essential that the initial development recommendations for the Airport be commensurate with the near-term needs and requirements of the airport users, the long-term improvement of the facility must also be considered and planned for to ensure the Airport's capability to accommodate future activity levels. Consequently, the main objective of the planning recommendations presented in this section is to identify future development that will result in a runway/taxiway system capable of accommodating the forecasted aviation activity levels.

Chapter Four: Airfield Capacity & Facility Requirements examined the ability of the Airport's existing runway/taxiway system to accommodate projected levels of activity at TAN through the 20-year planning period. The findings of that analysis indicate that the existing airfield provides sufficient operational capacity to efficiently accommodate aircraft operational demand over the long term. However certain airside elements require modification to ensure that the Airport continues to comply with FAA airport design, airspace and safety criteria.

The following sections provide overviews of the alternatives analyses for several of the key airfield infrastructure elements. Although these individual analyses are presented separately, it must be understood that they can and do impact each other (i.e. alternatives associated with Runway 4-22 have the potential to impact Runway 12-30 and vice versa). Such potential interactions will be acknowledged and addressed as appropriate.

5.4.1 Runways

Runway 12-30

As Taunton Municipal Airport's primary and only paved runway, Runway 12-30 is the Airport's most critical infrastructure element. At 3,500 feet in length and 75 feet in width, the runway was thoroughly reviewed within **Chapter Four** and ultimately determined to be adequate for accommodating the Airport's existing and projected design aircraft throughout the 20-year planning period. However, it was also recognized in that chapter that the FAA recommends "airport designers assess and verify the airport's ultimate development plan for realistic changes that, if overlooked, could result in future operational limitations to customers." Therefore, consideration was petitioned and granted for the planning for a potential extension of Runway 12-30 of up to 1,100 feet, based on FAA runway length requirements criteria. It must be understood that <u>this proposal is not justified based on the projected Airport requirements over the planning period.</u> Rather, it is being offered as a potential eventuality should area demand develop enough (through possible economic development initiatives like a resort casino) to ultimately warrant such an extension. In effect, this proposal would allow the Airport to protect for this potential over the long term should the necessity ever be realized.

Inclusion of a project on the Airport Layout Plan (ALP) is not a guarantee of federal funding support. It simply protects airport land and airspace for a project's potential construction.

This section provides an overview of the alternatives analysis conducted for meeting both existing and potential requirements associated with Runway 12-30. Specifically, the following presents a listing of the general strategies that could be employed for meeting long-term runway needs (note that these are consistent with standard FAA airport planning and environmental compliance requirements). Additionally, any alternatives developed in association with these strategies have been listed and graphical representations included in the following pages.

a) No Action / Existing Conditions – This approach does not change the existing runway length or width of 3,500 feet by 75 feet and is represented as **Alternative 1** (see **Figure 5-1**). As stated above, Alternative 1 meets the long-term needs of the Airport throughout the planning period. Additionally, an **Alternative 1A** was also identified that would maintain the 3,500-length, but widened the runway to 100 feet. This potential option was offered by the FAA as a possible safety enhancement if the Airport's crosswind runway (Runway 4-22) were to become permanently inoperable. Again, it is critical to note that this alternative would only be considered in response to the ultimate closure of Runway 4-22. Therefore, it this will not be actively considered as part of this assessment, but will be maintained as a potential design refinement for **Alternative 1**.

b) Extend Runway to Recommended Length – This approach is based on the Airport ultimately having to meet the need for a longer runway. Per FAA runway length design criteria, Runway 12-30 could ultimately require a length of up to 4,600 feet if local demands due to economic development initiatives were to result in a more demanding design aircraft (i.e., jets rather than turboprops). This would necessitate a runway extension of up to 1,100 feet. **Alternative 2**, **Alternative 3**, and **Alternative 4** (see **Figures 5-2** through **5-4**) reflect three potential options for accommodating this runway length.

c) Runway Relocation – If the Airport were to require a 4,600-foot runway, this approach is designed to consider the possibility that this need could be accommodated by another area on or around the existing Airport other than the current runway location. TAN has undergone several extensive planning efforts over the past 20 years (i.e., master plans, environmental assessments, obstruction analyses, etc.). Those efforts have established a comprehensive inventory of the history and physical limitations of the Airport, including environmental constraints such as wetlands, ponds, and streams. When considering those obvious environmental limitations in combination with the size and shape of the existing Airport property boundary, as well as other physical limitations that lie off of the Airport (i.e. residential development, roadway networks, etc.), there is simply no alternative location to site a 4,600-foot runway other than the current location. Therefore, no alternatives have been established for this development approach.

d) Runway Realignment – Similar to runway relocation, this planning approach encompasses the potential to realign the existing runway to better accommodate a possible extension. For the same reasons that relocation was discounted, realignment of Runway 12-30 was deemed impracticable due to the likely impacts on existing environmental resources and infrastructure elements both on and off the Airport. Additionally, the runway is considered to be appropriately aligned when factoring current local and regional wind patterns (see **Chapter Four: Airfield Capacity & Facility Requirements** for area wind analysis). Therefore, no alternatives have been established for this development approach.

e) Runway Shift – Another approach may be to shift the runway ends while maintaining the existing runway centerline enough to allow for an extension. This concept has essentially been incorporated into **Alternatives 2**, **3**, and **4**, introduced above.

f) Reduced Recommended Runway Length – This approach includes a modification of the recommended runway length to something shorter based on existing physical constraints on the Airport. In essence, it is an examination of the potential operational impacts associated with a lesser length. Based on this approach, **Alternative 5** (see **Figure 5-5**) was designed to extend the existing Runway 12-30 to the maximum extent possible (a potential 560-foot extension) without directly impacting critical physical limitations and/or resources (in this case, it was environmental resources including wetlands and streams).

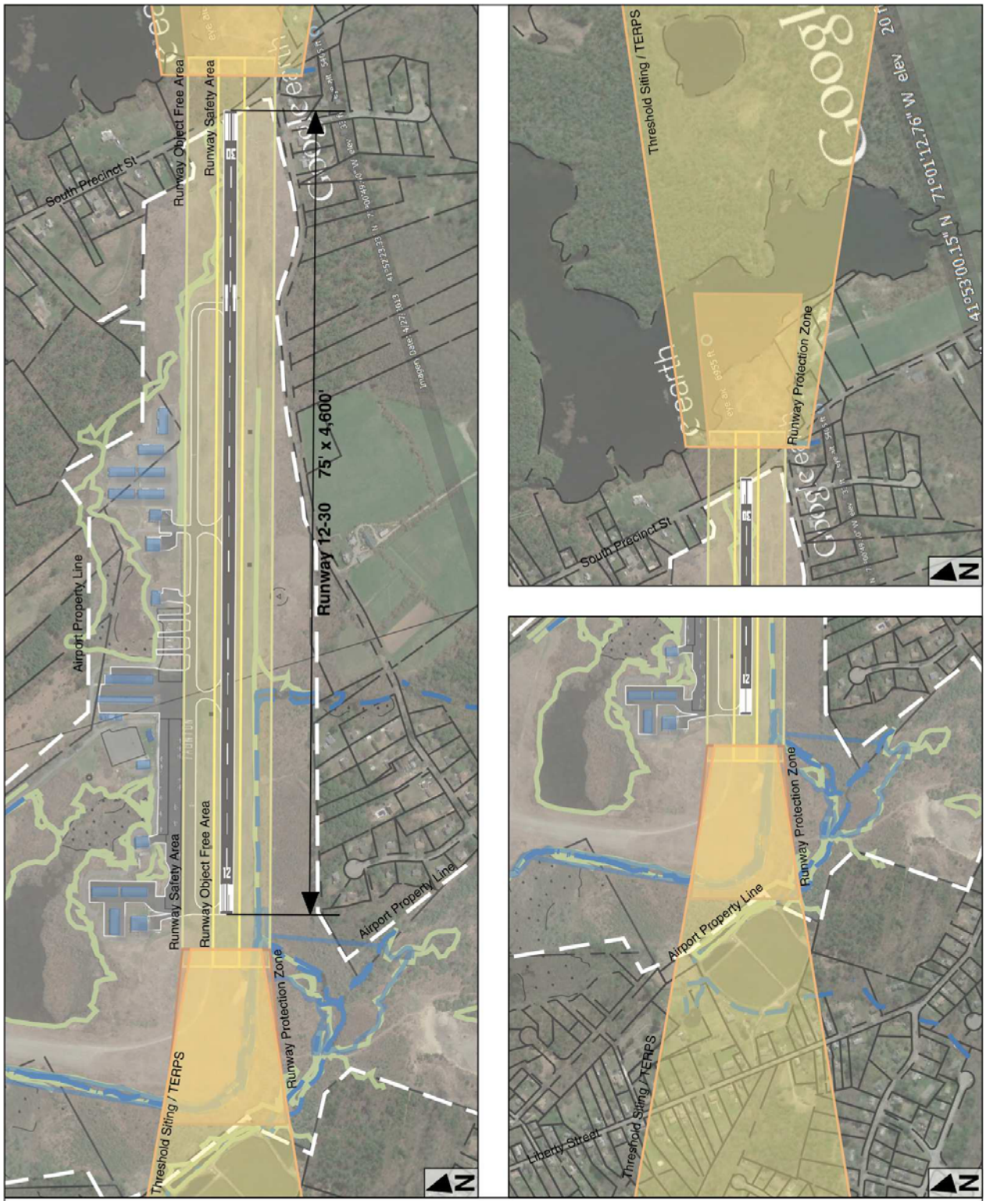
The resultant 4,060-foot runway (540 feet shorter than the recommended FAA runway length of 4,600 feet) would experience a reduced level of operational benefit when compared to the recommended length. However, this reduction in operational capability would not preclude those aircraft listed in **Table 4-6: FAA-Defined Family Groupings of Airplanes (75%)** that could operate on a 4,600-foot runway from also using a 4,060-foot runway. What would be impacted is the maximum takeoff weight (MTOW) of those aircraft, which would have a proportional impact on the aircraft mix of load (e.g., cargo and passengers) and range (e.g., fuel). Essentially, assuming consistent atmospheric conditions, aircraft operating on 4,060 feet would generally not be able to carry as much cargo or as many passengers as far as that same aircraft could on a 4,600-foot runway. (It should be noted that if this alternative were to eventually be required, a thorough and complete examination of those specific differences would have to be conducted as part of federally-required airport planning and environmental permitting efforts.)

g) A Combination of All of the Above – Consideration was given to combining a number of the previous alternatives. However, no additional alternatives were found to be practicable and therefore none were generated.

Figure 5-1: Runway 12-30 – Alternative 1 (Maintain Existing Condition / No Action)

Source: Airport Solutions Group.

Figure 5-2: Runway 12-30 – Alternative 2 (Extend 1,100′ – All East)

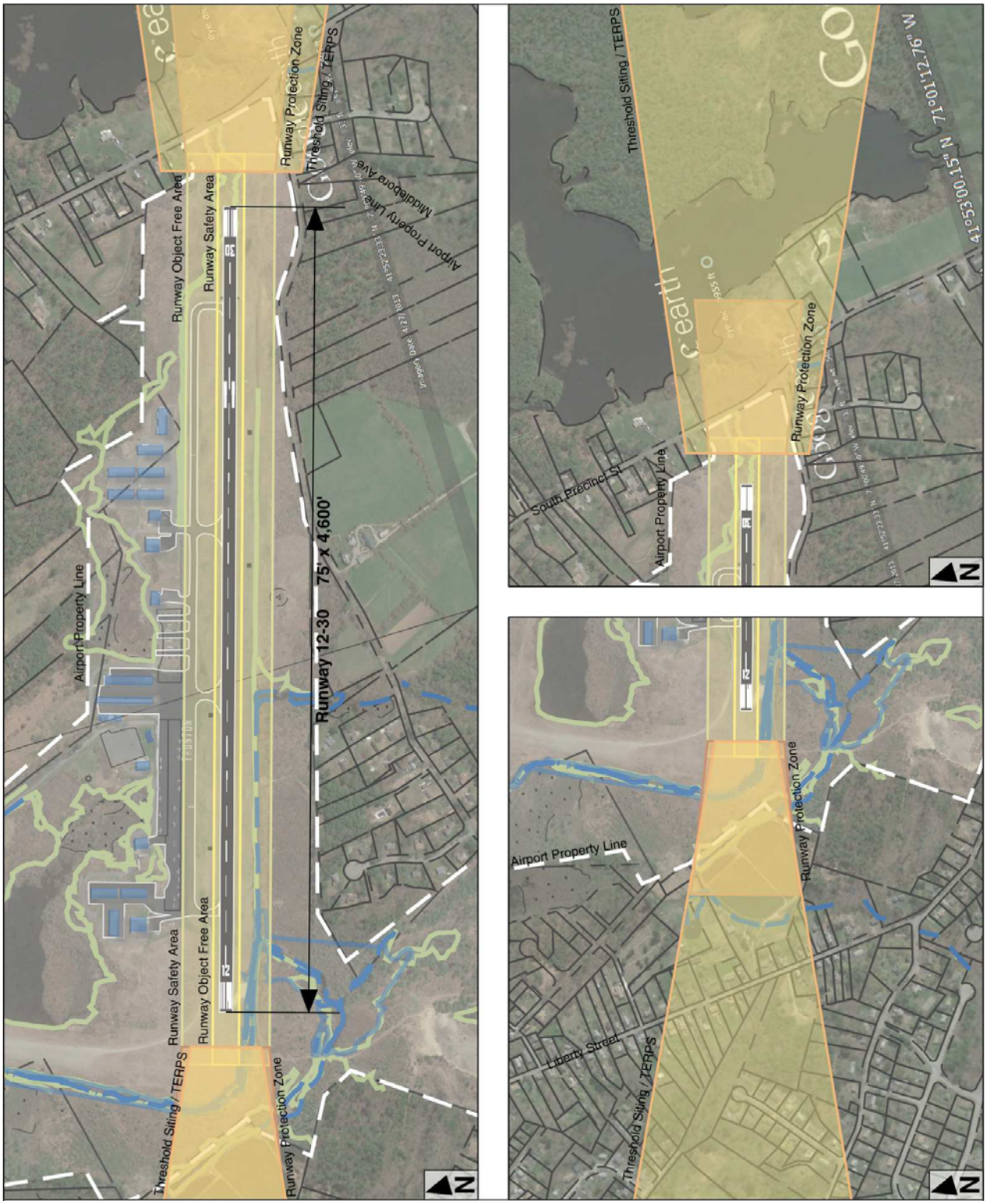


Source: Airport Solutions Group.

Figure 5-3: Runway 12-30 – Alternative 3 (Extend 1,100′ – All West)

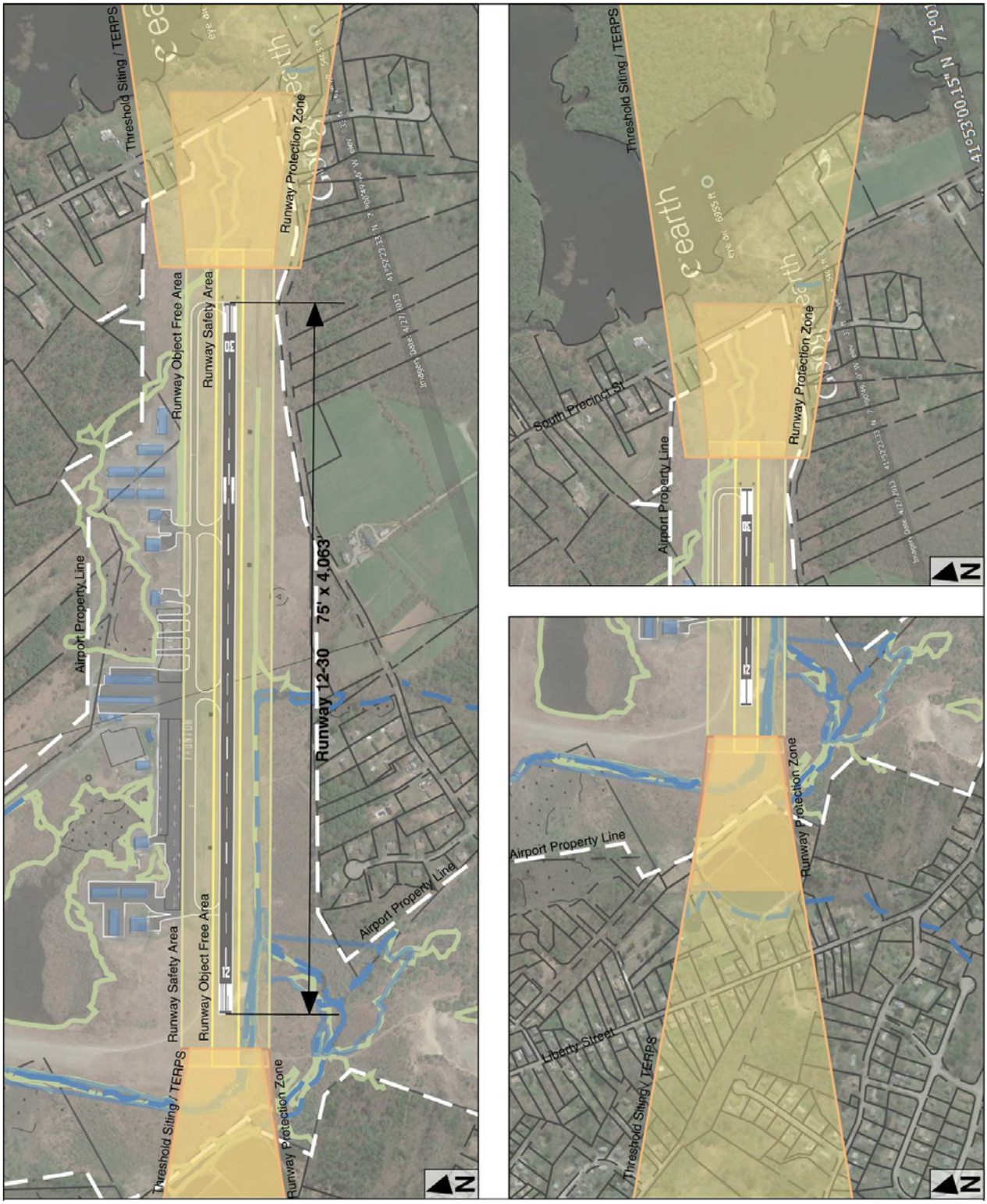
Source: Airport Solutions Group.

Figure 5-4: Runway 12-30 – Alternative 4 (Extend 1,100' – Some West/ Some East)



Source: Airport Solutions Group.

Figure 5-5: Runway 12-30 – Alternative 5 (Extend 560′ – All West)



Source: Airport Solutions Group.

The following table (**Table 5-1**) provides a summary of the order-of-magnitude cost opinions for each of the alternatives, including generalized costing assumptions. Also included is the estimated cost per linear foot of 75-foot wide runway. This can be used as a tool to approximate the relative difficulty associated with the site conditions challenges for each of the alternatives (i.e., the higher the cost relative to the other alternatives, the greater the challenge and associated cost).

Table 5-1: Runway 12-30 Alternatives Summary

Alternative	Total Runway Length	Cost Opinion	Cost per Linear Ft of Runway	Selected Costing Assumptions
Alternative 1 – Maintain Existing Condition / No Action				
	3,500'	$3.3M	$930	Assumes pavement rehabilitation & no extraordinary environmental issues
Alternative 2 - Extend 1,100' – All East				
	4,600'	$11.7M	$2,544	Assumes pavement rehab for 3,500'; South Precinct Street relocation; voluntary property acquisition; estimated wetlands remediation, etc. Does NOT include environmental planning, permitting, new avigation easement acquisition or airspace surface(s) clearance.
Alternative 3 - Extend 1,100' – All West				
	4,600'	$7.8M	$1,692	Assumes pavement rehab for 3,500'; voluntary property acquisition; estimated wetlands remediation, etc. Does NOT include environmental planning, permitting, new avigation easement acquisition or airspace surface(s) clearance.
Alternative 4 - Extend 1,100' – Some West / Some East				
	4,600'	$8.0M	$1,741	Assumes pavement rehab for 3,500'; voluntary property acquisition; estimated wetlands remediation, etc. Does NOT include environmental planning, permitting, new avigation easement acquisition or airspace surface(s) clearance.
Alternative 5 - Extend 560' – All West				
	4,060'	$5.7M	$1,410	Assumes pavement rehab for 3,500'; estimated wetlands remediation, etc. Does NOT include environmental planning or permitting.

Source: Airport Solutions Group.

As a method to evaluate the alternatives described above, the matrix presented in **Table 5-2** compares and contrasts each alternative with respect to the evaluation criterion defined previously in this chapter (see Page 5-5). To measure the quantitative and qualitative impacts associated with each alternative and rank them accordingly, a value range of 1 to 5 is assigned to each evaluation criterion. A value of 1 represents a negative impact or provides the least benefit; a value of 3 represents no impact or neutral impact; and a value of 5 represents a positive impact or provides more benefit. It must be noted that this evaluation is non-scientific and is based on the subjective opinions of the Project Management Team, including representatives of the Airport Sponsor, the FAA, MassDOT Aeronautics, and the consultant team. That being said, these representatives are considered to be experts in their respective fields within the aviation industry providing knowledge related to issues local to the Taunton Municipal Airport, federal and state regulatory requirements and funding considerations, airport engineering and planning, and environmental compliance and permitting, among other field. Therefore, while subjective, these opinions should be considered to be relevant and significant.

Table 5-2: Runway 12-30 Evaluation Matrix

Alternatives	Safety / Operations	Economic	Environmental	Implementation	Total
		Impact / Benefit Factors			
a) No Action					
Alternative 1	**3**	**3**	**4**	**4**	**14**
b) Extend Runway					
Alternative 2	5	1	1	1	8
Alternative 3	5	2	1	2	10
Alternative 4	5	2	3	2	11
c) RW Relocation					
	NA	*NA*	*NA*	*NA*	*NA*
d) RW Realignment					
	NA	*NA*	*NA*	*NA*	*NA*
e) RW Shift					
	NA	*NA*	*NA*	*NA*	*NA*
f) Reduce Length					
Alternative 5	**4**	**5**	**3**	**5**	**17**
g) Combination					
	NA	*NA*	*NA*	*NA*	*NA*

Source: Airport Solutions Group.
Notes: 1 = Negative impact/least benefit; 3= No impact/neutral benefit; 5 = Positive impact/most benefit
NA = Deemed not acceptable for other reasons

In reviewing the results of the alternatives evaluation, Alternative 1, which is based on maintaining the existing runway length of 3,500 feet, should be viewed as the "baseline" for this comparative analysis. (As described in **Chapter Four**, 3,500 feet is the required runway length for the Airport throughout the planning period.) When considering the various factors that could impact/benefit the Airport as a result of implementing one of these other alternatives, scoring higher than Alternative 1 should be viewed as a net improvement on the existing conditions, while a lower score would indicate that alternative may have an overall net negative impact. So, for another alternative to be considered, it must meet or exceed the standard set by Alternative 1, the existing condition.

When examining the above table within this context, it is evident that the various costs (e.g., community, environmental, political, monetary, etc.) associated with extending Runway 12-30 to 4,600 feet (i.e., Alternatives 2, 3, and 4) would significantly outweigh the benefits such an extension would bring to Taunton; therefore, they are eliminated from further deliberation. However, Alternative 5, which would extend Runway 12-30 approximately 560 feet to the west (for a total runway length of 4,060 feet), scores higher than Alternative 1 in all factors other than environmental. While it is understood that there is not currently enough justification to warrant the actual construction of this alternative within the 20-year planning horizon (see **Chapter Four**), there is enough merit in it to protect for its potential eventuality. Therefore, Alternative 5 will be identified as the preferred alternative for Runway 12-30 on the Airport Layout Plan (ALP) for the Taunton Municipal Airport for the purpose of preserving this option over the very long term.

Runway 4-22

At 1,900 feet in length and 60 feet in width, Runway 4-22 has an unpaved surface (turf/gravel) and serves as Taunton Municipal Airport's crosswind runway. This runway has been reported to be in poor condition with some unevenness, rutting, and loose stones. It is generally understood that the runway requires some level of rehabilitation or reconstruction in order to alleviate these issues and ultimately rectify the underlying drainage issues that originally caused them.

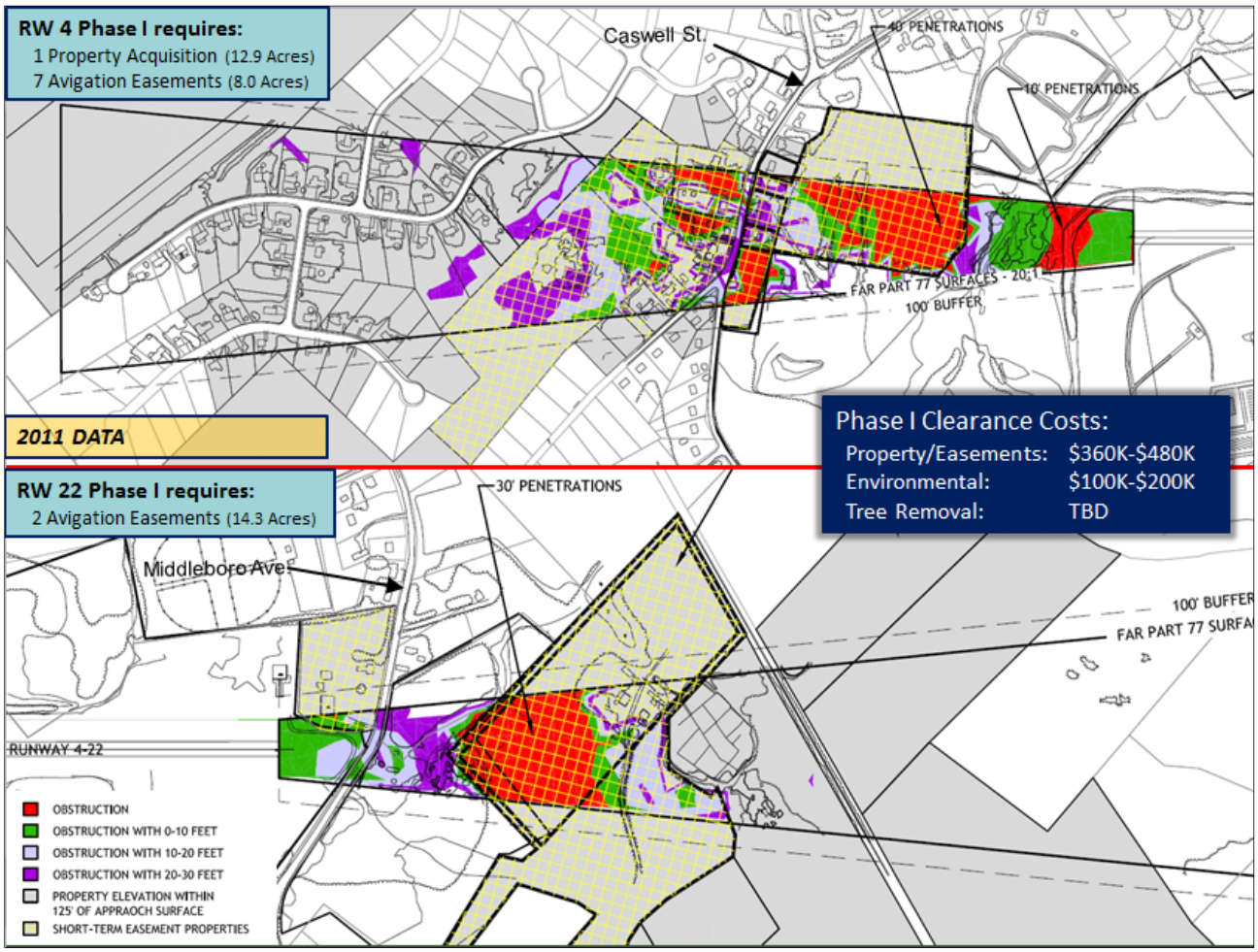
Clearance of critical airspace surfaces is considered to be essential for the safe operation of a runway. Known penetrations to these surfaces must be addressed within a reasonable timeframe to ensure that runways continue to maintain a safe operating condition.

However, the primary concern with respect to Runway 4-22 is related to the clearance of its airspace surfaces. In 2011, an obstructions analysis was conducted for the runway's critical airspace surfaces as defined by the FAA (i.e., Part 77 20:1 approach surfaces, TERPS VAAR 20:1 surfaces, FAA AC 150/5300-13A Threshold Siting 20:1 surfaces, etc.) that revealed significant existing vegetative penetrations to those surfaces (see **Figure 5-6**). The analysis further showed that clearance of those obstructions would require the acquisition of 10 new avigation easements and/or properties. When combining the estimated costs of these acquisitions with the additional projected costs associated with environmental permitting along with the actual vegetation clearance, overall project costs quickly climbed to nearly $1M. Through discussions with both the FAA and MassDOT Aeronautics, it was deemed that securing funding for these efforts would be unlikely given current and projected federal and state funding levels. It is important to emphasize that these projects are in fact eligible for both federal and state funding; however, current and projected funding needs throughout the New England region, in combination with structured funding priorities that rank crosswind, turf runways well below many other projects (i.e., projects associated with paved primary runways, such as pavement preservation, safety areas, obstruction removals, etc.), have resulted in making Runway 4-22 airspace clearance funding highly improbable.

Unfortunately, lack of federal or state funding resources does not relieve Taunton Municipal Airport of the responsibility of having to address the clearance of these surfaces. Nor does it discharge the Airport from any potential liabilities associated with not clearing them. Therefore, the Airport must consider options for addressing the clearance of these airspace surfaces in the near term up to and including the ultimate closure of the runway. The following provides an overview of the alternatives analysis conducted for the clearance of the Runway 4-22 airspace surfaces. Similar to the analysis for Runway 12-30, general strategies that could be employed for meeting long-term runway needs are listed and discussed (note that these are consistent with standard FAA airport planning and environmental compliance requirements). Any alternatives developed in association with these strategies have been defined and graphically represented in the following pages.

a) No Action / Existing Conditions – This approach would not change the existing runway length or width of 1,900 feet by 60 feet and is represented as **Alternative 1** (see **Figure 5-7**). As stated above, not acting

Figure 5-6: Runway 12-30 – Alternative 5 (Extend 560' – All West)



Source: Airport Solutions Group.

on the vegetative penetrations to the existing critical airspace surfaces would result in an unsafe condition, which is inherently an unacceptable condition. Therefore, Alternative 1 is considered to be unacceptable.

b) Adjust Runway to FAA Recommended Length – As discussed at length in **Chapter Four**, Runway 4-22's recommended runway length was established at approximately 800'. This was based on a design aircraft with an RDC of A-I, a MTOW of less than 12,500 pounds, and an approach speed of 30 knots or more, but less than 50 knots. It must also be recognized that this design aircraft warrants threshold siting airspace surfaces that have a slightly higher, and thus less impactful, slope (i.e., 15:1 instead of 20:1). **Alternative 2** (see **Figure 5-7**) reflects the runway length adjusted to 800' and the critical airspace surface slope adjusted to 15:1. In this alternative, the Runway 4 threshold end is first relocated such that there is a 15-foot vertical buffer between the associated airspace surface and the tops of the vegetation. (Note that the industry standard when clearing airspace

surfaces is to maintain a 15-foot gap between the surface and the vegetation to allow for future potential growth.) The Runway 22 threshold end is also then relocated to match the 800-foot overall runway length recommendation. It must be recognized that in this scenario, vegetation removal on the Runway 22 threshold end must still be undertaken since there would still be existing penetrations to the critical airspace surface. Funding for this clearance would have to come from sources other than FAA or MassDOT Aeronautics.

c) Runway Relocation – As shown in **Chapter Four**, Runway 4-22 serves a valuable role for the Airport in that the prevailing winds actually tend to favor this runway more than the primary Runway 12-30. This is particularly important for lighter aircraft that are inherently more susceptible to fluctuating wind conditions. In fact, local pilots of such light aircraft at Taunton Municipal Airport consider Runway 4-22 to be essential infrastructure in that their continued safe operations depend on this runway. That being said this approach is designed to consider the possibility that this runway could be accommodated by another area on or around the existing Airport other than the current runway location. As stated earlier, TAN has undergone several extensive planning efforts over the past 20 years, which have established a comprehensive inventory of the history and physical limitations of the Airport, including environmental constraints such as wetlands, ponds, and streams. When considering those obvious environmental limitations and the required alignment of this crosswind runway, there is simply no alternative location on or around the Airport. Therefore, no alternatives have been established for this development approach.

d) Runway Realignment – Similar to runway relocation, this planning approach encompasses the potential to realign the existing runway to better accommodate a possible extension. For the same reasons that relocation was discounted, realignment of Runway 4-22 was deemed impracticable due to the likely impacts on existing environmental resources and infrastructure elements both on and off the Airport. Additionally, efforts were made to determine if slight realignments would minimize or eliminate the existing vegetative penetrations to the airspace surfaces. Unfortunately, any potential benefits were considered to be minimal at best and largely within the margin of survey error. Therefore, no alternatives have been established for this development approach.

e) Runway Shift – Another approach may be to shift the runway ends while maintaining the existing runway centerline enough and meeting the recommended runway length. Since the recommended runway length is actually a reduction of the existing length (from 1,900 feet to 800 feet), this approach was already considered as part of **Alternative 2** introduced above.

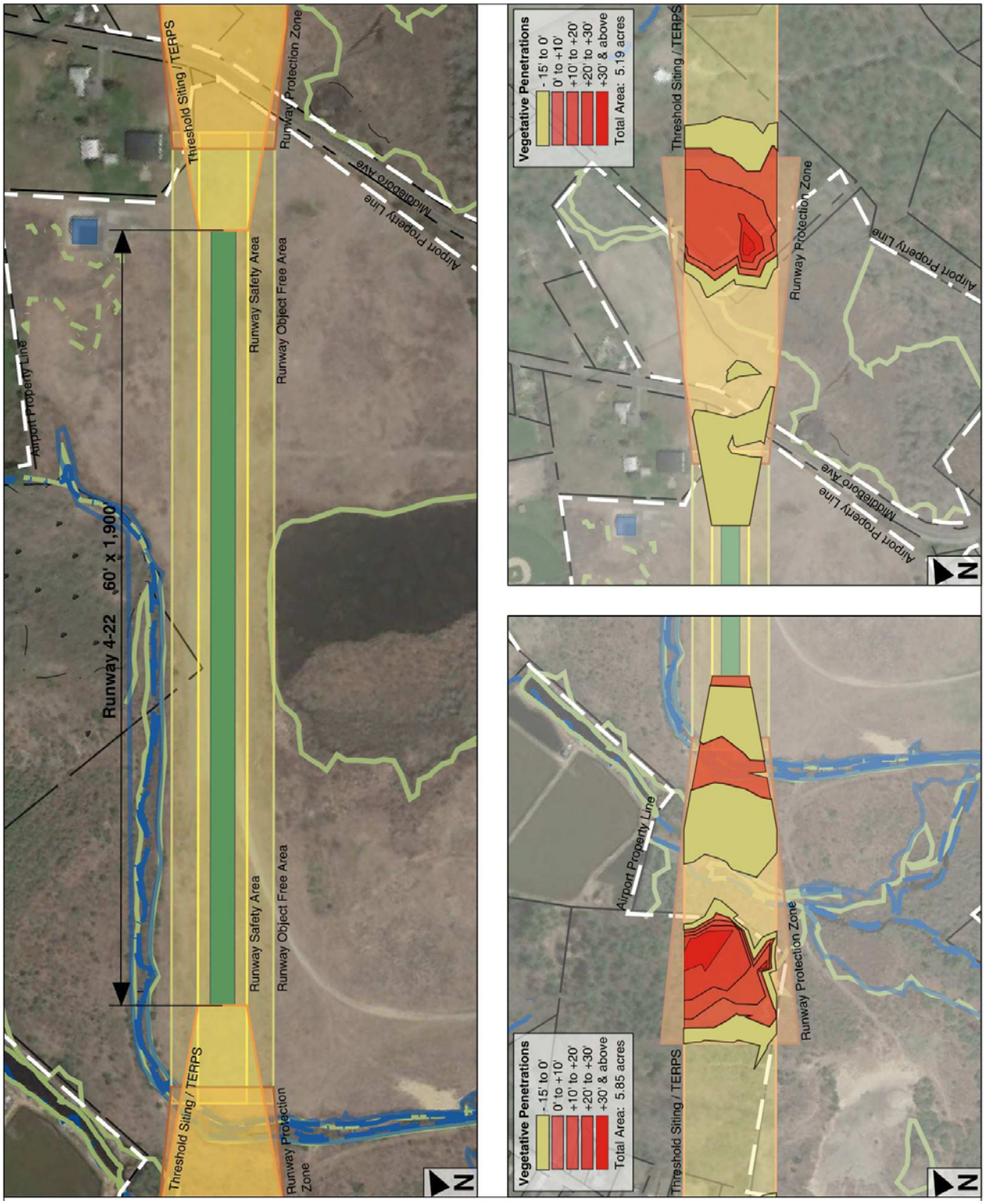
f) Adjust Recommended Runway Length – This approach considers runway lengths other than the existing length (i.e., 1,900 feet) or the recommended runway length (i.e., 800 feet). There are several reasons why other runway lengths should be considered. First, regardless of the recommended runway length, it is inherently understood that maximizing runway length enhances that runway's level of safety. Second, since Runway 4-22 is an existing runway with a length far in excess of the recommended runway length and therefore would not require additional construction costs, it is reasonable to try to maintain as much of that runway length as possible for safety reasons. Finally, the pilot community associated with the Taunton Municipal Airport has expressed a willingness to financially assist the Airport in removing obstructions (see discussion below), as well as a desire to preserve runway length.

Therefore, **Alternative 3**, **Alternative 4**, and **Alternative 5** (see **Figures 5-9**, **5-10**, and **5-11**) have been generated and generally described in the following. (Note that it was assumed that the 15-foot industry standard buffer would be maintained on both runway ends.) Alternative 3 proposes to relocate the Runway 4 threshold end such that its critical approach surfaces clear the existing vegetation by the standard 15 feet, and that vegetative clearance occurs on the Runway 22 threshold end. This would result in a runway length of approximately 1,078 feet. Alternative 4 proposes to relocate the Runway 22 threshold end such that its critical approach surfaces clear the existing vegetation by the standard 15 feet, and that vegetative clearance occurs on the Runway 4 threshold end. This would result in a runway length of approximately 1,080 feet. Finally, Alternative 5 proposes that both runway ends be relocated such that their critical approach surfaces clear the existing vegetation by the standard 15 feet. Since Alternative 5 would result in a runway length of approximately 258 feet, far below the recommended runway length of 800 feet, this alternative is considered to be unacceptable.

Additionally, **Alternative 6** has been generated (see **Figures 5-12**) based on the same approach as Alternative 5, only it did not assume that the industry standard 15-foot buffer would be maintained. This alternative resulted in a runway length of approximately 708 feet, again below the recommended runway length of 800 feet. It is also generally inadvisable not to maintain the 15-foot buffer since vegetation has and will continue to grow. For these reasons, this alternative was likewise considered to be unacceptable.

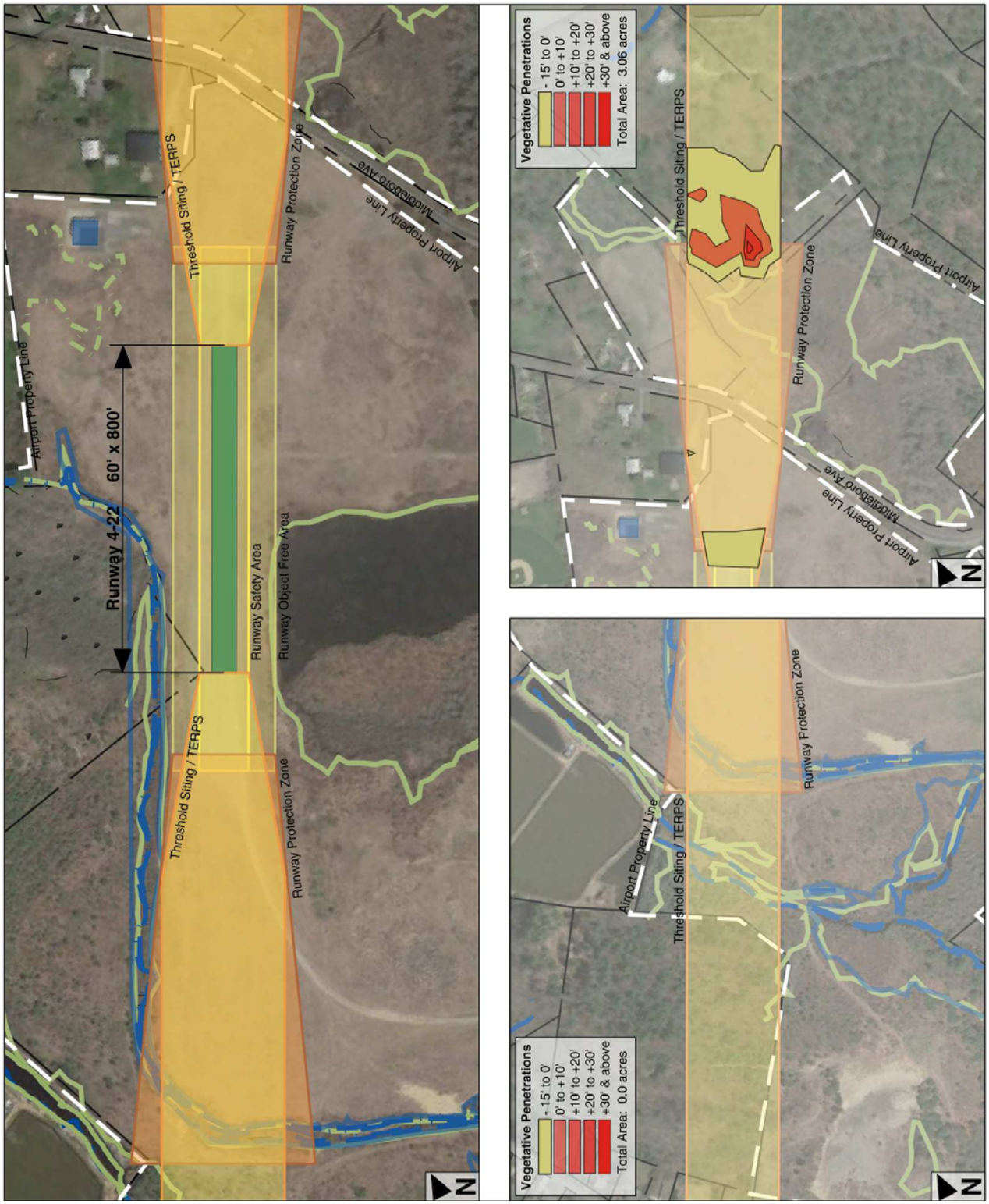
g) A Combination of All of the Above – Consideration was given to combining a number of the previous alternatives. However, no additional alternatives were found to be practicable and therefore none were generated.

Figure 5-7: Runway 4-22 – Alternative 1 (Maintain Existing Condition / No Action)



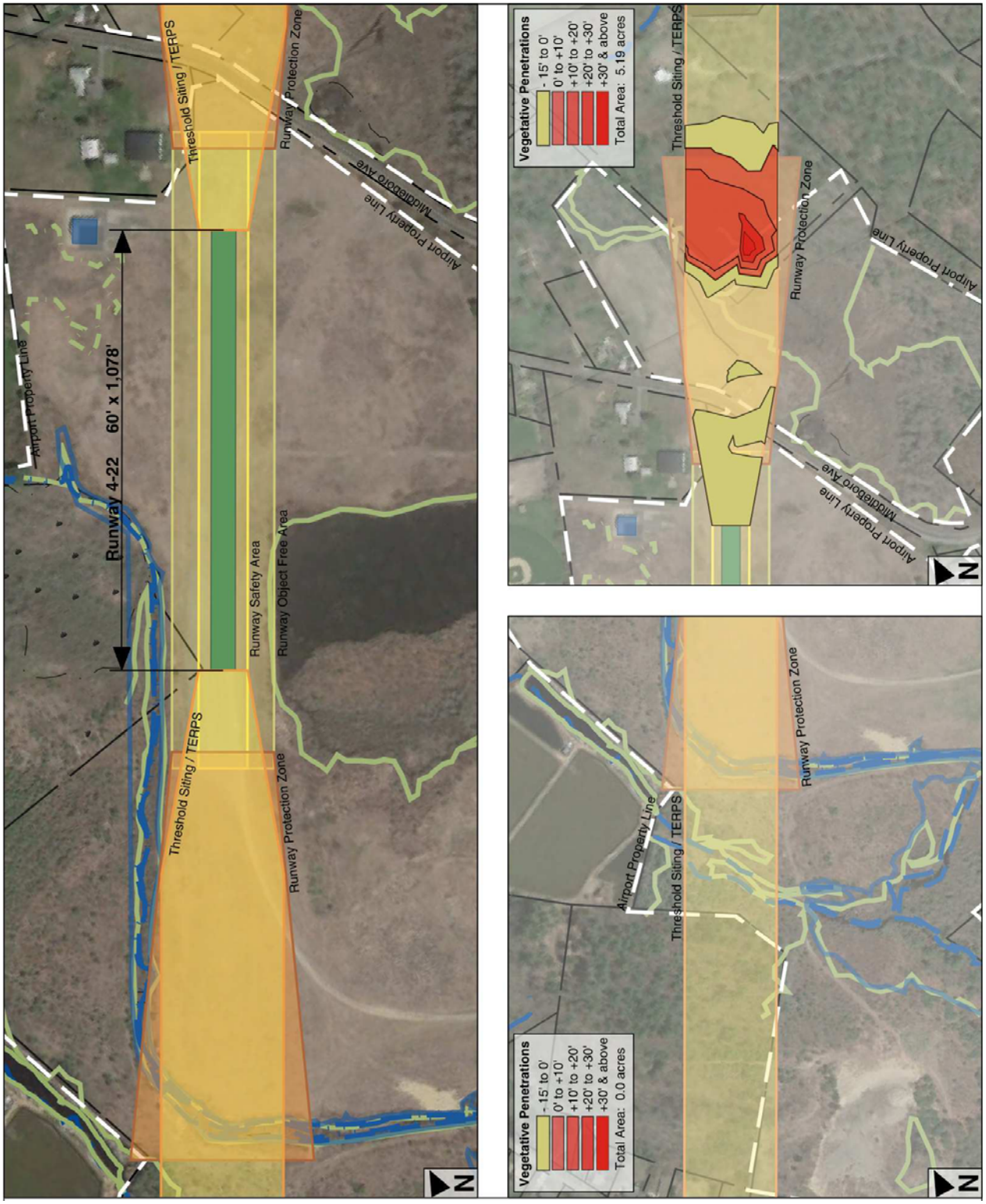
Source: Airport Solutions Group.

Figure 5-8: Runway 4-22 – Alternative 2 (FAA Recommended Length 800' / Relocate both Ends)



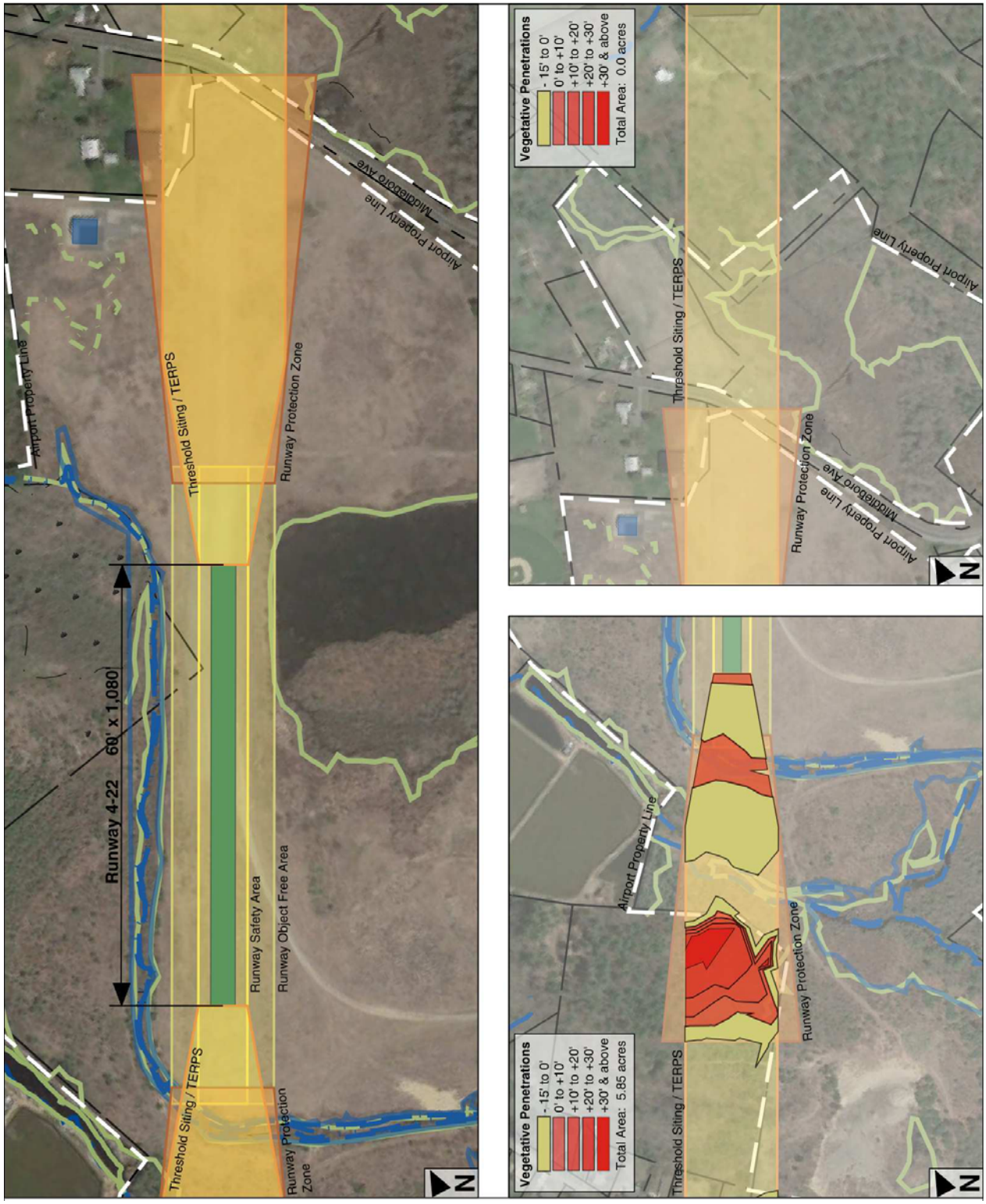
Source: Airport Solutions Group.

Figure 5-9: Runway 4-22 – Alternative 3 (Reduced Runway Length / Relocate RW 4 Threshold End)



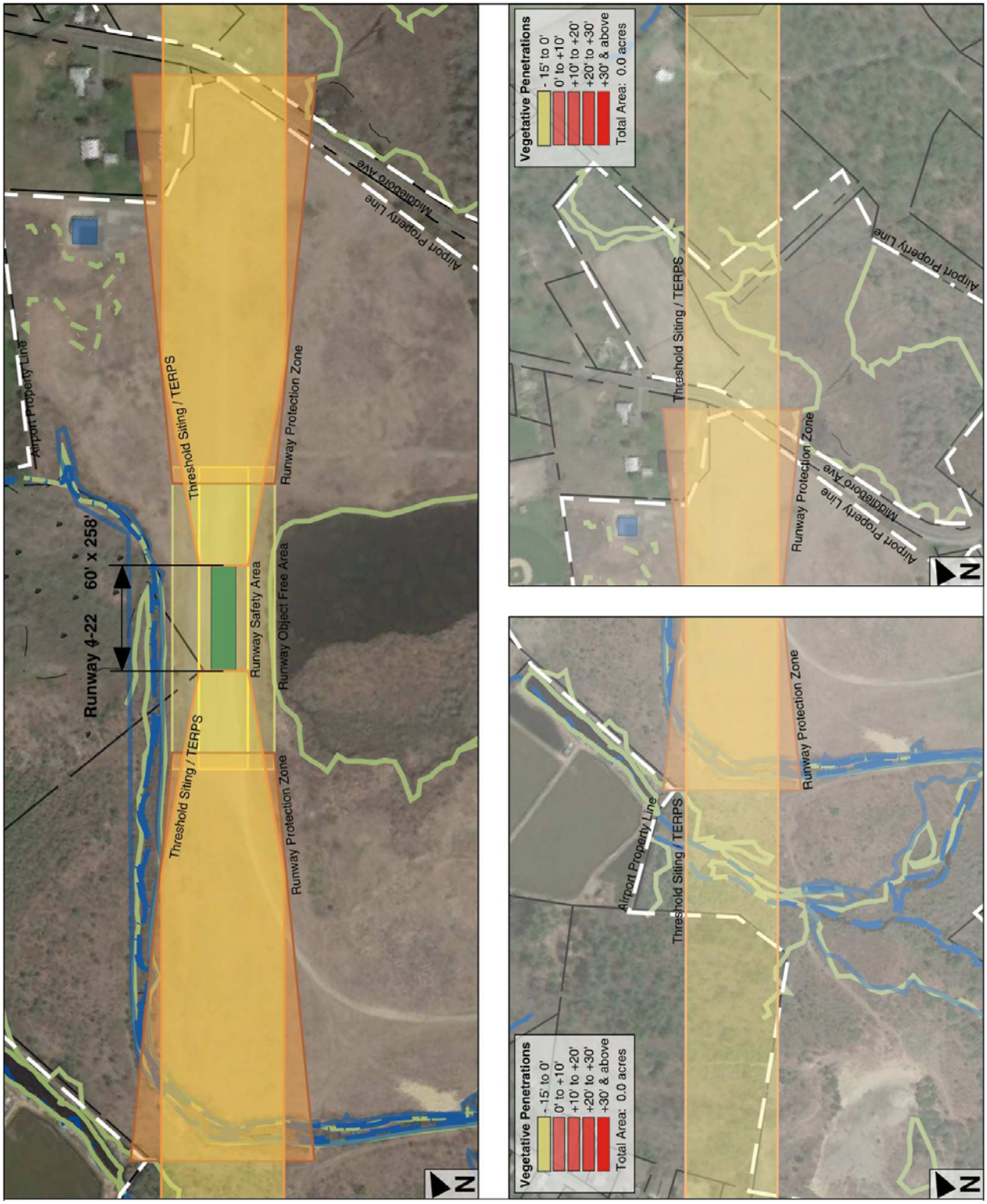
Source: Airport Solutions Group.

Figure 5-10: Runway 4-22 – Alternative 4 (Reduced Runway Length / Relocate RW 22 Threshold End)



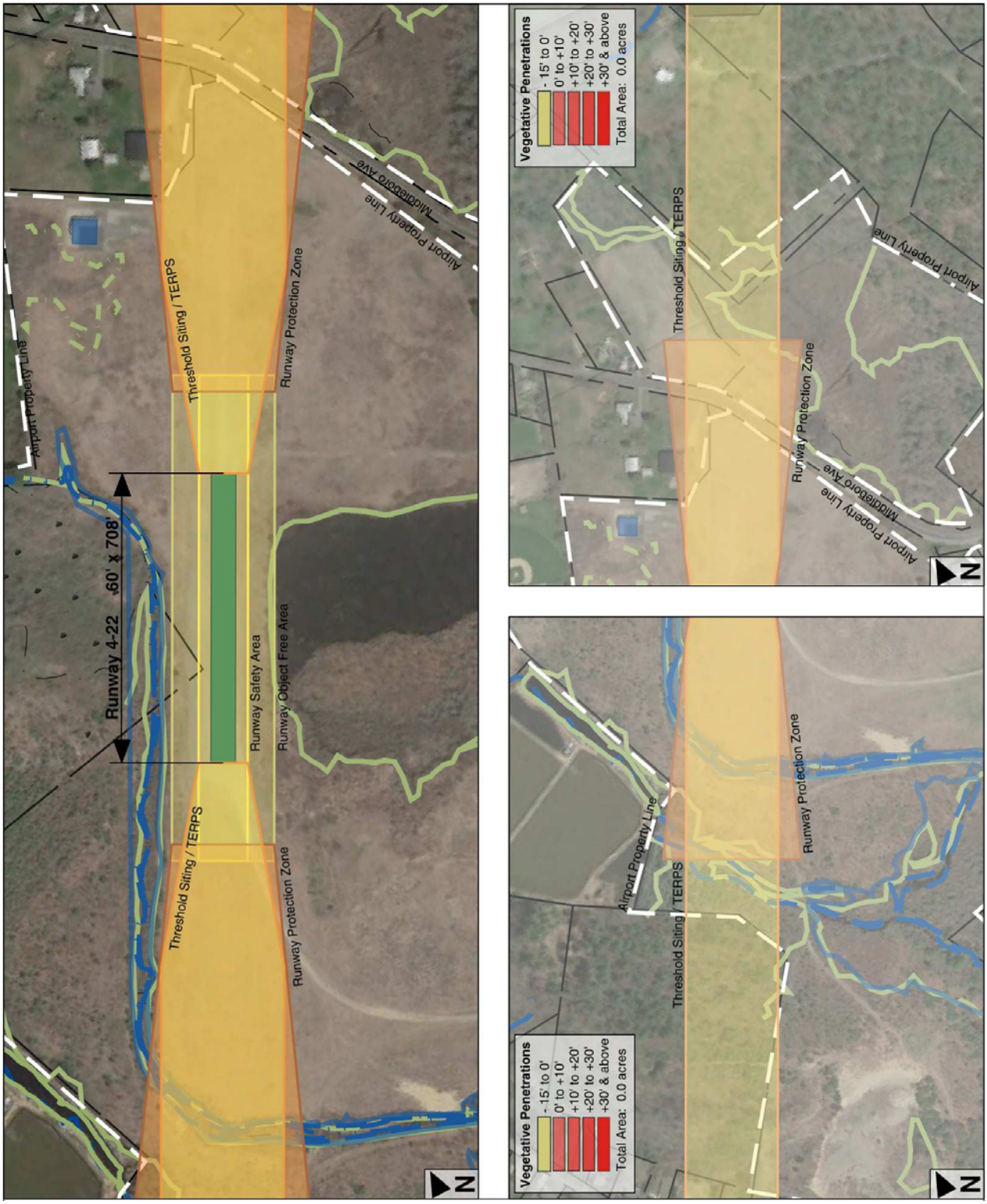
Source: Airport Solutions Group.

Figure 5-11: Runway 4-22 – Alternative 5 (Reduced Runway Length / Relocate both Runway Ends)



Source: Airport Solutions Group.

Figure 5-12: Runway 4-22 – Alternative 6 (Reduced Runway Length / Relocate both Runway Ends / No 15-Foot Buffer)



Source: Airport Solutions Group.

Table 5-3: Runway 4-22 Evaluation Matrix

Alternatives	Safety / Operations	Economic	Environmental	Implementation	Total
			Impact / Benefit Factors		
a) No Action					
Alternative 1	*NA*	*NA*	*NA*	*NA*	*NA*
b) Adjust Runway to FAA Recommended Length					
Alternative 2	3	4	4	3	14
c) RW Relocation					
d) RW Realignment					
e) RW Shift					
f) Adjust Recommended Runway Length					
Alternative 3	**5**	**4**	**3**	**3**	**15**
Alternative 4	5	3	3	2	13
Alternative 5	*NA*	*NA*	*NA*	*NA*	*NA*
Alternative 6	*NA*	*NA*	*NA*	*NA*	*NA*
g) Combination					

Source: Airport Solutions Group.
Notes: 1 = Negative impact/least benefit; 3= No impact/neutral benefit; 5 = Positive impact/most benefit
NA = Deemed not acceptable for other reasons

As stated previously, Runway 4-22's critical airspace surfaces must be cleared of obstructions in order for it to operate in a safe manner. Unfortunately, typical federal and state funding resources are currently unavailable to assist in correcting this condition. If the federal and state funding situation does not change in the near future and no other funding entities are identified, Taunton Municipal Airport will be forced to adopt either Alternative 5 or Alternative 6, either of which will relocate the runway ends in order to clear those surfaces; although in doing so, this will reduce the runway's length to the point where it is unusable by most aircraft. Effectively, this action would close the runway.

Yet, if another funding source were to be identified, then the alternatives identified in the analysis above could be considered for implementation. As of the writing of this AMPU, TAN is fortunate to have an active based pilot group that has expressed their desire to facilitate the clearing of these airspace obstructions on their own (without official support from the Airport). In effect, of their own accord, they have proposed to approach the off-airport property owner(s) that have the obstructions and negotiate those obstructions ultimate removal. If this group does act, based on the previous analysis, Alternative 3 has been identified as the recommended alternative for the following reasons:

- It maximizes Runway 4-22's runway length and operational benefits;
- It isolates the off-airport vegetative impacts to one runway end (i.e., north of Middleboro Avenue);
- It minimizes the amount of vegetation removal required;

- It minimizes potential environmental impacts;
- It minimizes the potential cost of on-airport vegetation removal;
- It minimizes the number of off-airport property owners with which to negotiate; and
- It allows for future, long-term landside development on the west side of the Airport (see below).

However, it must be made very clear that there is not an indefinite timeline available for action to be taken by either Taunton Municipal Airport or the local pilot group. Depending on the severity of the obstruction, the FAA will typically permit a given airport from 180 days to one year to resolve airspace surface penetrations. The Runway 4-22 obstruction issue was originally recognized in 2011. Through discussions with the AMPU Project Management Team (including the Airport, the FAA, and MassDOT Aeronautics), it was determined that if Alternative 3 has not been enacted by **Winter 2017** by the local pilot organization, the Taunton Municipal Airport will be forced to adopt Alternative 6 as the recommended alternative. This will immediately relocate the runway ends so that their associated 15:1 threshold siting surfaces are clear of penetrations. (The actual location of the runway ends will have to be determined in the field by a surveyor.) It is unfortunately understood that this action will greatly reduce the functionality of Runway 4-22 by significantly reducing its available runway length. It is also recommended that the Airport continue to relocate the runway ends until either such time as the obstructions are removed and the runway ends restored to their previous locations, or the runway length is reduced to the point of being unusable – at which point the runway would have to be closed.

Additionally, until such time that the aforementioned actions are completed, it is recommended that the Airport make every effort to notify pilots of Runway 4-22's condition. Specifically, TAN should publish the following in the Airport/Facility Directory (AFD):

> *Ops discouraged for pilots unfamiliar with Rwy 04-22. Small aircraft only Rwy 04-22. Tree obstructions in apch both ends Rwy 04–22; Trees on centerline 850' from Rwy 04 thld; Trees on centerline 900' from Rwy 22 thld. Rwy 04-22 surface rough and loose stones. Rwy 04-22 not plowed during winter months. Deer and birds on or inv of arpt.*

5.4.2 Taxiways

The Airport's taxiway system should provide for free movement and direct routing to and from the runways, terminal area and aircraft parking areas. It should allow for smooth aircraft taxiing requiring minimum changes in aircraft speed. Principles for designing taxiways include the following:

- Provide each runway with a parallel taxiway or the capability of a parallel taxiway;
- Build taxiways to provide as direct a route as possible;

- Provide bypass capability or multiple access points to runway ends;
- Ensure that taxiways ascribe to the new design criteria detailed in FAA AC 150/5300-13A;
- Avoid crossing runways whenever possible; and
- Avoid constructing taxiways off the ends of runways.

As stated in **Chapter Four**, the present taxiway configuration at TAN is generally adequate to serve the present and forecasted levels of operational activity at the Airport. Runway 12-30 is served by a full-length parallel taxiway which allow for safe and efficient aircraft movement to and from the runways. As a turf runway, Runway 4-22 has informally identified areas that adequately serve as turf taxiways. However, there are several additional design considerations that must be addressed.

Taxiway A - Width

As stated in **Chapter Four**, Taxiway A is currently 35 feet wide, where the *Airport Design* standard (per FAA AC 150/5300-13A) for a taxiway with a TDG of 1A is 25 feet. Since this is the FAA design standard, a taxiway width of 25 feet will be reflected on the ALP. However, at the time of Taxiway A's ultimate reconstruction (scheduled for 2025), this width standard should be reexamined to ensure that it is still consistent with the Airport's prevailing fleet mix. It is possible that aircraft requiring a larger TDG will be regularly operating at TAN at that point. Additionally, consideration should be given to the amount and type of tailwheel aircraft operations occurring on Taxiway A at that time. Because of their orientation and the difficulty the pilot has in seeing directly over the engine cowling, many tailwheel aircraft require that a pilot "zig zag" down a taxiway in order to see the centerline. Naturally, an aircraft that is operating in this fashion will require additional width.

Taxiway A - Runway/Taxiway Centerline Separation

FAA AC 150/5300-13A states that for a runway with visibility minimums not lower than ¾ mile and with an Aircraft Approach Category (AAC) and Airplane Design Group (ADG) of B-II, the runway centerline to parallel taxiway centerline separation requirement is 240 feet. In 2002, the FAA issued a Modification of Standard (MOS) for a 197-foot runway-taxiway centerline separation for Taxiway A. When that taxiway was reconstructed in 2005, the centerline-to-centerline separation was increased to its current distance of 199.5 feet (although the MOS was never updated).

Unfortunately, there are significant physical site constraints associated with meeting the design standard. As was the case in 2002 when the original MOS was issued, there is an existing stream that runs parallels to and along the north side of Taxiway A that provides drainage for the majority of the northeastern quadrant of the Airport, as well as for abutting land owners. This stream collects stormwater runoff and channels it away from the taxiway, directing the runoff

underneath the main apron and discharging into the large pond located north of the main terminal. There are also associated wetlands that run along the stream that have been previously identified. Additionally, there is another large stream and wetlands network located parallel to and south of Runway 12-30 that similarly directs runoff away from the airport and abutting properties to a large wetlands system located west of the Airport. Alternatives for addressing this design standard deficiency were identified and considered. They are described in the following (see **Figure 5-13** and **Table 5-4**):

1. No Action – This alternative leaves the existing Taxiway A centerline 199.5 feet from the Runway 12-30 centerline, where the FAA standard requires 240 feet. This has been the existing condition since the taxiway was reconstructed in 2005, although the existing MOS was never updated to reflect the increased separation distance. At the future time of taxiway reconstruction, the existing 35-foot wide taxiway would have to be reduced in width to 25 feet to meet the new FAA design standard (per FAA AC 150/5300-13A, ch.1). In this alternative, the centerline would not move from its existing location (199.5 feet from the runway centerline). Since this alternative would not impact areas outside of the existing taxiway footprint, it should not have any new environmental impacts. The cost opinion for this alternative is approximately $2.2 million, which includes the cost of an assumed future reconstruction and associated pavement removal (note that this is a conservative projection in that a pavement rehabilitation would likely be significantly less). Nevertheless, this alternative would still require an MOS for a runway/taxiway separation of 199.5 feet.

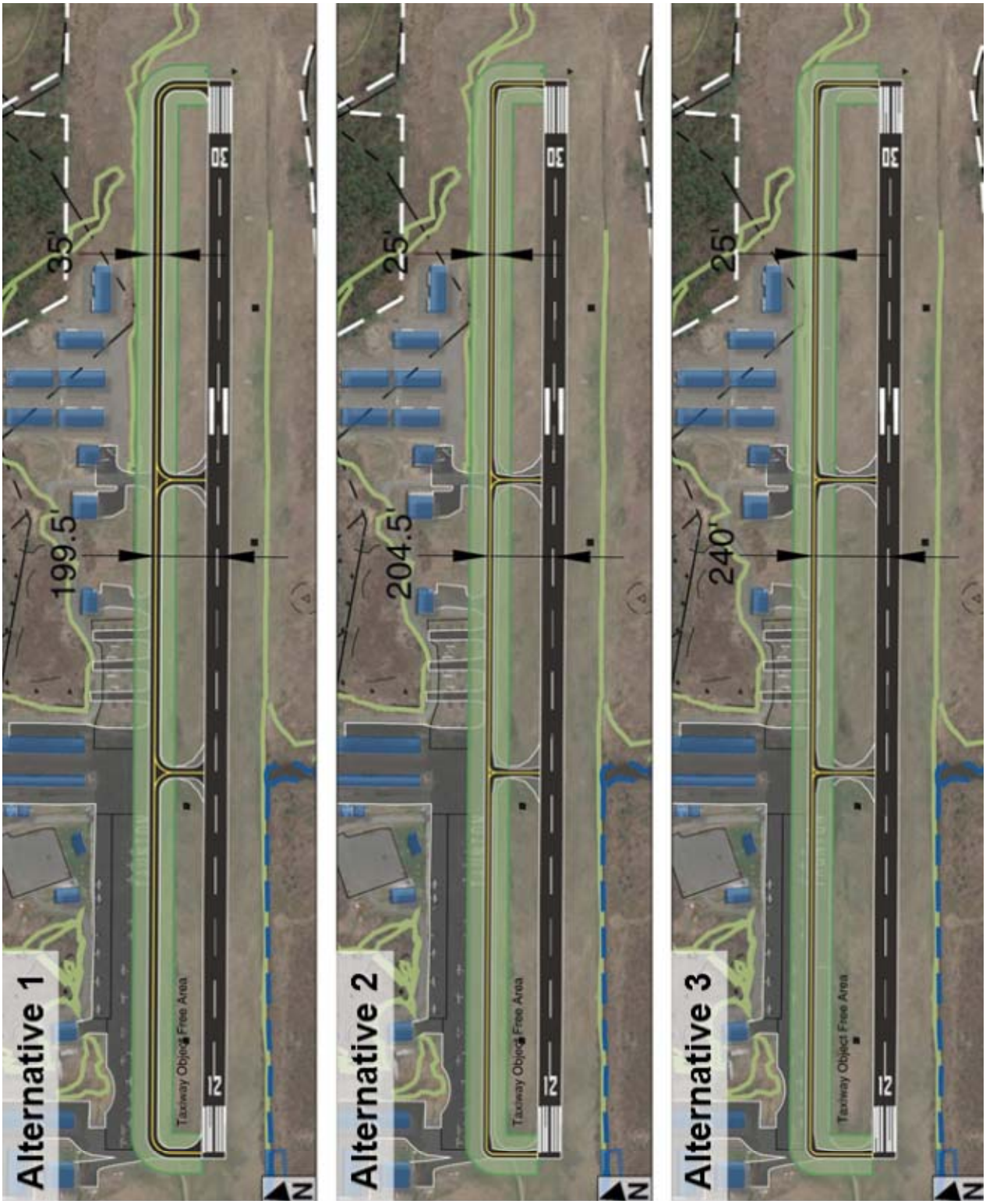
2. Relocate Taxiway A Centerline Five Feet – This alternative takes advantage of the ultimate narrowing of Taxiway A from 35 feet to 25 feet to better comply with current taxiway design standards by relocating only the southern edge of the taxiway the required 10 feet. (Note that this is the same approach undertaken by the Airport and FAA in 2005.) This action would result in the taxiway centerline being relocated five feet further away from RW 12-30, and an improved separation distance of 204.5 feet. Since this alternative would not impact areas outside of the existing taxiway footprint, it should not have any additional environmental impacts. Note that this alternative would have some negative impacts on the existing apron aircraft parking area and would result in the loss of 21 parking spots (with 39 remaining). Based on demand projections shown in **Chapter Three**, this loss of parking is deemed to be acceptable since additional parking areas could be introduced on the Airport in the future if warranted. The cost opinion for this alternative is approximately $2.6 million, largely due to the relocation of the centerline crown. This alternative would also require an MOS for a runway/taxiway separation of 204.5 feet.

3. Relocate Taxiway A to Meet the Design Standard – This alternative relocates Taxiway A 42.5 feet to the north in order to meet the existing runway/taxiway separation requirement of 240 feet. As originally recognized in the 2002 MOS, this alternative would result in significant impacts to environmentally

sensitive areas (i.e., stream and wetlands) located north of Taxiway A. Specifically, a minimum of 1,700 linear feet of wetlands and stream would be impacted, exceeding the 5,000 sf threshold requiring state and federal environmental permitting actions. It is reasonable to assume that such actions would ultimately result in orders-of-conditions that include wetlands mitigation/replacement (typically at a 2:1 ratio on site) for a variance. The action would also require the stream to be at least culverted, if not relocated. (Note that recent Massachusetts "daylighting" requirements for streams makes it questionable if the stream could be culverted or if there is actually room on the property to relocate it; therefore, it is quite possible that this would in fact not be permittable.) Additionally, the relocated taxiway would eliminate all but 15 of the Airport's existing aircraft tiedown locations. This is deemed to be unacceptable within the AMPU since such a dramatic loss of parking could not be reasonably accounted for by future development in other locations. The cost opinion for this alternative is approximately $3.2 million. However, not included in this cost is the associated environmental planning, permitting and remediation that would be required, which have been conservatively estimated to be $250K for permitting and another $750K likely required for wetlands mitigation and Corps of Engineers requirements.

4. Relocate Runway 12-30 to Meet Design Standard – This alternative maintains Taxiway A in its existing location and relocates Runway 12-30 42.5 feet to the south in order to meet the FAA design standard. This relocation would occur at the time of the runway's next reconstruction. This alternative would result in significant environmental impacts to a stream and associated wetlands networks located to the south of the runway. (Note that while the runway itself would not directly impact the system, its associated safety area and object fee area would impact those systems due to grading/toe-of-slope considerations, as well as required vegetation removal. Due to climbing grades south of the stream, significant "cutting" of terrain would be required to comply with object free area clearance criteria.) This alternative includes a minimum of 3,000 linear feet of direct wetlands and stream impacts, requiring local, state and federal permitting actions. This would also likely result in orders-of-conditions that include wetlands mitigation/replacement (assuming a 2:1 ratio) for a variance. The action would require the stream to be at least culverted, if not relocated. This alternative would also result in a shifting of the existing approaches and their associated airspace clearance requirements, likely resulting in additional vegetation removal in the approach areas. This would generate new impacts on existing neighbors and require the acquisition/modification of avigation easements (at least four new easements would be required and three residences would be newly placed in Runway Protection Zones). The cost opinion for this alternative is approximately $4.5 million, not including the cost of the associated environmental planning, permitting and remediation that would be required, conservatively estimated to be $250K for permitting and another $1.25M likely required for wetlands mitigation and Corps of Engineers requirements. Also not included is additional easement acquisition/modifications and vegetation removal, which is estimated at $300K.

Figure 5-13: Taxiway A – Alternatives



Source: Airport Solutions Group.

Table 5-4: Taxiway A Evaluation Matrix

Alternatives	Impact / Benefit Factors				
	Safety / Operations	Economic	Environmental	Implementation	Total
Alternative 1 - No Action					
	3	3	3	3	12
Alternative 2 - Relocate Taxiway A Centerline Five Feet					
	4	3	3	5	15
Alternative 3 - Relocate Taxiway A to Meet the Design Standard					
	5	1	1	2	9
Alternative 4 - Relocate Runway 12-30 to Meet Design Standard					
	5	1	1	1	8

Source: Airport Solutions Group.
Notes: 1 = Negative impact/least benefit; 3= No impact/neutral benefit; 5 = Positive impact/most benefit
NA = Deemed not acceptable for other reasons

In reviewing the results of the alternatives evaluation, it is evident that Alternative 2 is the recommended alternative. Confirmed through coordination with the AMPU Project Management Team, the selection of Alternative 2 was based on the following considerations:

- Alternative 2 generally improves the existing condition, while not resulting in significant, and potentially insurmountable environmental hurdles.
- While Alternative 2 results in some negative impacts to the existing apron, those impacts could reasonably be absorbed in the future through future development located on the Airport.
- Alternative 1 was generally considered to be eliminated from consideration since Alternative 2 provided a reasonable opportunity to improve the existing condition without incurring dramatically negative impacts.
- Both Alternative 3 and Alternative 4 have unknown costs and regulatory hurdles that are anticipated to be significant and, given the size and nature of TAN, would be impracticable to overcome. For these reasons (among others), these alternatives were deemed to be unfeasible.

The selection of Alternative 2 as the recommended action requires that the Taunton Municipal Airport petition the FAA for a new MOS that provides some relief from FAA AC 150-5300-13A, *Airport Design*, change 1, Table 3-5, *Runway design standards matrix*. Specifically, the requested MOS would allow the separation distance between the Runway 12-30 centerline and the Taxiway A centerline to be 204.5 feet in lieu of the standard of 240 feet.

As part of the MOS petition, justification for why the proposed modification would provide for an acceptable level of safety must be provided to the FAA. The following two factors should be included in this petition:

- As part of this AMPU effort, it was determined that critical design aircraft was the Beech King Air C-90 (wing span = 50.2 feet; undercarriage width

= 13 feet). When taxiing on Taxiway A (relocated to a runway/taxiway separation of 204.5 feet, per Alternative 2), the design aircraft would be located outside of both the Runway Safety Area for Runway 12-30 (150 feet wide centered on the runway) and the Runway Obstacle Free Zone (250 feet wide centered on the runway). Taxiing of aircraft within the Runway Object Free Area (500 feet wide centered on the runway) is allowed according to FAA AC 150/5300-13A, Change 1, Paragraph 309. Furthermore, the recommended alternative would provide an incremental improvement to TAN's existing conditions (i.e., 204.5 feet versus 197.5 feet), thereby enhancing the safety of operations at the airport.

- While the Beech King Air C-90 was identified as the critical design aircraft (i.e., the most demanding aircraft operating at TAN with at least 500 annual operations), the largest aircraft currently based at TAN is the Socata TBM 700 (wing span = 42.1 feet; undercarriage width = 12.7 feet). Furthermore, the vast majority of aircraft operating (both based and transient) at TAN are light, single-engine piston aircraft such as the Cessna 172 (wing span = 36.0 feet; undercarriage width = 8.4 feet). This is important to recognize for while it is understood that the design standards are largely established to protect the transient operators who are not familiar with the nuisances of an airport, the vast majority of current and projected operators at TAN utilize aircraft that smaller and less demanding than the design aircraft. Therefore, it is reasonable to assert that the proposed MOS be considered to be "low risk".

Taxiway A - Extension

As the Airport's primary taxiway, Taxiway A could be extended within the planning period for several reasons. If Runway 12-30 were to be extended as reflected above by the long-term runway recommendation, Taxiway A would have to be extended to match the new location of the runway end. Additionally, as new landside areas are made available for development (see details below), Taxiway A would have to be extended to provide appropriate access to those areas. In all cases, Taxiway A would have to be consistent with all existing FAA design standards and any MOS.

Other Taxiways

All other paved taxiways on the Airport, including Taxiway A's associated taxiway stubs (40 feet wide) as well as Taxiway B (35 feet wide) must ultimately be made to be consistent with all existing FAA design standards and any MOS. Any such modifications would only occur at the time of their next reconstruction.

Taxiway Identifiers

TAN's taxiway identifiers or designations no longer match the standard approach for identifying taxiways. Per FAA AC 150/5340-18F, *Standards for Airport Sign*

Systems, it is recommended that the taxiway identifier system be developed in a simple and logical fashion and that connecting taxiways should reflect the primary taxiway that they support. Therefore, it was recommended in **Chapter Four** that the taxiways be re-identified to reflect the current standards for identification. Specifically, Taxiway A and Taxiway B will remain as currently identified; however, all connecting taxiways will assume a sequential A1, A2, A3, A4 designation going west to east respectively (i.e., the current taxiway stub to the Runway 12 threshold end will be designated as Taxiway A1, the next stub to the east will be Taxiway A2, and so forth). Primary letters will be reserved for any future primary taxiways. The taxiway re-designations will be reflected on the TAN ALP.

5.4.3 Miscellaneous Airfield

Automated Surface Observation System (ASOS) Relocation

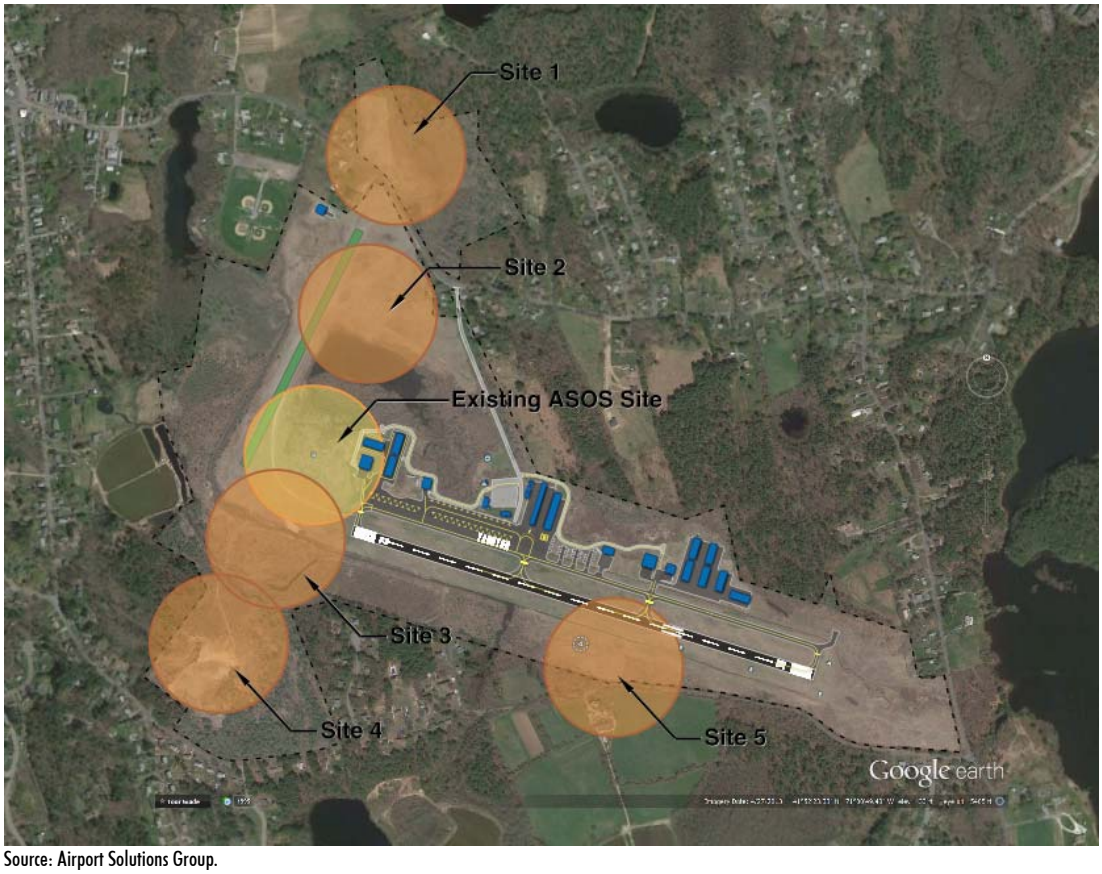
Installed in 1992, the Airport's ASOS is located just to the northwest of the American Aero hangar along the flight line (in fact, it draws its power from that same building). Its location is unfortunate in that it lies on airport property that would be better suited for development of future aircraft facilities (e.g. hangars, tiedowns, etc.), as is discussed in a later section of this chapter. So, the relocation (or potential replacement, given its age) of the ASOS must be considered.

Per FAA Order 6560.20B, *Siting Criteria for Automated Weather Observing Systems*, key siting considerations include the following, among others:

- The station must abide by all FAA *Airport Design* (FAA AC 150/5300-13A) and TERPS (FAA Order 8260.3) airspace criteria.
- It is desired that all obstructions be at least 15 feet below the ASOS wind sensor within a 500 foot radius.
- It is preferred that the ASOS be located adjacent to the primary runway and 1,000 to 3,000 feet down runway from the threshold. The station should be a minimum of 500 feet and a maximum of 1,000 feet from the primary runway's centerline, assuming flat terrain.

Based on these criteria, five potential sites were identified on the Airport for its ultimate siting (see **Figure 5-14**).

Figure 5-14: ASOS Relocation – Potential Sites



Source: Airport Solutions Group.

First, it should be noted that none of the potential sites (or the existing ASOS site) completely meet all of the siting criteria. Second, a dedicated siting analysis will ultimately determine the final location of the relocated ASOS. That being said, following are considerations associated with each of the five potential sites identified above (as well as the existing site):

- Existing Site – does not meet the siting criteria in relation to the primary runway; wetlands, a pond, and hangars located within 500 feet of the site.
- Site 1 – does not meet the siting criteria in relation to the primary runway; not located on the main airport property; significant vegetation (i.e., trees), wetlands and a public road located within 500 feet of the site.
- Site 2 – does not meet the siting criteria in relation to the primary runway; wetlands and a pond are located within 500 feet of the site; the site is sometimes used as a parachute drop zone; the site could be utilized for hangar development over the long-term.
- Site 3 - does not meet the siting criteria in relation to the primary runway; wetlands and trees are located within 500 feet of the site; access to the site may be difficult in that a stream must be crossed; there is currently no electricity on the site.

- Site 4 - does not meet the siting criteria in relation to the primary runway; significant vegetation (i.e., trees), and wetlands are located within 500 feet of the site; area topography is varied and the ground is primarily sand; there is currently no electricity on the site; the area is being considered for non-aviation related development.
- Site 5 - does not meet the siting criteria in relation to the primary runway; there are topography issues are located within 500 feet of the site as well as vegetation, a public road, and the airport segmented circle.

It should also be recognized that an ASOS relocation survey was conducted on August 2, 2004 by the National Weather Service. That survey identified Sites 2 and 3 as potential locations, with Site 2 being the preferred. Reasons given to eliminate Site 3 were based on wetlands, access and area vegetation. However, since that time, much vegetation has been removed from the area, access has the potential to be improved, and the area of wetlands/pond in both Sites is actually very similar. Therefore, since the final siting determination will have to be made at a later time, and that Site 3 affords the Airport greater flexibility in developing its property, Site 3 will be shown on the TAN ALP.

NAVAIDS

It is recommended that at the time of the Runway 12-30 reconstruction, Runway End Identifier Lights (REILs) should be installed on both runway ends. Additionally, the existing Visual Approach Slope Indicator (VASI) system of Runway 30 should be replaced with a Precision Approach Path Indicator (PAPI) system, and a new PAPI system installed on Runway 12.

Finally, because of the area topography and the vegetation that surrounds Taunton Municipal Airport, it has been acknowledged that winds can be inconsistent on and around the airfield, and that pilots have requested more information regarding wind conditions at the runway ends. A previous analysis conducted by the Airport confirmed the accuracy of the existing windsocks on the airfield. Therefore, it is recommended that additional individual wind socks be placed in close proximity to each runway end. This will be indicated as such on the TAN ALP.

Instrument Approaches

The Taunton Municipal Airport is scheduled to receive new Localizer Performance with Vertical guidance (LPV) approaches from the FAA in the fall of 2016. This is the highest precision GPS (WAAS enabled) aviation instrument approach procedure currently available without specialized aircrew training requirements. Because of potential area obstructions that lie outside of the airport property and any existing easements, the glideslope angle will have to be adjusted slightly to 3.1° where 3.0° is the standard. While this will slightly raise the approach minimums, it will still be much better than the existing 3.6° angle to which the existing VASI is set.

Table 5-5: Taxiway A Evaluation Matrix

Runway 12	Current	Future
Glideslope Angle (GS)	Visual (default 3.0°)	3.1°
Threshold Crossing Height (TCH)	Visual	59 ft
LPV Decision Altitude (DA)	*NA*	353 MSL/ 318 HAT
VNAV Decision Altitude (DA)	*NA*	603 MSL/ 568 HAT
LNAV Decision Altitude (DA)	*NA*	640 MSL/ 605 HAT
Runway 30	**Current**	**Future**
Glideslope Angle (GS)	3.05°	3.1°
Threshold Crossing Height (TCH)	45 ft	59 ft
LPV Decision Altitude (DA)	*NA*	359 MSL/ 318 HAT
VNAV Decision Altitude (DA)	*NA*	598 MSL/ 557 HAT
LNAV Decision Altitude (DA)	600 MSL/ 557 HAT	560 MSL/ 519 HAT

Source: Airport Solutions Group.

5.5 LANDSIDE DEVLOPMENT CONCEPTS & ALTERNATIVES

This section will identify development concepts and alternatives intended to address the existing and future needs for landside facilities at TAN within the 20-year planning period. In general, landside facilities consist of the terminal area development, aircraft parking aprons, support facility development, hangar fuel storage facilities, and access roadways.

5.5.1 Existing Terminal Area / Flightline

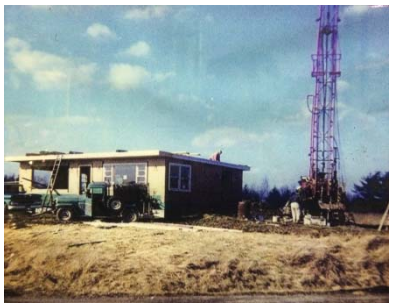
For discussion purposes, the development concept for the existing terminal area / flightline has been broken down into the following components. Each is presented in detail in the following sections.

- Terminal / Administration Building
- Aircraft Parking Apron
- Aircraft Hangars
- Aircraft Fuel Storage
- Airfield Equipment & Cold Storage

Terminal Building

Constructed in the early 1960's, the existing terminal building has exceeded its useful life expectancy. Having been expanded once, the 1,600 sf facility has experienced multiple system failures and does not comply with current Americans with Disabilities Act (ADA) requirements- the latter issue will ultimately prevent the building from being used by tenants requiring public access. Additionally, this

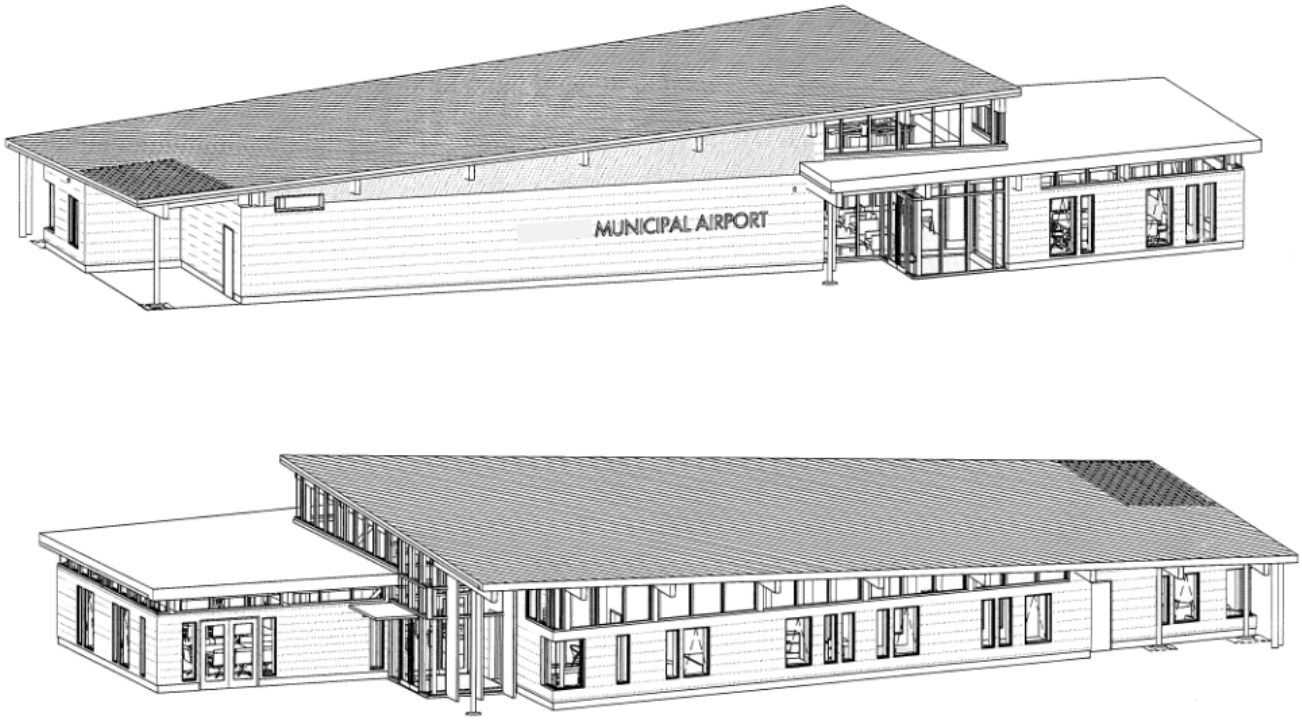
building is generally undersized for the long-term needs of Taunton Municipal Airport. As described in **Chapter Four**, a public-use terminal/administration building could require up to 6,300 sf of space (including airport administration, tenant, public, pilot, shared and support spaces), far exceeding the current building's size. These factors have resulted in the conclusion that the existing terminal building either needs a complete renovation (including building mechanicals, utilities, structural, etc.), or it needs to be simply replaced.



Construction of Existing Terminal

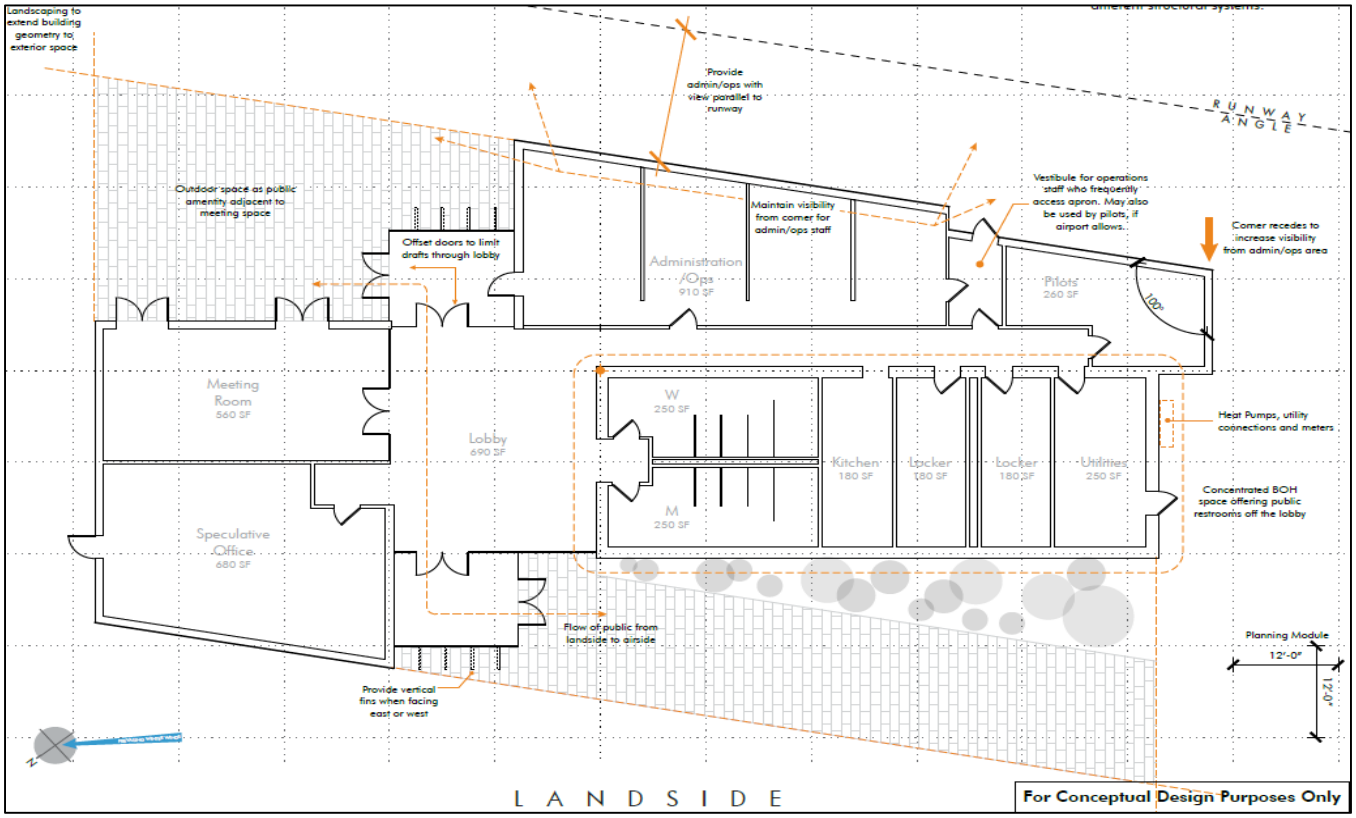
Fortunately for the Airport, MassDOT Aeronautics initiated an Administration Building Program for Massachusetts General Aviation Airports in 2014. This program was designed to construct (or renovate) two to three buildings each year for up to 15 airports throughout the Commonwealth. The program, which provides 95% funding, established a standardized building prototype of three sizes (i.e., 3,500 sf, 4,500 sf, and 5,500 sf). Each new airport administrative facility will be designed and built according to a flexible prototype design that considers local needs. Included in each building will be accommodations for airport administration, tenants, pilot operations, and general public space (see **Figures 5-15** and **5-16**).

Figure 5-15: Administration Building – Oblique View



Source: Fennick McCredie Architecture

Figure 5-16: Administration Building – Plan View



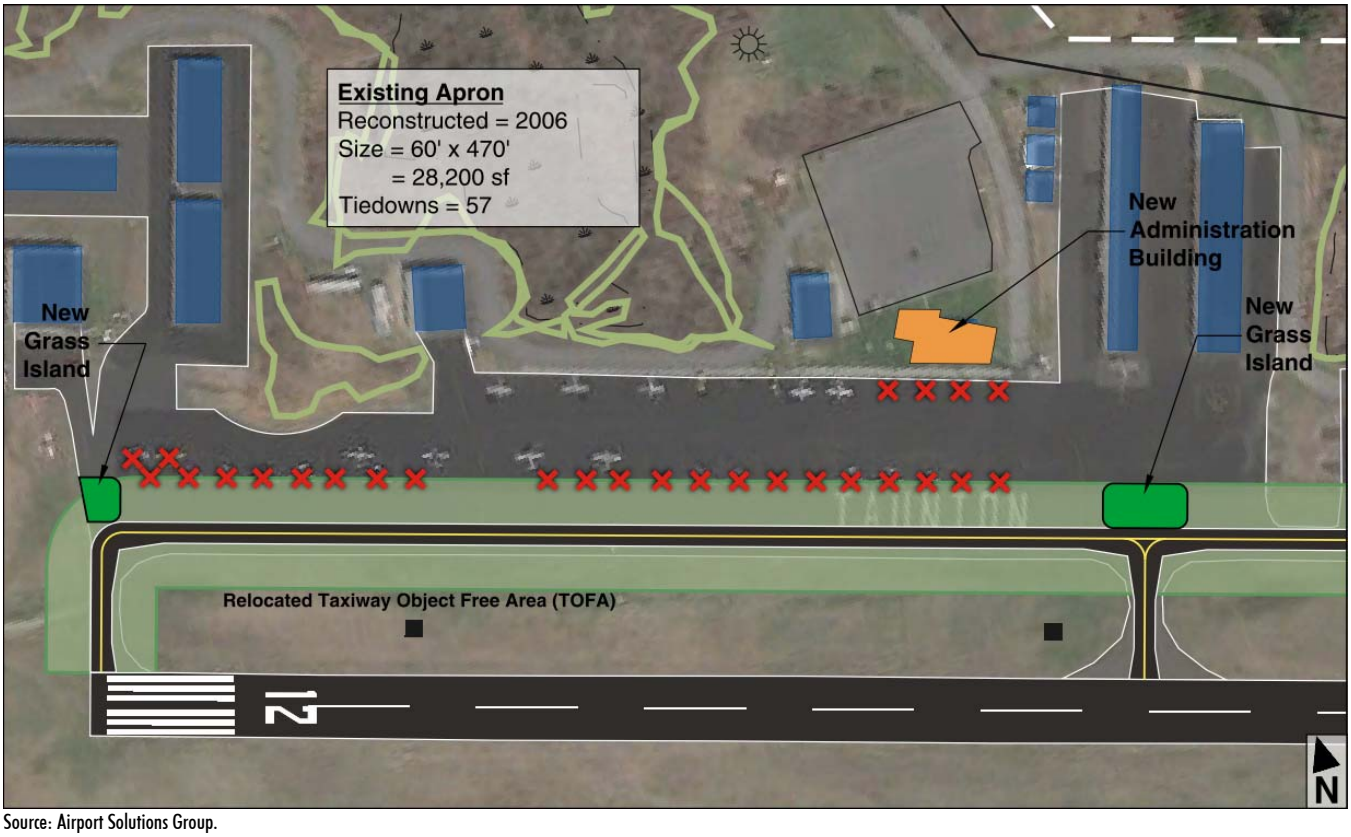
Source: Fennick McCredie Architecture

As of the writing of this AMPU, a new 5,500 sf administration building for TAN was scheduled to be designed in 2016 and constructed in 2017. It is to be located on the site of the existing terminal building.

Aircraft parking apron

Reconstructed in 2006, the main tiedown apron is located in front of the terminal building and is approximately 28,200 sf in size. It currently has a total of 57 aircraft tiedown locations oriented parallel to Taxiway A and is considered to be sufficient to meet future need. However, there are several factors that must also be considered with respect to the apron. First, when Taxiway A is relocated (as recommended previously) to have a runway-to-centerline distance of 204.5 feet, its associated Taxiway Object Free Area (TOFA) will be relocated with it, having a negative impact on the existing apron's parking. Second, with the proposed construction of the administration building (as described in the previous section), an additional four tied downs are anticipated to be lost. Third, an FAA design change was instituted in FAA AC 150/5300-13A that requires pilots exiting an apron to perform at least one turn prior to accessing the active runway. (This is designed to improve airport safety by helping to prevent runway incursions.) In total, these three factors will result in the loss of 27 aircraft tiedown locations (leaving 30 aircraft tiedowns), as shown below in **Figure 5-17**.

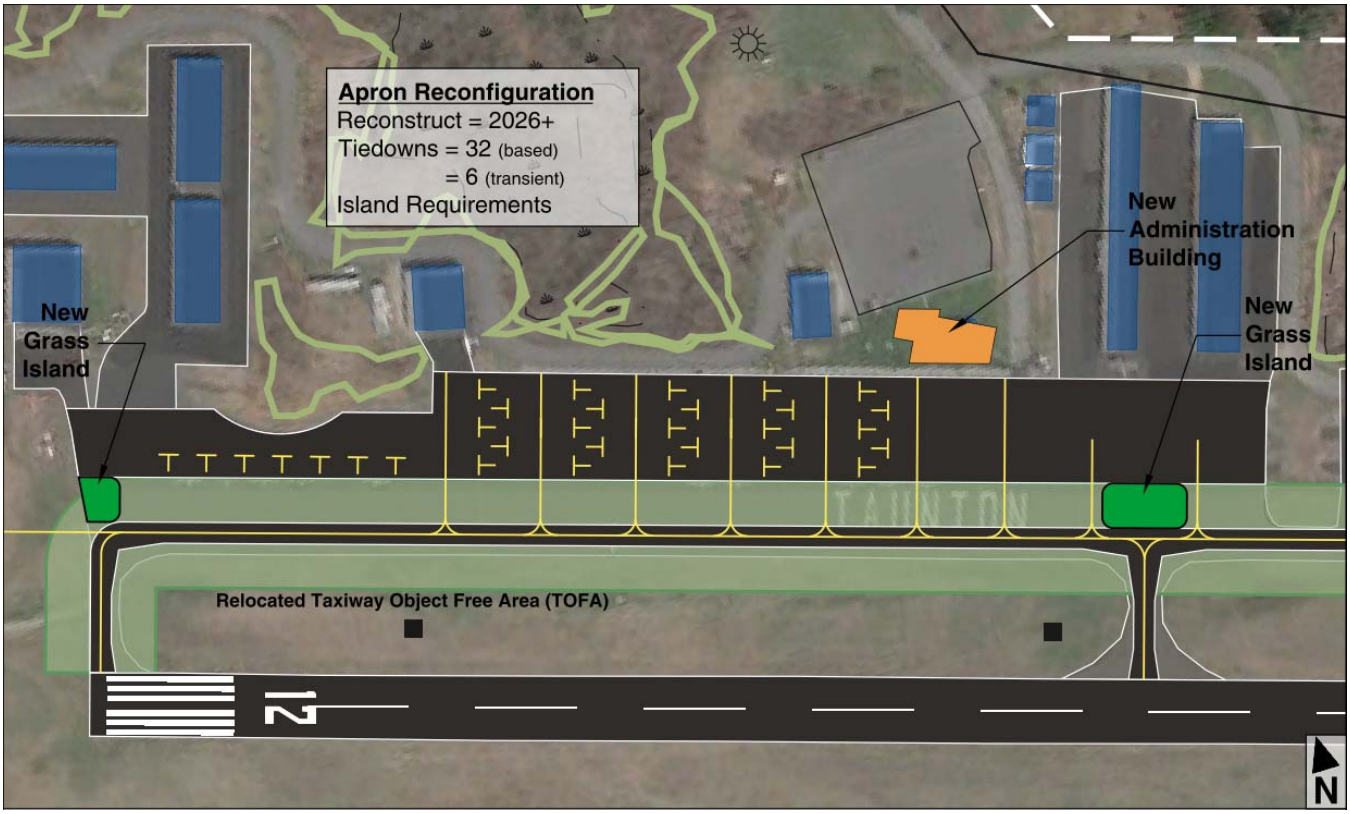
Figure 5-17: Aircraft Parking Apron – Relocated TOFA & Other Impacts



Source: Airport Solutions Group.

Because of these factors and their associated impacts, the current aircraft parking configuration will have to be redesigned to one that is more efficient and flexible over the long term (see **Figure 5-18**). It should be noted that this configuration results in a total of 32 marked tiedowns for based aircraft, as well as additional space for an additional six transient aircraft. The 38 tiedown positions is a marked improvement over the existing configuration that had 30 positions remaining. This redesign slightly reduces the total impervious surface of the apron (20,700 sf reduced from 28,200 sf) with the construction of the required grass islands. In terms of operational flexibility and efficiency, the elimination of the single taxilane reduces the probability for potential operational conflicts, and the transient parking areas will allow aircraft of larger sizes to park immediately in front of the new administration building. Additionally, the design does not impede existing or projected aircraft fueling operations.

Figure 5-18: Aircraft Parking Apron – Recommended Redesign



Source: Airport Solutions Group.

Aircraft Hangars

Within the developed areas along the flightline, three sites have been identified that have potential for hangars to be constructed (see **Figure 5-19**). (Note that the advantage for a prospective hangar builder to pursue one of these locations is that the overall area is already largely developed, having access, utilities, etc., thereby reducing their potential site construction costs.) Each site could also accommodate different size hangars (the figure shows 60 ft by 60 ft hangars with an area of 3,600 sf or a total area total of 10,800 sf for all three) and would also require varying amounts of aircraft aprons and associated taxilane. Additionally, utilities beyond electric and telephone are limited. Due to their location within the existing flightline, these development locations should be considered to be valuable assets by Taunton Municipal Airport.

Figure 5-19: Aircraft Hangar s – Existing Terminal Area Potential Sites

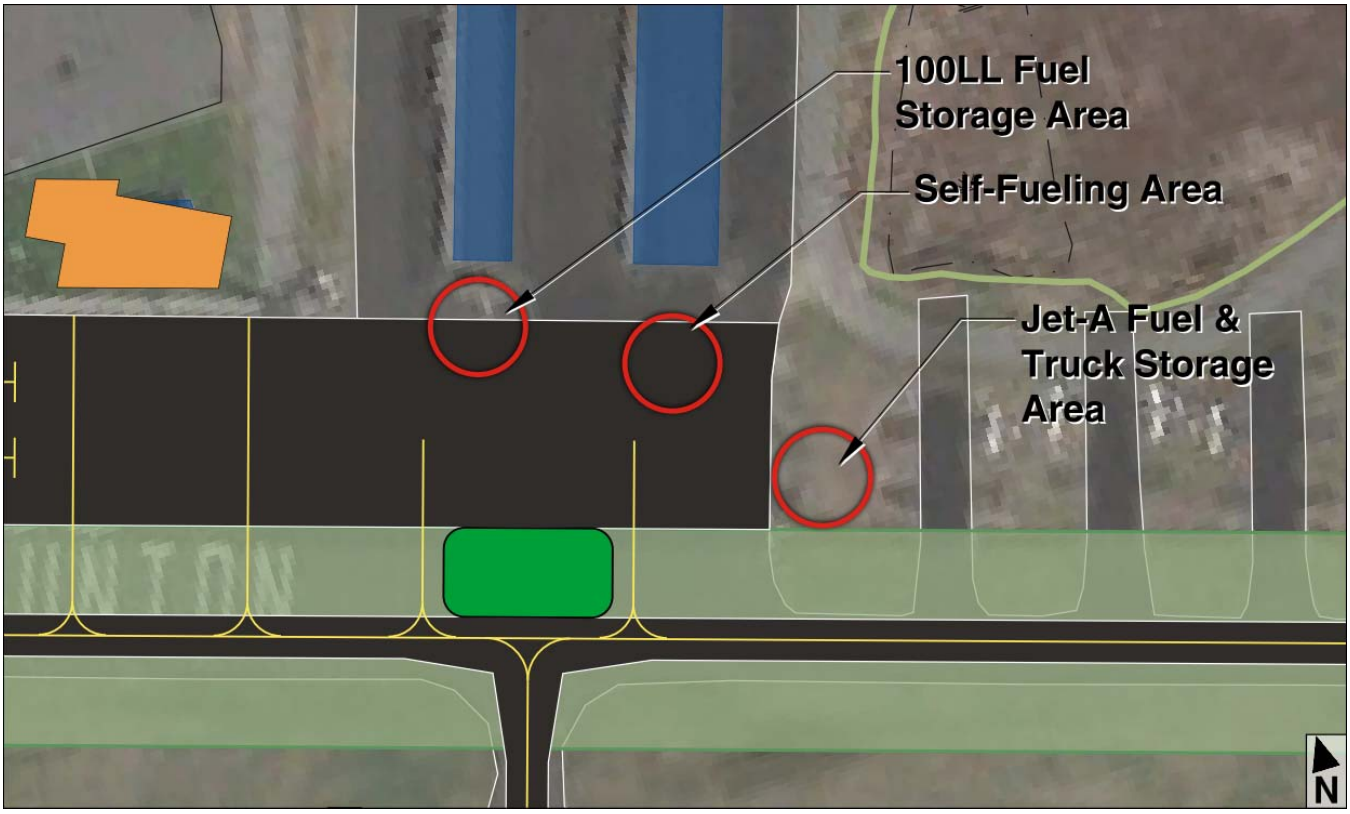
Source: Airport Solutions Group.

Aircraft Fuel Storage

Aircraft fuel sales are a primary revenue source for the Taunton Municipal Airport. As stated in **Chapter Four**. TAN's existing 10,000-gallon underground 100LL Avgas fuel storage tank, which is owned, operated, and maintained by the Airport, provides adequate capacity to accommodate both existing and projected demand. However, with turbine aircraft operations projected to increase throughout the planning period, it is reasonable to assume that there will be an increasing level of demand for Jet-A fuel, which is presently not available at TAN. Therefore, the following is recommended for fuel storage at TAN:

- Based on pilot demand for expanded fueling service hours, the Airport should convert the existing 100LL dispenser to be capable of self-service fueling. (Note that this would have to be predicated on the approval of the local fire marshal, although the Commonwealth of Massachusetts no longer prevents conducting self-fueling for general aviation aircraft).
- The Airport should maintain the "self-fueling" area for those based aircraft owners who wish to fuel their own aircraft with their own fuel.
- The Airport should anticipate the potential future installation of a Jet-A fuel tank and associated storage of a Jet-A fuel truck.

Figure 5-20: Aircraft Fueling Locations



Source: Airport Solutions Group.

Airfield Equipment & Cold Storage

The 4,440 sf Airfield Maintenance Facility contains much of the Airport's heavy maintenance and snow removal equipment, while also serving as the equipment maintenance shop. Unfortunately, it must also be acknowledged that the airfield and snow removal equipment that is not able to be stored in the building due to space limitations is generally stored outside next to the building. In order to minimize the deterioration of that equipment that must still be stored outside, it is recommended that the Airport plan to construct a cold storage building to house this equipment. This would be an uninsulated, metal-sided building having only electricity that would be used exclusively to keep airfield and snow removal equipment out of the elements to preserve their life expectancy. On the TAN ALP, it will be preliminarily sited just to the north of the existing parking lot, although that location is subject to change.

Additionally, their Airport has recognized a need to purchase a box plow and a bucket for its John Deere 5425. These will be incorporated in to the Airport's Capital Improvement Program (CIP).

5.5.2 New Airport Development Areas

It was acknowledged in **Chapter Four** that the Taunton Municipal Airport has approximately 125,700 sf of existing hangar space as well as an estimated 171,500 sf of existing apron. It was further noted that when comparing those existing facilities with the projected demand for such facilities throughout the 20-year planning period that TAN already has apron space sufficient for its long-term needs, but was deficient in future hangar space. When adding the 10,800 sf of hangar space that could be developed in the existing terminal (and described in the previous section), TAN has a total hangar potential of 136,500 sf in its currently developed areas. However, it is forecasted that the Airport will require up to 204,800 sf by 2033 (a 68,300 sf deficiency) on the lower end of the forecasted spectrum, up to a total of 276,600 sf by 2033 (a 140,100 sf deficiency) on the higher end. In either case, it is evident that TAN must plan for development outside of its existing developed areas.

This section identifies the potential development areas that lie on the Airport, reviews them for their constructability in terms of general site constraints and consistency with reasonable planning standards, presents development concepts for each, and then makes general recommendations for integration into the TAN ALP.

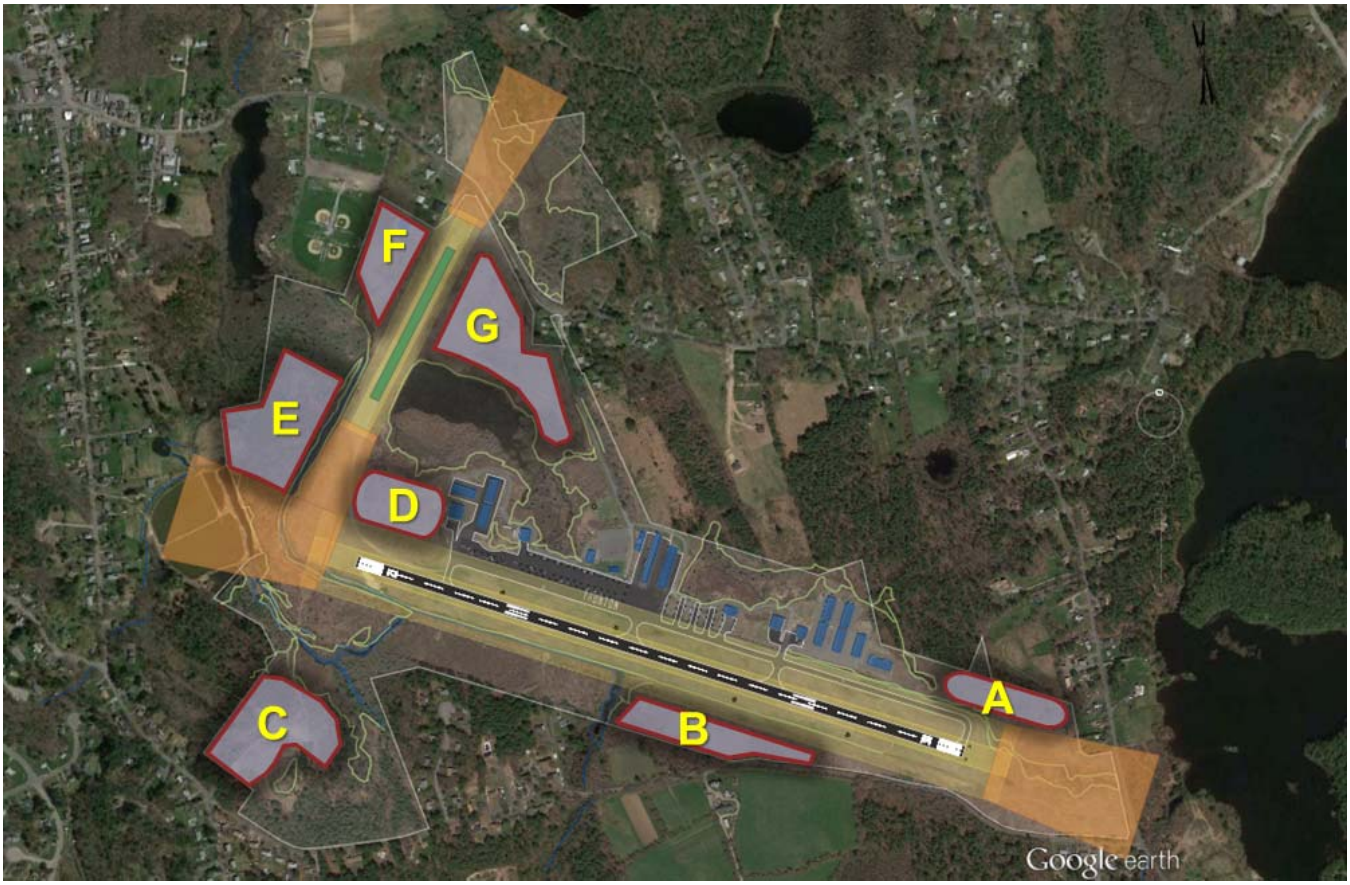
Initial Development Area Screening

The first step in this process is to conduct a high-level screening of areas located on the Airport that appear to have hangar development potential. For this level of screening, such areas were identified by applying the following criteria:

- The area must be located on-airport property and contiguous with the airfield infrastructure (i.e., taxiways, runways, etc.);
- The area must be predominantly upland (i.e., no significant waterbodies, and only limited, potentially permittable wetlands impacts);
- The area must reasonably comply with current FAA *Airport Design* and airspace requirements; and
- The area must have reasonable potential for landside access, as well as utilities.

Through this high-level screening process, seven potential future development sites were identified and are shown in **Figure 5-21**. (It should be noted the airfield reflects the implementation of the recommended action for Runway 4-22 [Alternative 3 discussed previously], as well as the recommended inclusion of the potential extension of Runway 12-30, also discussed above.)

Figure 5-21: Range of Potential Development Areas



Source: Airport Solutions Group.

Following the initial identification of potential development sites, each was screened to detect any obvious "fatal flaws" that would preclude them from further analyses. The findings for this screening are included in the following:

- Site A: No fatal flaws; site passed through for additional analysis. This site was designated as Development Area 1.

- Site B: Development of this site would require crossing of a stream; there are terrain challenges (i.e., the area is much higher than Runway 12-30); there is not enough room for a parallel taxiway to be located south of Runway 12-30, and without a parallel taxiway, aircraft operating out of this site would have to cross the runway every time they arrived or departed from the site; and the area is a potential site for the relocated ASOS. For these reasons, Site B was eliminated during the initial screening.

- Site C: This site was the focus of an FAA Environmental Assessment (EA) in 2013. Through that process, it was determined that the site was effectively inaccessible to the airfield due primarily to FAA *Airport Design* standards related to End Around Taxiways (EAT). There were also

substantial environmental hurdles due to wetlands impacts. Since the viability of this site was thoroughly explored and eliminated from consideration in that previous effort, Site C was likewise eliminated in this initial screening.

- Site D: No fatal flaws; site passed through for additional analysis. This site was designated as Development Area 2.

- Site E: No fatal flaws; site passed through for additional analysis. This site was designated as Development Area 3.

- Site F: This site had been identified in the previous master plan update for the development of a turf apron and seasonal hangars. While it has good landside access, its access to the airfield is dependent upon Runway 4-22, the Airport's turf runway that is not plowed during snow season and is often unusable during the wet or mud seasons. These factors conspire to significantly hamper the airfield accessibility of Site F. Based on the type of need for hangars defined in the AMPU, a hangar area that is only seasonally accessible is not considered to be sufficient to meet the projected type of demand. (However, it should be noted that if a demand for seasonal hangars were to arise, this site could be utilized for this purpose.) Nevertheless, for the purpose of this AMPU, this site was eliminated from further consideration in this effort due to its seasonal limitations. (Note that if Runway 4-22 were to ultimately be closed, airfield access to this site could be greatly improved with the installation of a paved taxiway on the site of the closed runway, which would provide year-round capabilities. If such a taxiway were to be ultimately constructed, this site would become very viable for further development.)

- Site G: Similar to Site F, this site is limited by the seasonality of its airfield access. This area is also currently used as a skydiving drop zone and is a potential site for the relocated ASOS. For the identical reasons stated above, this site was eliminated from further consideration in this AMPU because of its seasonal accessibility. Again note that if Runway 4-22 were to ultimately be closed, airfield access to this site could be greatly improved with the installation of a paved taxiway on the site of the closed Runway 4-22, providing the site with year-round capabilities. If such a taxiway were to be constructed, this site would become very viable for future development.)

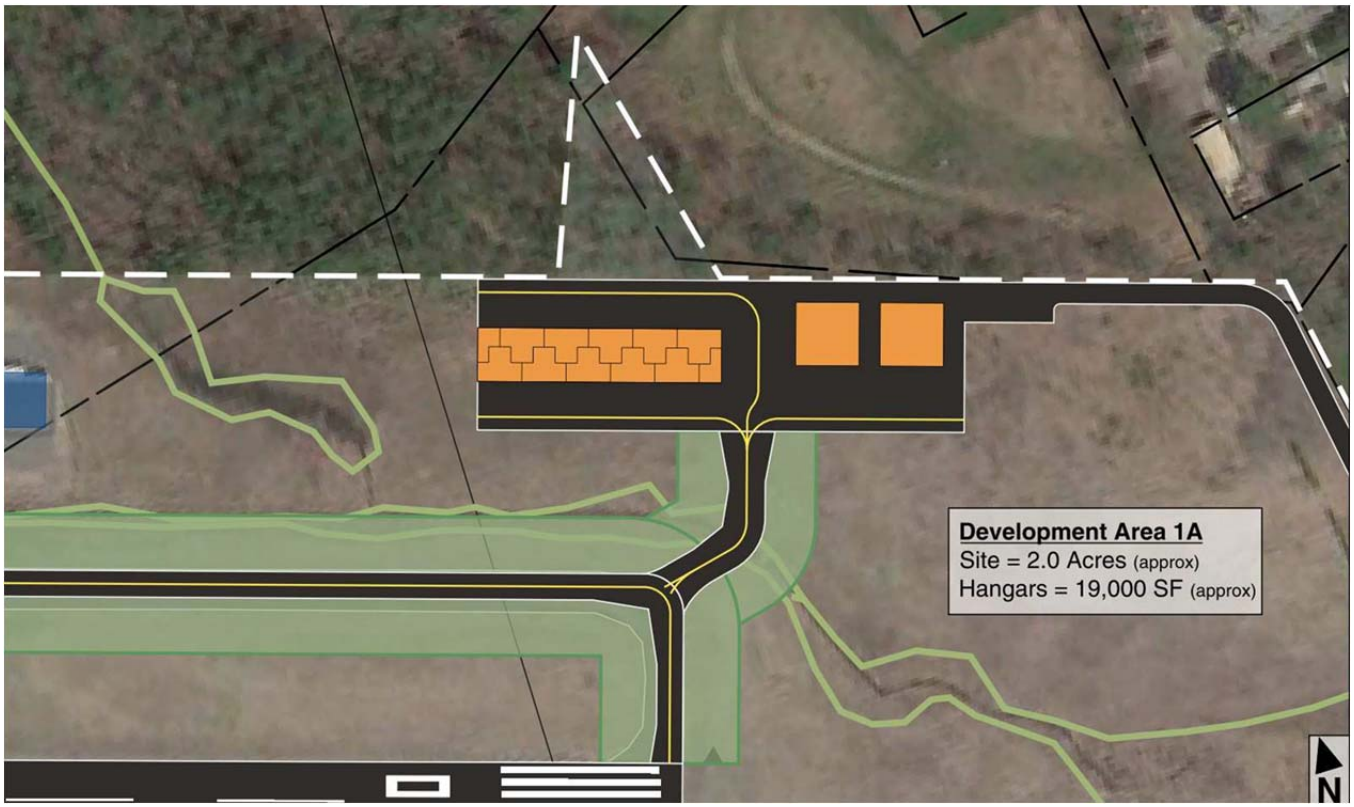
Development Area 1

This development area ultimately became the focus of the 2013 FAA EA once Site C was eliminated due to FAA *Airport Design* considerations, as mentioned earlier. Since Development Area 1 lacked much of the environmental impacts associated with Site C, the EA was changed to an FAA Notice of Intent (NOI) and environmental permits were applied for and obtained based on a hangar

development concept (as shown in **Figure 5-22**). (Note that the planned development was based on the design of a developer who has since leased the property and plans to construct the site in 2015.) This layout provides for a two-acre development that will accommodate approximately 19,000 sf of new hangar space. Airside access is through Taxiway B (constructed in 2014) which stubs into Taxiway A. Landside access to the site is gained from a new driveway that exits onto South Precinct Street and is secured by a powered gate. There are currently no utilities on Development Site 1, although there is electricity in close proximity. The development layout reflected in the figure below will be incorporated into the TAN ALP.

As a reminder, the environmental permits obtained as part of the 2013 NOI were based on this design layout and any significant deviation from that design could require the permitting process to be reopened. Of primary concern in Development Area 1 is that the wetlands resource areas (i.e., the Bordering Vegetative Wetland located between the site and Taxiway A, and a vernal pool located to the west of the site) not be impacted further than currently indicated in the figure.

Figure 5-22: Development Area 1

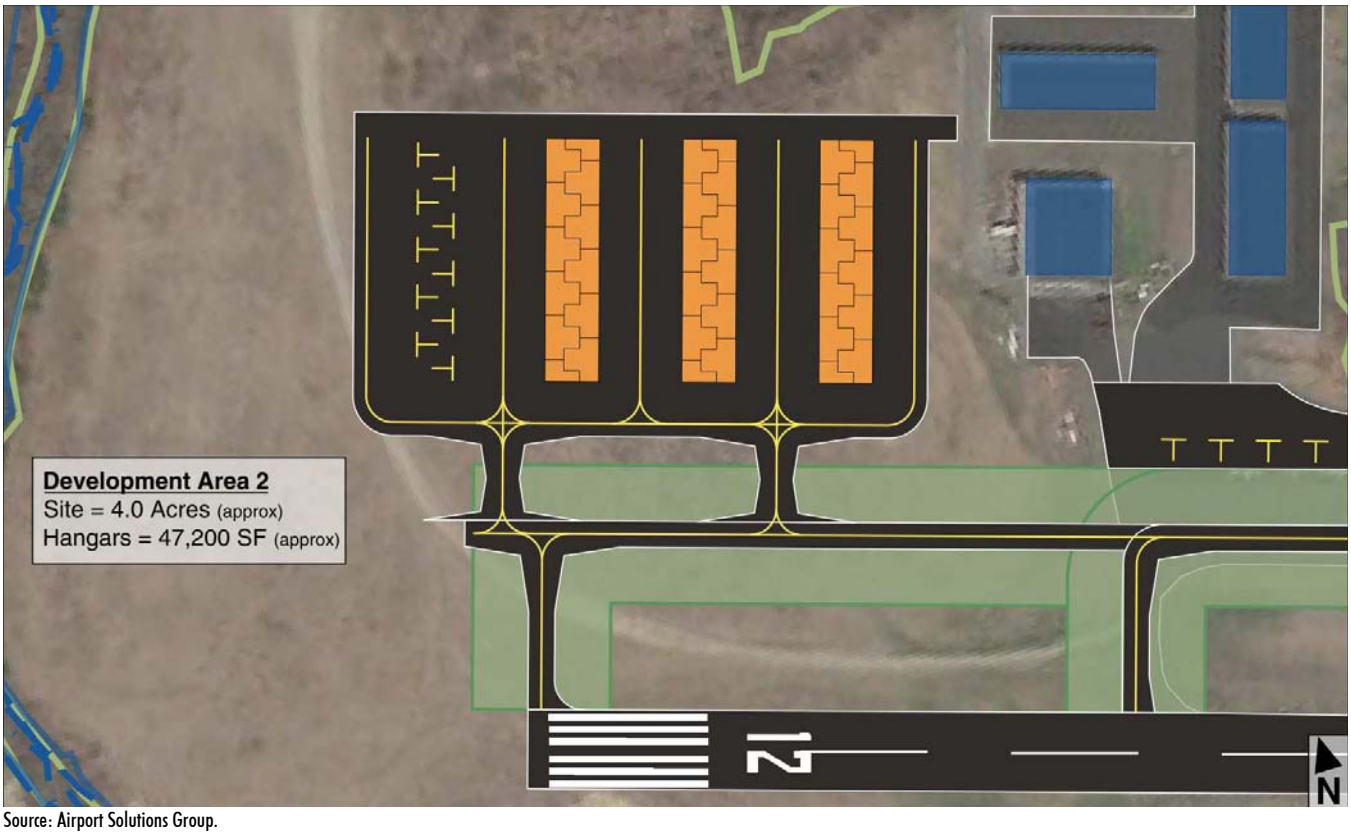


Source: Airport Solutions Group.

Development Area 2

Located to the immediate west of the existing terminal area, Development Area 2 is a logical extension of the existing flightline. It also assumes the planned relocation of the existing ASOS to another location on the Airport. The concept presented in **Figure 5-23** reflects a four-acre development that would include a combination of T-hangars (up to an estimated 47,200 sf) and 10 new tiedowns, depending on the level of demand for either at the time of construction. It is important to recognize that development of this concept along with Development Area 1 will meet the projected base AMPU hangar demand. (It does not meet the demand levels forecasted in association with the First Light Casino & Resort Development Scenario.) There are no utilities on the site, although there is electricity nearby. The site is all uplands with some wetlands and a pond lying immediately to the north.

Figure 5-23: Development Area 2



Source: Airport Solutions Group.

Landside access to Development Area 2 will be easily accommodated through the Airport's existing access drives, while airside access will have to be constructed by extending the existing Taxiway A to the west beyond the threshold end of Runway 12. This extension could be built on its own or coincidental with the future potential runway extension, as shown in the figure above. (Note that Development Area 2 provides tiedown replacements for those parking positions that will be lost with the ultimate relocation of the Taxiway A centerline, discussed

previously. Since the relocation will be an action required by the FAA to better meet the existing FAA *Airport Design* standards for runway-taxiway centerline separation, the construction of replacement tiedowns, as well as access to them, may be eligible for FAA funding.)

In developing this concept, consideration has also been given to the recommended configuration of Runway 4-22, as well as the existing and proposed configurations of Runway 12-30. Specifically, this development would be clear of the future Runway Protection Zone (RPZ), threshold siting, TERPS and Part 77 surfaces associated with the relocated Runway 4 threshold end, as well as the existing and proposed locations of the Runway 12 threshold end.

Development Area 3

Development Area 3 has been envisioned as a long-term resource for the Taunton Municipal Airport. Assuming the construction of both Development Areas 1 and 2, Area 3 would be the next logical location for future airside development initiatives that could include hangars, tiedowns, fixed base operators, etc. Located on the far west end of the Airport, this development area is the largest of the sites currently available, but also requires the most investment for site improvements (see **Figure 5-24** for a conceptual development plan for Area 3).

Figure 5-24: Development Area 3

Source: Airport Solutions Group.

The layout in the previous figure is entirely conceptual and has been presented to provide for spatial referencing purposes. In this design, the 7.4 acres site could accommodate 17 hangars (60' x 60' in size) with appropriate associated apron space, a TDG II taxilane, and considerable space for auto parking. This would result in 61,200 sf of new hangar space, which would likely be sufficient to meet even the long-term needs based on the Project First Light Casino & Resort scenario.

However, it must be noted that there are many difficulties related to this site. There is a stream/river located on the eastern edge of the site and there are wetlands located on the other sides. This will create an environmental permitting issue for establishing both landside and airside access (there currently is neither), as well as bringing utilities into the area (there is currently none in the area). For landside access, there may be opportunities to utilize existing roads and/or roadway easements that would connect the site with Liberty Street to the west. If Runway 4-22 were to ultimately close, an access road could be established on the east side of the stream (assuming a crossing) to connect the site to Middleboro Avenue. It is assumed that any utilities required to be brought into the development area would follow the ultimate configuration of the new access drive.

Airside access will also be a challenge. The site requires a further extension (approximately 550 feet) of Taxiway A to the west, across the stream/river. This extension will also have an alignment shift to both more directly access the actual site, and to keep the taxiway outside of the TERPS approach airspace surface for Runway 12. Additionally, if Runway 4-22 were to remain open, this extended taxiway would become an End Around Taxiway (EAT) as defined in FAA AC 150/5300-13A, which places specific requirements on the taxiway that would likely preclude its construction. However, as detailed in a February 11, 2015 email, Robert Bonanni P.E. (FAA National Resource Engineer for Airport Airspace) stated the following:

> *". . . any pavement that has independent movement around the end of another active runway (in the direction that causes an overflight either on takeoff or landing) has to meet the provisions on the EAT as found in AC5300-13. The fact that it is a GA airport is not a factor in the determination. However, the word independent is key to the airport in question. That is, if there are established hold positions (with instructions on their use by the FBO) established on any taxiway that traverses the end of another [runway] it would not need to meet the requirements of an EAT. The hold positions should be established at the edges of the appropriate approach/departure surface, unless any aircraft using taxiway fits under, if so than the hold positions should be established no closer to the extended centerline than the distance of the RSA width extended out to the taxiway intersection."*

Therefore, if the Airport were to enact these procedures, the extension of Taxiway A to Development Area 3 could be constructed.

Finally, it must again be acknowledged that development of this area will require clearing some very difficult environmental hurdles. However, given that this area would be the last remaining developable property on the Airport (if Runway 4-22 were to remain open), it will be important to pursue the development of this area for the long-term viability of Taunton Municipal Airport. Also note that since the layout shown in the previous figure is conceptual and subject to the needs of a future developer, the TAN ALP will simply show Development Area 3 as being "reserved for future aviation-related development."

Overall Development Concept

When combined with the runway and taxiway recommendations presented earlier in this chapter, the overall landside development concept for Taunton Municipal Airport is reflected in **Figure 5-25**.

Figure 5-25: Overall Landside Development Concept

Source: Airport Solutions Group.

5.5.3 Miscellaneous Planning Considerations

There are several additional planning considerations that required additional clarification. These are addressed below.

Airport Security Upgrades

It is recommended that in order to maintain a level of security for the users of Taunton Municipal Airport that is commensurate with the industry's current best practices, the following actions should be taken:

- TAN will participate in the MassDOT Aeronautics security camera grant program that installed security cameras on the Airport to provide views of the airfield operational areas. These cameras will feed into a computer located in the airport maintenance building for recording.

- Any new gates designed to provide access to the Airport for non-airport personnel (i.e., pilots, business owners, hangar owners, etc.) should have a key pad associated with it that is linked to the overall airport security system in the maintenance building. This is particularly important for any of the new development areas proposed previously.

- While TAN has a complete security fence surrounding its property, it has some current maintenance and design challenges. For example, significant amounts of vegetation have grown up around the fence, causing it to be compromised in several locations. This will require those sections of fencing to be replaced and the vegetation cleared (ideally a minimum of 10 feet on either side) of all vegetation. On the inside of the fenceline, it is recommended that a perimeter road be established and maintained. Additionally, not all of the fencing is the standard security fencing height of eight feet tall – there are sections that are four-foot and six-foot tall. Therefore, it is recommended that this deficient fencing be replaced with eight-foot fencing. Finally, there are areas where the fencing actually lies off of Airport property – this is not an ideal situation since the actual property owner would have rights to access their lands within the Airport Operating Area (AOA). It is recommended that airport fencing be located on airport property.

- The Airport's Security Plan must be reviewed, maintained and updated on a regular basis. As part of this AMPU process, the TAN Security Plan was reviewed and updated to reflect current industry standards and practices.

Airport Utilities

A high-level review of existing utilities was conducted at TAN to determine if there is a need for upgrade of existing utilities or a hook-up of additional utilities based on future demand.

- Water: Municipal water is not currently available at TAN - the existing terminal and airfield maintenance buildings utilize an existing well for water. Potable water is not available for other tenants on the field. Through previous discussions with the Taunton Water Department, it was estimated that an 8-inch water main could be extended from the 12-inch stub along Westcoat Drive (note that there is also currently a 30-inch water main running along Middleboro Avenue) to the terminal area. A line of this size should be able to provide adequate water to the terminal and surrounding buildings, as well as be used for fire protection (i.e. sprinkler systems, fire hydrants). Since the existing well is actually located under the existing terminal building that is planned for replacement under the MassDOT Aeronautics administration building program, it is recommended that the extension of the water line should be included in this building construction project.

- Sewer: There are no existing sewer lines at TAN and the closest sewer line to the Airport is a 10-inch main which runs along Liberty Street. Based on previous discussions with the Taunton Sewer Department, the cost to extend a sewer line to the Airport would not be practicable. For the proposed construction of the new administration building, it is recommended that a septic system be employed. Likewise, septic systems would have to be utilized in the proposed Development Areas 1, 2, and 3.

- Electric: Existing power service to the Airport is provided by Taunton Municipal Light and Power (TMLP) with service extending down Middleboro Avenue to Westcoat Drive. The current level of service is deemed adequate for existing and future requirements. Extension of electrical service would be required associated with Development Areas 1, 2, and 3.

- Phone / Cable / Internet: Existing telephone, cable, and internet services for the Airport is provided by Verizon and TMLP with service lines extending down Middleboro Avenue to Westcoat Drive. The current level of service is deemed adequate for existing and future requirements. Extension of these services would be required associated with Development Areas 1, 2, and 3.

- Natural Gas: If available, there would be an interest in natural gas, if a line could be brought to the Airport. Currently, the terminal uses an oil-fired furnace to provide heat and hot water, while the maintenance building is heated through propane. Columbia Gas of Massachusetts provides gas to East Taunton through an existing 6-inch wrought iron main along Middleboro Avenue. However, extending the line into the Airport is currently deemed to be impracticable.

Remote Communications Outlet (RCO) / Remote Transmitter/Receiver (RTR)

An RCO is a remote aviation band radio transceiver designed to extend the communication capabilities of Flight Service Stations (FSS). It is used to make a radio call to the FSS as if the pilot were making a direct call. The RCO will relay the call (and the briefer's response) automatically. It should be noted that RCOs and RTRs, or remote transmitter/receivers are nearly identical in operation, but different in communication focus. While RCOs serve flight service stations, RTRs serve terminal air traffic control facilities.

Pilots operating at the Taunton Municipal Airport have expressed interest in having these capabilities (particularly the ability to communicate with terminal air traffic control facilities via an RTR). It is recommended that the Airport pursue the establishment of this capability.

Airport Communications

It was noted in survey response (see **Chapter Four**) that TAN general communications could be improved. While it is admittedly difficult to keep up with the ever-increasing number and types of communication modems that are continually being developed, the Airport continue to maintain the following at a minimum:

- An appropriate and up-to-date stand-alone website or at least a current and updatable webpage located on the municipal website;
- A current email address system for the distribution of mass communications;
- A current mailing address system for those without email capabilities; and
- Some level of social media participation (i.e., AirNav comments, Facebook, Twitter, Instagram, Flickr, etc.).

With respect to the last point, it is understood that managing social media communications can be challenging and very time consuming, particularly if this responsibility is to be held by the Airport Manager. In many cases, airport managers utilize a trusted volunteer to monitor and manage these outlets on their airport's behalf. However, it is very important to emphasize that if the Airport does adopt a social media presence, it must be actively monitored and maintained.

Airport Expansion of Services

Chapter Four presented the findings of the 2011 Massachusetts Statewide Airport System Plan (MSASP) with respect to TAN. The MSASP was conducted to establish a plan to provide a statewide airport system that accommodates demand, supports economic and transportation needs, and maximizes funding resources while being conscious of environmental issues for the Commonwealth of Massachusetts. Included in that study were specific service objectives that an airport within a given role should have for it to function appropriately within that

role. Based on that, TAN meets the MSASP recommendations for the following minimum level services:

- Limited service fixed base operators
- Avgas (100LL) fuel
- A current GA security plan
- Appropriate airport snow removal
- A public phone and restrooms (Note that the Airport no longer considers a public phone to be a necessity.)

TAN is deficient in the following minimum level services:

- On-site rental and/or crew cars
- Aircraft deicing

While the establishment of these additional services are appropriate goals, their actual implementation will be a function of actual demand. Nevertheless, the Airport should be aware of these potential service needs and pursue opportunities to institute them at TAN.

Non-Aviation-Related Development Areas

Once the overall need for aviation-related development has been identified, it is important to then extrapolate which lands may be available for non-aviation related development. The previous New Airport Development Area analysis identified those areas available for long-term aviation-related use. When combined, the three areas totaled nearly 600,000 sf of airport property available for new aviation-related use, far exceeding the projected needs of the Airport well beyond the planning period. (Note that this total did not include the development potential associated with those areas that are dependent on the status Runway 4-22.)

That effort also identified Site C, an area that was the focus of an FAA EA that ultimately determined the site to be unusable for aviation-related development due to environmental and FAA *Airport Design* considerations. Since this site has already been determined by the FAA to be not available for aviation-related development, it will be reflected on the TAN ALP as such. It should be noted that non-aviation development is potentially lucrative, and the airport should actively market opportunities to develop airport property designated as such. State and federal economic development grants may be available to assist with preparing the site (for example, road access, grading, and utility connections).

Airport Overlay Zone

The long-term viability of an airport is often impacted by the degree to which it is compatible with surrounding land uses. Airport compatible land uses are defined as "those uses that can co-exist with an airport without constraining the safe and

efficient operation of the airport or exposing people living or working nearby to unacceptable levels of noise or hazards." Unfortunately, many airports experience severe development constraints and operationally restrictions as a result of land uses that are incompatible with airport operations. At the extreme, these incompatibilities have even resulted in some airports having to be closed.

As described in detail in **Chapter Two**, the areas surrounding the Taunton Municipal Airport are comprised of a wide variety of land uses, including residential, agricultural, recreational, wetlands, urban public/institutional, brushland/ successional and open land. Based on that, it must be acknowledged that there are potential incompatibilities that lie all around the Airport due to many areas with residential development and zoning. With respect to current City zoning on and around the Airport (see City of Taunton Zoning Ordinance [January 25, 2010]), while TAN is located within a dedicated "airport district", it is limited to the Airport itself – it does not consider airport land use compatibility for the surrounding areas.

Therefore it is recommended that the Taunton Municipal Airport work with the City of Taunton to establish an "Airport Overlay Zone" that will help ensure airport land use compatibility to help ensure the long-term viability of the Airport, while benefiting and addressing the concerns of neighboring areas. (Note that current industry standards with respect to airport land use compatibility and example overlay zone language can be found in *ACRP Report 27: Enhancing Airport Land Use Compatibility*.)

Property Acquisition

Based on the projected needs of the Taunton Municipal Airport throughout the 20-year planning period and beyond, no additional property is required for the Airport to meet future demand. (Note that some new avigation easements may have to be acquired and old easements modified.) However, as opportunities present themselves, the Airport should consider additional property if there is sufficient justification at the time and cost-benefit.

Wildlife Management

The FAA has long recognized the potential threat that wildlife strikes pose to aviation safety; aircraft collisions with birds and other wildlife are a serious aviation and economic issue. Management of wildlife on and near airports is a complex issue. Multiple studies at airports across the United States indicate that wildlife strikes have increased in the past decade due to expanding populations of many wildlife species hazardous to aviation including large birds and mammals and flocking birds. Management of wildlife can be diverse and ranges from procedural practices at an airport to habitat management and wildlife deterrence. Habitat management can include such activities as vegetation manipulation to manage grass heights and trimming and removal of shrubs and trees on an airport, eliminating or excluding wildlife from areas of standing water, and

improving and maintaining a wildlife exclusion perimeter fence is in good repair and prevents mammals from entering an airport. Procedural practices span from harassment methods to lethal control of wildlife.

Appropriate planning to help reduce the chance of animal-strikes is highly recommended and endorsed by the FAA as an important safety issue. Therefore, TAN will be the subject of an FAA-sponsored Wildlife Hazard Assessment and Wildlife Management Plan in the near term.

5.6 ENVIRONMENTAL SCREENING

The above airside and landside alternatives were developed to meet anticipated airport needs over the 20-year planning period. However, given the multiple environmental considerations presented in the *Inventory of Existing Conditions* chapter, the final recommendations should be screened in an effort to assess the potential environmental impacts of each proposed option. This section encompasses that screening effort by considering all requirements of and the Impact Categories listed in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*. Additionally, while this section is not a formal environmental assessment (EA), it is a preliminary review to provide a high level analysis of the environmental elements described in FAA AC 150/5070-6B, *Airport Master Plans*, FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*. It also considers relevant Massachusetts environmental regulations and procedures as they relate to the preferred alternative.

Additionally, this section evaluates the proposed airport improvement projects with respect to conditions that could exempt a project from an Environmental Assessment (EA) through application of a "Categorical Exclusion". Note that per FAA Order 5050.4B, Section 602, an EA in accordance with the National Environmental Protection Act (NEPA) is required for proposed improvement projects identified on the Airport Layout Plan (ALP) that are anticipated to be implemented in the short-term (5 year) planning period (Phase I) unless otherwise identified as "Categorically Excluded". Many projects at general aviation airports are categorically excluded from requiring EAs under NEPA. "Categorical Exclusion" is defined as a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a federal agency in implementation of NEPA and for which, therefore, neither an environmental assessment or an environmental impact statement is required (40 C.F.R. 1508.4).

Although the FAA does not perform formal approval of all aspects of airport master plans, they do require that sponsors seeking a grant for airport improvements have the proposed improvement shown on an FAA-approved ALP. Unless the improvements consist solely of items that are categorically excluded, an EA in accordance with NEPA and FAA Order 5050.4B must be completed.

The purpose of this section is to conduct a general assessment of the environmental effects of the preferred alternatives described for all the projects in the 20-year planning period and to define the potential extent of future environmental analyses that is needed to implement the airfield improvements shown on the ultimate ALP. Since the environmental considerations for the Taunton Municipal Airport were described in depth in **Chapter Two**, this section will focus only on the potential impacts that the recommended actions could have on the various environmental Impact Categories. Refer to **Chapter Two** for a full description of the various Impact categories.

5.6.1 Environmental Impact Categories

Air Quality

The proposed development scenarios would have a potential, albeit temporary, effect on air quality as a result of use of fresh asphalt necessary for construction of the new aircraft aprons, additional pavement along Runway 12 end and taxiway narrowing and realignment. Additional construction vehicle traffic and activity would also have a temporary impact on air quality resulting from fugitive dust emissions as well as short-term emission of air pollutants originating as the by-product of construction equipment fuel combustion during the construction and demolition phases. Air pollutant emissions would be minimized by the relatively short duration of the proposed projects and the limited amount of earth disturbance associated with each project. In addition, air quality impacts are not expected to extend beyond the immediate vicinity of each project area and no construction impacts are expected following completion of the projects.

The appropriate mitigation measures identified in FAA AC 150/5370-10, *Standards for Specifying Construction at Airports*, should be followed during the proposed projects. In addition, FAA specifications included in FAA AC 150/5370-10, Item P-156 *Temporary Air and Water Pollution, Soil Erosion, and Siltation Control* should be included in the project contract documents to ensure that construction impacts to air quality be minimized.

Long term air quality impacts could result from an increase in aircraft operations or change in aircraft types as a result of airside improvements. Larger aircraft typically have higher emissions which could increase air quality impacts. Additionally, increases in the number of overall annual operations could increase long term air pollutant impacts in the area. Finally, stationary sources such as boilers, emergency generators and other fuel combustion equipment may be required to meet applicable emissions and permitting requirements. However, given the size of the airport, it is unlikely that any concentration increases would contribute to a violation of the National Ambient Air Quality Standards (NAAQS).

Finally, any Federal actions, or actions obtaining Federal funding must comply with Conformity. Section 176 (c) of the Clean Air Act requires that any entity of

the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity must demonstrate that the action conforms to the area's commitment of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards.

Potential development projects may also be subject to the Massachusetts Environmental Policy Act Greenhouse Gas Policy that requires an applicant to avoid and minimize greenhouse gas emissions to the greatest extent practicable.

Construction period and operational air quality impacts will be studied in conjunction with implementation of the proposed actions.

Coastal Resources

The Airport is located entirely outside the Coastal Zone, and none of the potential development scenarios will affect coastal resources.

Compatible Land Use

All of the proposed improvement projects are located on existing Airport property and are consistent with aviation uses. Tree clearing is required at each Runway end to meet current FAA standard requirements. Some of the tree clearing efforts will take place off-Airport but within easements or land owned by the Airport or the City of Taunton.

Based on forecast analysis presented in **Chapter Three**; the Airport may experience relatively low growth in aircraft operations (at 1.16% or 1.41%) over the next 20 years. Current forecasts project that the Airport will have fewer than its 2006-2008 level of operations by 2033, even under the high growth forecast. By that time, some aircraft using the Airport will have been replaced by newer, quieter aircraft, so noise impacts reasonably should not be expected to return to pre-2008 levels until well after 2033. Additionally, the Airport already has voluntary noise abatement procedures established and time restrictions to reduce potential noise impacts on the surrounding community.

Projected development on the western side of the Airport, including extending the Runway 12 end, and the proposed full build-out hangar scenario utilizing development scenarios D and E, may result in an increase in noise since an increased number of aircraft would be based in that area of the Airport. Depending on the scale of these developments, new noise analysis may be required prior to their construction. It is unlikely that other proposed development to the east or central areas along the Runway 12-30 would significantly alter noise levels at the Airport.

Construction Impacts

Various federal, state, and local statutes, ordinances, and regulations address construction-related environmental impacts, including impacts on air quality, water quality and noise.

Prior to any new construction on the Airport, a Construction Management Plan (CMP) must be prepared. The CMP will address potential environmental impacts that generally result from construction projects and describe measures that will be implemented to avoid or minimize such impacts. It will also address impacts specific to each development scenario or proposed project in which construction will take place.

Characteristic construction period impacts that could result from grading, paving or hangar development include noise, emissions and dust impacts from typical construction equipment and methodology. Potential environmental issues would be identified and impacts would be minimized and mitigated to the extent feasible as outlined in the CMP. The project would need to comply with measures such as a National Pollutant Discharge Elimination System (NPDES) General Permit for Construction and the Stormwater Pollution Prevention Plan (SWPPP), and State Greenhouse Gas compliance Best Management Practices (BMPs) such as low sulfur diesel fuel, limiting vehicle idling.

Section 4(f)

The only Section 4(f) land within the vicinity of TAN is the Massasoit State Park, located east of the Airport's eastern border and separated from it by South Precinct Road and residential lots. No new proposed development is anticipated to affect Massasoit State Park; however, there is always the potential for obstruction removal to be required by the FAA on the Runway 30 approach end to clear critical safety-related airspace surfaces. Although not currently anticipated, such an action could require easements or permissions to remove vegetation on 4(f) land.

Farmlands

There is no active farmland on the Airport, so there will be no conversion of farmland to any other use.

Fish, Wildlife, and Plants

Mapped potential habitat for Northern Long Eared Bat (NLEB), a threatened species under the U.S. Endangered Species Act (ESA) occurs on or near the Airport. Development, including tree clearing, may require review under Section 7 of the ESA.

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) identified and mapped estimated and priority habitat for rare species on the north side of Middleboro Avenue (see **Chapter Two**). Any proposed work, including tree clearing by a third party within this area, may require review under the Massachusetts Endangered Species Act (MESA).

Floodplains

There are no Federal Emergency Management Agency (FEMA) designated floodplains or flood hazard areas on or in proximity to most of the proposed actions. However, there is a mapped 100-year floodplain located in the northwest portion of the Airport (see **Chapter Two**) and within the proximity of the potential Development Area E; the project should be sited entirely outside of the mapped FEMA floodplain. Another 100-year floodplain is located east of the Airport and across South Precinct Street. This area may be impacted by any potential tree clearing efforts associated with Runway 30 end.

Hazardous Materials, Pollution Prevention, and Solid Waste

Waste disposal during project implementation will be managed separately from normal Airport solid waste management operations. The proposed development is not likely to introduce new hazardous materials into the area. However, an increase in the number of based aircraft and aircraft and hangar spaces, especially in the western areas associated with Development Areas D and E, may have the potential to increase the volume of hazardous materials stored on site. Aside from products directly related to aircraft operations and maintenance, the Airport makes concerted efforts in the areas of pollution prevention, waste reduction, and solid waste recycling. The Airport holds a current Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention Control and Countermeasures Plan (SPCC); these plans will be updated as necessary for each proposed development opportunity.

Historical, Architectural, Archaeological, and Cultural Resources

Previous consultation with the Massachusetts Historical Commission (MHC) indicates that there are no known archaeological resources within the majority of the Airport. However, it should be noted that in 2009, MHC identified a potential archeologically sensitive area south of the active field and two historic cemeteries near the Airport. These archaeological sites were determined to be not eligible for listing in the National Register and were not potentially significant. The proposed development projects outlined within this AMPU are located outside of these features. These features should be mapped relative to the ASOS site feasibility mapping and avoided during the siting of the ASOS.

Light Emissions and Visual Impacts

There are no special purpose laws for light impacts and visual impacts. Development on the Airport is unlikely to have undue light emission or visual impacts. New construction in the western portion may be visible from some residential neighborhoods located west of the Airport. Therefore, care will be taken to ensure that light emissions avoid unreasonable impacts to the natural environment. This includes any impacts to wildlife, contribution to artificial illumination of the night sky, hazards to drivers, and impacts to adjacent communities. It is anticipated that appropriate mitigation measures will be considered by using appropriately shielded lights and other measures.

Natural Resources and Energy Supply

Executive Order 13123, *Greening the Government through Efficient Energy Management* (64 FR 30851, June 8, 1999), encourages each federal agency to expand the use of renewable energy within its facilities and in its activities. E.O. 13123 also requires each federal agency to reduce petroleum use, total energy use and associated air emissions, and water consumption in its facilities.

The potential development scenarios indicate that the Airport may have some additional users of electricity and heating fuel. However, new buildings – both replacements for existing buildings in the Terminal Area and new construction in the western portion -- will be considerably more energy efficient than the existing buildings on the Airport. Therefore, the net change in energy use is not anticipated to be substantial.

The use of energy to support the development plans would actually largely involve the use of additional fuels in construction and excavation machinery. The proposed airport improvement program does not require use of unusual materials in short supply; therefore, energy supplies and natural resources are not affected by the proposed airport improvement program.

Noise

Existing noise conditions in the vicinity of the Airport are typical of areas containing the surrounding land uses. Development on the western side of the Airport (i.e., Development Areas D and E) may result in some increase in noise since aircraft would be based in the proposed hangar and apron areas. Depending on the scale of these developments, new noise analysis may be required prior to their construction. It is unlikely that the other proposed development projects would significantly alter noise levels at the Airport.

Secondary (Induced) Impacts

Induced or secondary impacts on surrounding communities are anticipated to be generally positive in terms of providing for economic development and new

educational opportunities. Any potential environmental impacts related to proposed development are anticipated to be limited and will be mitigated as required.

Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety Risks

Environmental Justice (EJ) populations are located more than three miles from the Airport. The proposed development is not anticipated to affect any of these populations. Similarly, they are not expected to disproportionately affect children. Economic impacts of the proposed projects are likely to be positive, with additional revenue accruing to the Airport and the larger community. The proposed projects do not require the acquisition of property or displacement of persons.

Water Quality

Redevelopment projects will be designed to meet current regulatory standards to the greatest extent practicable. New development projects will be designed to meet current regulatory standards. Projects that disturb more than one acre of land will require coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction. Development and redevelopment projects will also require the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP).

Wetlands and Other Habitats

Wetland resource areas are located throughout the Airport. Proposed development projects associated with the Runway 12-30, taxiways and Development Area D are located within the buffer zone to wetlands. Some areas of potential hangar and apron development within the central portion of the Airport have not yet been screened for wetland resource areas. Development Area E requires crossing of and impacts to wetland resource areas. All proposed development projects may have impacts on wetland resource areas under federal, state, and local jurisdiction and would require permitting and a demonstration that the proposed work conforms to regulatory performance standards.

Wild and Scenic Rivers

There are no Wild and Scenic Rivers in the vicinity of the Airport or any project site. Therefore, none of the proposed development scenarios will affect Wild and Scenic Rivers and/or any tributaries thereto, including the main stem of the Taunton River.

5.6.2 Environmental Screening Summary

The recommended projects for the 20-year planning period do not appear to have a significant impact on the surrounding community or environment. Specifically, the proposed development on the Airport is unlikely to affect environmental resources other than wetland resource areas, which could be impacted under some of the development alternatives described in the AMPU. Any such impacts will be avoided where possible or minimized and mitigated as required.

There will be a need, however, to complete coordination with federal, state, and local agencies when the recommended projects are initially designed. This coordination can be done on a per-project basis or as a group, and will most likely be in the form of an Environmental Assessment (EA). Note that EAs will have to be conducted for both short- and long-term development. Potential additional permitting, reviews and approvals are listed in **Table 5-6** and **Table 5-7** below.

Table 5-6: Potentially Required Permits, Reviews and Approvals

Agency	Permit, Review & Approvals
Federal Aviation Administration (FAA)	• Federal funding approval • Finding of No Significant Impact or Record of Decision under NEPA • Section 4(f) Determination • Section 106 Finding • Section 7 ESA Consultation with USFWS
U.S. Environmental Protection Agency (USEPA)	• Coverage under the NPDES General Permit for Construction • Section 7 ESA Consultation with USFWS
U.S. Army Corps of Engineers (USACE)	• Section 404 Permit • Section 106 Finding • Section 7 Consultation with USFWS
Massachusetts Environmental Policy Act (MEPA)	• Project review • State Register Review
Massachusetts Department of Transportation (MassDOT)	• State funding approval • Other potential state requirements (e.g. SOP)
Massachusetts Department of Environmental Protection (MassDEP)	• Section 401 Water Quality Certification
Massachusetts Department of Fish and Game – Natural Heritage and Endangered Species Program	• Conservation and Management Permit
City of Taunton	• Massachusetts Wetlands Protection Act – Order of Condition • Building Permits

Source: Epsilon Associates.

Table 5-7 Potential Environmental Permits Reviews or Approvals for Selected Proposed Projects

Potential Permit, Review or Approval	Runway Projects			Taxiway Project	Development Projects				
	Extend RW 12-30	Obstruction Removal for RW 12-30	Shorten RW 4-22 & Remove Obstructions	Relocate TW A & Reduce widths	Misc. Hangars in Term Area	New Admin Building	Area D	Area E	Move ASOS
Federal Aviation Administration (FAA)									
FONSI	X	X		X	X	X	X	X	X
Section 4(f)		X							
Section 106 Finding									X
Section 7 ESA		X	X						
US Environmental Protection Agency (USEPA)									
NPDES Stormwater Construction	X	X	X	X	X	X	X	X	
U.S. Army Corps of Engineers (USACE)									
404 Permit	X	X	X				X	X	
Massachusetts Environmental Policy Act (MEPA)									
Project Review	X							X	
Massachusetts Department of Environmental Protection (MassDEP)									
401 WQC	X	X	X				X	X	
Natural Heritage and Endangered Species Program (NHESP)									
CM Permit			X						
City of Taunton Conservation Commission – WPA OOC Filings									
WPA OOC Limited Project		X	X						
WPA OOC Wetland impacts including. potential Variance	X							X	
WPA OOC Buffer zone filing				X	X	X	X		X

Source: Epsilon Associates.

Based on the evaluation of environmental impacts described above, it appears that the proposed actions will require the preparation of an Environmental Assessment (EA) under NEPA. Given the relatively minimal impacts anticipated, however, it is assumed that an Environmental Impact Statement (EIS) will not be required.

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CHAPTER SIX:

AIRPORT PLANS

6.1 INTRODUCTION

The future development plan for the Taunton Municipal Airport (the Airport or TAN) has evolved through a progressive analysis in the Airport Master Plan Update (AMPU) that started with establishing a baseline of current data for the airport, to the development of aviation demand forecasts that were translated into long-term airport facility requirements, which then resulted in an alternatives analysis to establish an appropriate path for airport development into the long-term future. That future development plan then must be translated to the Airport Layout Plan (ALP) drawing set, which is a graphical depiction of the Airport's existing conditions including building facilities, pavements, airspace and obstructions as well as proposed future development for the 20-year planning period. The ALP is intended to provide guidance for the Airport, federal and state agencies and consultants for short-term and long-term capital improvement projects at the Airport.

In this chapter, the various elements of the ALP set are categorically reviewed and detailed in summary and graphical formats. A brief written description of the individual elements represented in the ALP set for the Taunton Municipal Airport is accompanied by a graphic description presented in the form of the following plan sheets:

- Title Sheet
- Exhibit 1 - Existing Airport Layout Plan (ALP)
- Exhibit 2 - Ultimate Airport Layout Plan (ALP)
- Exhibit 3 - Technical Data Sheet
- Exhibit 4 - Terminal Area Plan
- Exhibit 5 - Airport Airspace Drawing (FAR Part 77)
- Exhibit 6 - Inner Portion of the Approach Plan and Profile (Runway 12-30)
- Exhibit 7 - Inner Portion of the Approach Plan and Profile (Runway 4-22)
- Exhibit 8 - Off-Airport Land Use Plan
- Exhibit 9 - Airport Property Map / Exhibit "A"

6.2 AIRPORT LAYOUT PLAN DRAWING SHEET DESCRIPTIONS

6.2.1 Title Sheet

This sheet provides general information such as project title, AIP number, an index of drawings and location map. There is also a signature box for approvals by local, state and FAA representatives.

6.2.2 Exhibit 1 - Existing Airport Layout Plan (ALP)

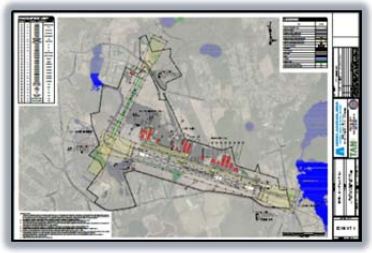


Exhibit 1 depicts the existing conditions at the Taunton Municipal Airport as of the time of the current Airport Master Plan Update project. Information such as existing property boundary, pavement surfaces, a listing of buildings, NAVAIDS, airspace, safety areas, avigation easements, and other FAA AC 150/5300-13A, *Airport Design,* safety standards are shown. Off-airport local road and building infrastructure as well general topography are also displayed. A legend, list of abbreviations and inventory of airport facilities are included as tables on this sheet (as well as on Exhibit 4 below)

6.2.3 Exhibit 2 - Ultimate Airport Layout Plan (ALP)

The ALP is a graphic depiction of existing and ultimate airport facilities that is required to enable the Airport to properly accommodate the forecasted future demand. In addition, the ALP also provides detailed information on both airport and runway design criteria that is necessary to define relationships with applicable standards. The following sections describe the major components of the future airport development plan.

Runway System

The Airport's runway configuration will be structured around its two existing runways throughout the 20-year planning period. Runway 12-30 will remain the Airport's primary runway with a length that could be extended from 3,500 feet to 4,128 feet, and a width remaining at 75 feet. Its Runway Design Code (RDC) over the planning period will continue to be B-II. Runway 4-22 will remain the Airport's crosswind, turf runway, but with an overall length reduced from 1,900 feet to approximately 1,078 feet and a width of 60 feet. It's RDC has been adjusted from A-1 to A-1 Small to reflect the current and projected runway operational pattern of use by smaller, lighter aircraft (primarily taildraggers) that have approach speeds between 30 and 50 knots.

Another important consideration related to runway development at TAN is the planned improved runway instrument approaches. Specifically, the FAA has projected that during the Fall 2016, TAN will have new instrument procedures established that include Localizer Performance with Vertical guidance (LPV) approaches, Vertical Navigation (VNAV) approaches, and Lateral Navigation (LNAV) approaches. See **Table 6-1** for specific details regarding existing and projected approach minimums.

Table 6-1: Instrument Approach Minimums at TAN

	Current	Future
Runway 12		
Glideslope Angle (GS)	Visual *(default 3.0°)*	3.1°
Threshold Crossing Height (TCH)	Visual	59 ft
LPV Decision Altitude (DA)	*NA*	353 MSL/ 318 HAT
VNAV Decision Altitude (DA)	*NA*	603 MSL/ 568 HAT
LNAV Decision Altitude (DA)	*NA*	640 MSL/ 605 HAT
Runway 30		
Glideslope Angle (GS)	3.05°	3.1°
Threshold Crossing Height (TCH)	45 ft	59 ft
LPV Decision Altitude (DA)	*NA*	359 MSL/ 318 HAT
VNAV Decision Altitude (DA)	*NA*	598 MSL/ 557 HAT
LNAV Decision Altitude (DA)	600 MSL/ 557 HAT	560 MSL/ 519 HAT
Runway 4		
	None	
Runway 22		
	None	

Source: Federal Aviation Administration; Airport Solutions Group.

Lighting and Landing Aids

Medium Intensity Runway Lights (MIRLs) (edge lighting) serve Runway 12-30, as well as a four-light Visual Approach Slope Indicator (VASI) on the left side of Runway 30. Ultimately, the VASI will be replaced when four-light Precision Approach Path Indicator (PAPI) lights are installed on both runway ends.

Runway 4-22 has no lighting.

Taxiway System

Recommended taxiway system improvements include the following:

- Taxiway A has been determined to have a Taxiway Design Group (TDG) classification of I. At the time of reconstruction, Taxiway A will be narrowed from 35 feet to 25 feet to meet the FAA *Airport Design* standard for such taxiways.
- The standard runway centerline to taxiway centerline separation for Runway 12-30 (RDC of B-II) and Taxiway A is 240 feet. The current separation is 199.5 feet, resulting in a 40.5 foot deficiency. (Note that the separation was 197 feet prior to 2005 when Taxiway A was reconstructed and narrowed from 40 to 35 feet. An FAA *Modification to Standard* was previously issued for 197 feet.) At the time of Taxiway A's next reconstruction (estimated to be 2025), the taxiway will be narrowed an additional 10 feet with the runway/taxiway centerline separation increased an additional five feet. This will result in a runway/taxiway separation of 204.5 feet. While not compliant with the *Airport Design* standard, this will reflect a progressive improvement of the existing condition towards ultimately meeting the FAA *Airport Design* standard.

- Taxiway A will be extended to the west in a phased development, enabling access to new landside development areas.
- Identifications of existing and future taxiways have been established in accordance with standard FAA naming protocol.

Landside Development

As discussed in previous chapters, the ALP also allocates various development areas for landside facilities, including terminal facilities, aircraft parking aprons, hangars, aircraft maintenance facilities, automobile access and parking, support facilities, etc. Principal landside development includes the following:

- The construction of a new hangar area to be accessed via Taxiway B.
- The construction of hangars in open areas within the existing developed flightline.
- The construction of a new administration building to replace the current dilapidated terminal building.
- Following the relocation of the ASOS and the extension of Taxiway A (Phase 1 and Phase 2), the construction of a new hangar development area located on the site of the existing ASOS.
- Following Phase 3 of the Taxiway A extension, the construction of a new landside development area that could include hangars, etc. Note that the site has been simply identified as being reserved for future aviation use.

Proposed Projects

As discussed above, the proposed projects specifically identified on the ALP and their anticipated timing are reflected in the following table.

Table 6-2: Proposed Project List

Short Term (0-5 Years)
Construct New Hangars and Apron near Taxiway B
VMP Tree Clearing / Grubbing, Grading & Seeding
Reduce Runway 4-22 Length to 1,035 feet (Survey)
Construct Administration Building
Reconstruct Runway 12-30 (3,500' x 75')
Apron Tiedown Redesign & Install Oil/Water Separator
Construct Hangars in Existing Terminal Area
Mid- to Long-Term (6-20 Years)
Relocate ASOS
Extend Taxiway A (3 Phases)
Construct New Hangar Development (2 Phases)
Clear / Repair Airport Security Fenceline
Rehabilitate Runway 4-22
Construct Cold Storage Building
Obtain Additional Avigation Easements
Extend Runway 12-30 628 Feet
Reconstruct, Narrow & Shift Centerline of Taxiway A
Construct New Hangar Development Area (Multi-phase)

Source: Airport Solutions Group.

MSASP Facility and Service Objectives Compliance

Chapter Four: ***Airfield Capacity & Facility Requirements*** presented the findings of the 2011 Massachusetts Statewide Airport System Plan (MSASP) with respect to TAN. The MSASP was conducted to establish a plan to provide a statewide airport system that accommodates demand, supports economic and transportation needs, and maximizes funding resources while being conscious of environmental issues for the Commonwealth of Massachusetts. Included in that study were specific facility recommendations that an airport within a given role should have for it to function appropriately within that role. **Table 6-3** presents the MSASP listing of those facility and service recommendations provided for TAN, as well as how the Airport complies with them through the long-term development plan established as part of this AMPU.

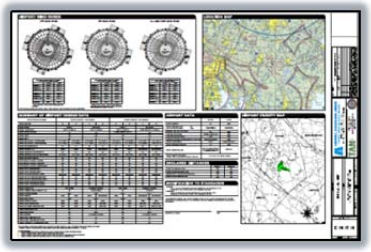
Table 6-3: TAN Compliance with MSASP Facility and Service Objectives – Community / Business

Airport Criteria	*Minimum Objective*	*Compliance*[1]
Airside Facilities		
Primary Runway Length	3,200' or greater	Yes
Primary Runway Width	To Meet ARC Criteria	Yes
Taxiway	Partial parallel and/or Turnarounds	Yes
Approach	Nonprecision	Yes
Lighting	MIRL and Taxiway Reflectors	Yes
Visual Aids	Rotating Beacon; Wind Indicator	Yes
NAVAIDS	REILS; VGSI (PAPI/VASI)	Yes
Weather	ASOS or AWOS as needed	Yes *(ASOS)*
Landside Facilities		
Hangar Spaces – Based Aircraft	50% of Based Fleet	Yes
Hangar Spaces – Transient Aircraft	Not an objective	*NA*
Apron Spaces	50% of Based Fleet + 50% of Transient	Yes
Terminal / Administration Building	Terminal/Administration Building	No[2]
Auto Parking Spaces	Airport Reports Sufficient Parking	Yes
Services		
Fixed Base Operator (FBO)	Limited Service	Yes
Fuel	Avgas (100LL)	Yes
Terminal/Pilot	Phone; Restrooms	Yes
Ground Transportation Services	On-Site Rental Car	No
Security	Current GA Security Plan	Yes
Others	Snow Removal and De-Icing is desirable	Yes

Source: MSASP; Airport Solutions Group.
[1] Based on existing conditions and the proposed long-term airport development plan reflected on the TAN ALP.
[2] Current terminal building is dilapidated and not-ADA compliant. It is need of replacement.

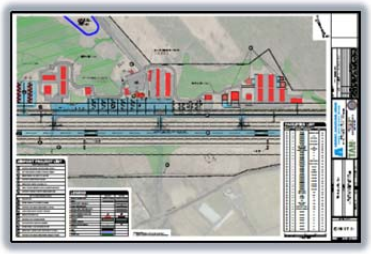
It should be noted that if the projects proposed on the TAN ALP are in fact completed as currently described, a role change for TAN could be considered by MassDOT Aeronautics from Community / Business to Corporate / Business. By the end of the planning period, TAN would have fulfilled all of the minimum conditions of the Corporate / Business role category other than for runway length.

6.2.4 Exhibit 3 - Technical Data Sheet



This exhibit includes a Summary of Airport Design Data Table, Wind Rose Data Table, Modifications to Standards Table, Location Map and Airport Vicinity Map.

6.2.5 Exhibit 4 – Terminal Area Plan



This plan includes a large scale plan of the proposed development within the existing Terminal Area. The plan depicts the location and configuration of the terminal building, existing and proposed development including airfield pavements, hangars and parking areas.

6.2.6 Exhibit 5 – Airport Airspace Drawing (FAR Part 77)

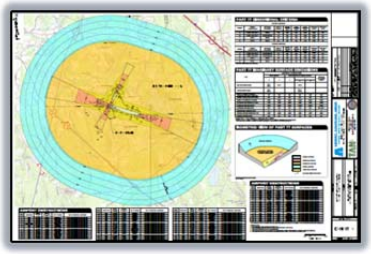
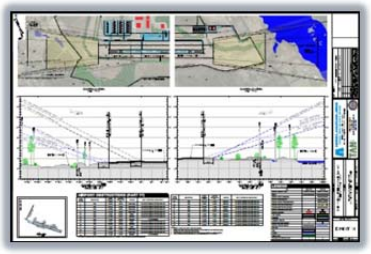
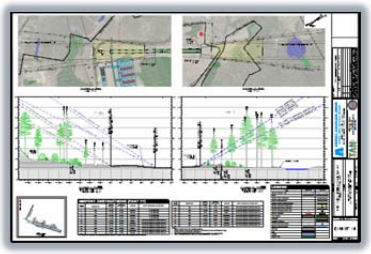


Exhibit 5 depicts the Airport Airspace based upon Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*. In order to protect the Airport's airspace and approaches from hazards that could affect the safe and efficient operation of aircraft, federal criteria contained in the FAR Part 77 document have been established to provide guidance in controlling the height of objects in the vicinity of airports. FAR Part 77 criteria specify a set of imaginary surfaces (including primary, approach, transitional, horizontal and conical surfaces) which, when penetrated, identify an object as an obstruction or hazard to air navigation. These are reflected in the exhibits that also show existing and proposed Part 77 Dimensional Criteria tables, an Off-Airport Obstruction Table, generic detail of Part 77 Surfaces and a Legend. Also note that the plans are based on the ultimate planned runway lengths along with the ultimate planned approaches for each runway end.

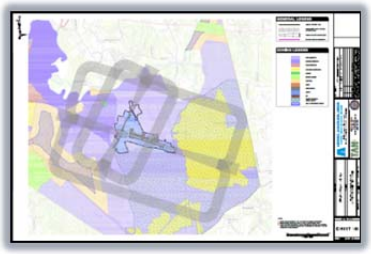
6.2.7 Exhibit 6 – Inner Portion of the Approach Plan and Profile (Runway 12-30)
Exhibit 7 – Inner Portion of the Approach Plan and Profile (Runway 4-22)



To provide a more detailed view of the inner portions of the Part 77 imaginary approach surfaces, the Threshold Siting Surfaces (TSS) and the Runway Protection Zone (RPZ) areas, *Inner Portion of the Approach Plan and Profile* exhibits are provided. Note that the RPZs are land use planning zones within which it is desirable to clear all objects (although some uses are normally acceptable). The size of the RPZ is a function of the design aircraft and the visibility minimums associated with the runway's instrument approach capabilities.

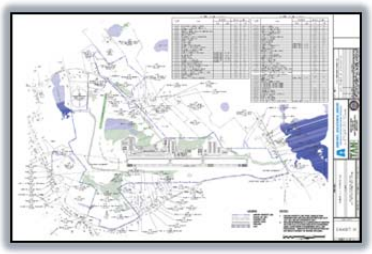


These exhibits provide a large-scale drawing with both plan and profile delineations. They are intended to facilitate identification of the roadways, utility lines, railroads, structures, and other possible obstructions that may lie within the confines of the inner approach surface area associated with each runway end. As with the other exhibits, these plans are based upon the ultimate planned runway length, along with the ultimate planned approaches to each runway. A table of obstructions and a key map are also included on each sheet.



6.2.8 Exhibit 8 – Off-Airport Land Use Plan

This exhibit depicts the land use proximate to the Airport and surrounding area. The purpose of this plan is to provide guidance to local authorities for establishing appropriate land use zoning in the vicinity of the Airport. Land use information was taken from zoning maps obtained from the City of Taunton.



6.2.9 Exhibit 9 – Airport Property Map / Exhibit "A"

This exhibit identifies all designated airport property and provides an inventory of all parcels that abut the airport. This work is being done in accordance with FAA Order 5100.38D, *Airport Improvement Program Handbook*.

6.3 AIRPORT LAYOUT PLAN DRAWING SET

The following pages, although not to scale, are an 11" x 17" version of the ALP sheet set. The actual 24" x 36" scaled version of the ALP sheet set has been provided to the FAA, MassDOT Aeronautics and the Airport for official approval and signature.

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TAUNTON MUNICIPAL AIRPORT

TAUNTON, MASSACHUSETTS

AIRPORT LAYOUT PLAN

AIRPORT LAYOUT PLAN EXHIBITS

EXHIBIT	TITLE
I	EXISTING AIRPORT LAYOUT PLAN
II	ULTIMATE AIRPORT LAYOUT PLAN
III	TECHNICAL DATA SHEET
IV	TERMINAL AREA PLAN
V	AIRPORT AIRSPACE DRAWING (14 CFR PART 77 SURFACE)
VI	INNER PORTION OF THE APPROACH PLAN AND PROFILE - RUNWAY 12-30
VII	INNER PORTION OF THE APPROACH PLAN AND PROFILE - RUNWAY 4-22
VIII	OFF-AIRPORT LAND USE PLAN
IX	AIRPORT PROPERTY MAP / EXHIBIT A

AIP NO. 3-25-0047-24

2014 AIRPORT MASTER PLAN UPDATE

SPONSORED BY:

TAUNTON MUNICIPAL AIRPORT COMMISSION

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION AERONAUTICS DIVISION

FEDERAL AVIATION ADMINISTRATION

APPROVED BY: _____
CHAIRMAN OF THE AIRPORT COMMISSION — DATE:

APPROVED BY: _____
ADMINISTRATOR — DATE:

APPROVED BY: _____
DIRECTOR OF AVIATION PLANNING — DATE:

SUBMITTED BY: _____
PROJECT MANAGER — DATE:

PREPARED BY:

AIRPORT SOLUTIONS GROUP

INNOVATIVE AIRPORT DEVELOPMENT SPECIALISTS

PHONE (781) 491-0083 • FAX (781) 491-0360

AIRPORT CONSULTANTS WOBURN, MASSACHUSETTS

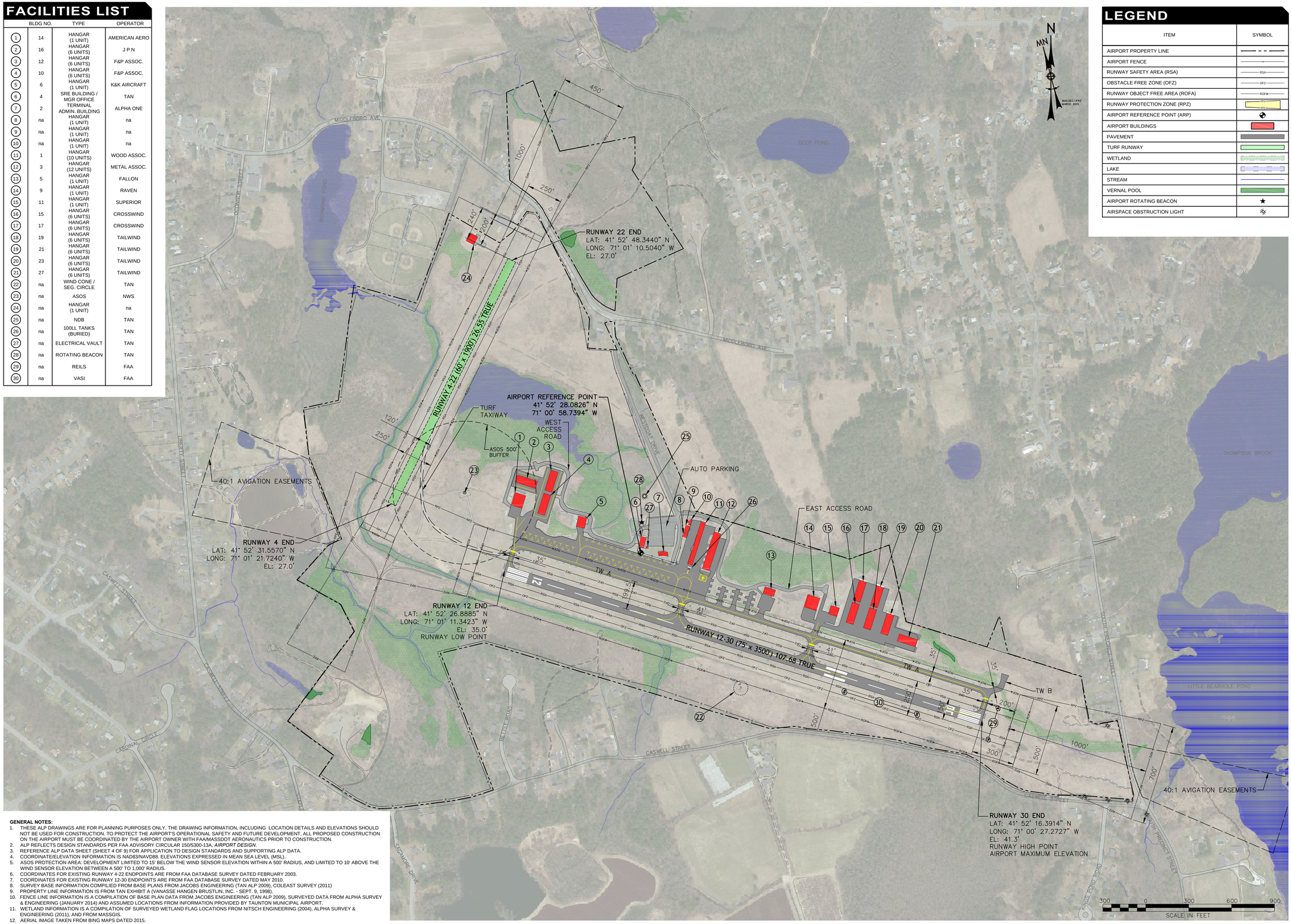
DATE MAY 2015

FACILITIES LIST

	BLDG NO.	TYPE	OPERATOR
1	14	HANGAR (1 UNIT)	AMERICAN AERO
2	16	HANGAR (6 UNITS)	J P N
3	12	HANGAR (6 UNITS)	F&P ASSOC.
4	10	HANGAR (6 UNITS)	F&P ASSOC.
5	6	HANGAR (1 UNIT)	K&K AIRCRAFT
6	4	SRE BUILDING / MGR OFFICE	TAN
7	2	TERMINAL ADMIN. BUILDING	ALPHA ONE
8	na	HANGAR (1 UNIT)	na
9	na	HANGAR (1 UNIT)	na
10	na	HANGAR (1 UNIT)	na
11	1	HANGAR (10 UNITS)	WOOD ASSOC.
12	3	HANGAR (12 UNITS)	METAL ASSOC.
13	5	HANGAR (1 UNIT)	FALLON
14	9	HANGAR (1 UNIT)	RAVEN
15	11	HANGAR (1 UNIT)	SUPERIOR
16	15	HANGAR (6 UNITS)	CROSSWIND
17	17	HANGAR (6 UNITS)	CROSSWIND
18	19	HANGAR (6 UNITS)	TAILWIND
19	21	HANGAR (6 UNITS)	TAILWIND
20	23	HANGAR (6 UNITS)	TAILWIND
21	27	HANGAR (6 UNITS)	TAILWIND
22	na	WIND CONE / SEG. CIRCLE	TAN
23	na	ASOS	NWS
24	na	HANGAR (1 UNIT)	na
25	na	NDB	TAN
26	na	100LL TANKS (BURIED)	TAN
27	na	ELECTRICAL VAULT	TAN
28	na	ROTATING BEACON	TAN
29	na	REILS	FAA
30	na	VASI	FAA

LEGEND

ITEM	SYMBOL
AIRPORT PROPERTY LINE	
AIRPORT FENCE	
RUNWAY SAFETY AREA (RSA)	RSA
OBSTACLE FREE ZONE (OFZ)	OFZ
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
RUNWAY PROTECTION ZONE (RPZ)	RPZ / BRL
AIRPORT REFERENCE POINT (ARP)	
AIRPORT BUILDINGS	
PAVEMENT	
TURF RUNWAY	
WETLAND	
LAKE	
STREAM	
VERNAL POOL	
AIRPORT ROTATING BEACON	★
AIRSPACE OBSTRUCTION LIGHT	



GENERAL NOTES:

1. THESE ALP DRAWINGS ARE FOR PLANNING PURPOSES ONLY. THE DRAWING INFORMATION, INCLUDING LOCATION DETAILS AND ELEVATIONS SHOULD NOT BE USED FOR CONSTRUCTION. TO PROTECT THE AIRPORT'S OPERATIONAL SAFETY AND FUTURE DEVELOPMENT, ALL PROPOSED CONSTRUCTION ON THE AIRPORT MUST BE COORDINATED BY THE AIRPORT OWNER WITH FAA/MASSDOT AERONAUTICS PRIOR TO CONSTRUCTION.
2. ALP REFLECTS DESIGN STANDARDS PER FAA ADVISORY CIRCULAR 150/5300-13A, *AIRPORT DESIGN*.
3. REFERENCE ALP DATA SHEET (SHEET 4 OF 9) FOR APPLICATION TO DESIGN STANDARDS AND SUPPORTING ALP DATA.
4. COORDINATE/ELEVATION INFORMATION IS NAD83/NAVD88. ELEVATIONS EXPRESSED IN MEAN SEA LEVEL (MSL).
5. ASOS PROTECTION AREA: DEVELOPMENT LIMITED TO 15' BELOW THE WIND SENSOR ELEVATION WITHIN A 500' RADIUS, AND LIMITED TO 10' ABOVE THE WIND SENSOR ELEVATION BETWEEN A 500' TO 1,000' RADIUS.
6. COORDINATES FOR EXISTING RUNWAY 4-22 ENDPOINTS ARE FROM FAA DATABASE SURVEY DATED FEBRUARY 2003.
7. COORDINATES FOR EXISTING RUNWAY 12-30 ENDPOINTS ARE FROM FAA DATABASE SURVEY DATED MAY 2010.
8. SURVEY BASE INFORMATION COMPILIED FROM BASE PLANS FROM JACOBS ENGINEERING (TAN ALP 2009), COLEAST SURVEY (2011)
9. PROPERTY LINE INFORMATION IS FROM TAN EXHIBIT A (VANASSE HANGEN BRUSTLIN, INC. - SEPT. 9, 1998).
10. FENCE LINE INFORMATION IS A COMPILATION OF BASE PLAN DATA FROM JACOBS ENGINEERING (TAN ALP 2009), SURVEYED DATA FROM ALPHA SURVEY & ENGINEERING (JANUARY 2014) AND ASSUMED LOCATIONS FROM INFORMATION PROVIDED BY TAUNTON MUNICIPAL AIRPORT.
11. WETLAND INFORMATION IS A COMPILATION OF SURVEYED WETLAND FLAG LOCATIONS FROM NITSCH ENGINEERING (2004), ALPHA SURVEY & ENGINEERING (2011), AND FROM MASSGIS.
12. AERIAL IMAGE TAKEN FROM BING MAPS DATED 2015.

CADD FILE NO. 115-007 SHEET_LAYOUT.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

FAA SPONSORED: THE PREPARATION OF THIS ALP SET HAS BEEN SUPPORTED, IN PART, THROUGH FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (FAA) AS PROVIDED UNDER TITLE 49 U.S.C., SECTION 47104. THE CONTENTS OF THIS ALP DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS ALP BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN THE DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE OR WOULD HAVE JUSTIFICATION FOR A GRANT WHEN APPROPRIATE FUNDS EXIST.

AIRPORT SOLUTIONS GROUP
INNOVATIVE AIRPORT DEVELOPMENT SPECIALISTS
PHONE (781) 491-0083 FAX (781) 491-0360
AIRPORT CONSULTANTS • WOBURN, MASSACHUSETTS

WESTCOAT DRIVE
P.O. BOX 441
EAST TAUNTON, MA 02718
(508) 821-2973

SHEET TITLE: EXISTING AIRPORT LAYOUT PLAN

PROJECT: TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

DESIGNER: JBM CADD TECH: CNM APPROVED: RJM

MAY 2015

EXHIBIT I

FACILITIES LIST

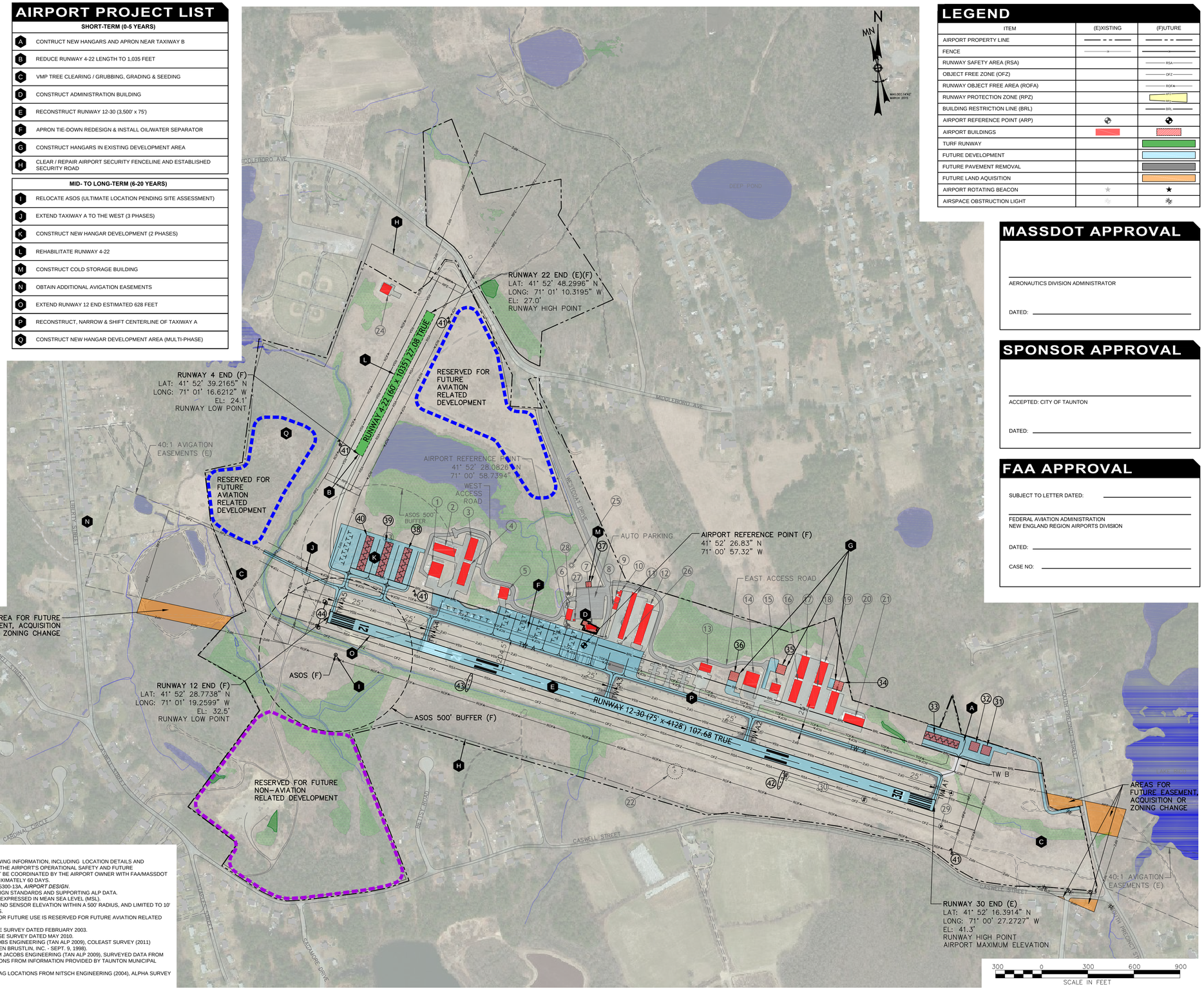
(E) EXISTING (F) FUTURE (R)TO BE REMOVED

	BLDG NO.	TYPE	OPERATOR	STATUS
1	14	HANGAR (1 UNIT)	AMERICAN AERO	(E)
2	16	HANGAR (6 UNITS)	J P N	(E)
3	12	HANGAR (6 UNITS)	F&P ASSOC.	(E)
4	10	HANGAR (6 UNITS)	F&P ASSOC.	(E)
5	6	HANGAR (1 UNIT)	K&K AIRCRAFT	(E)
6	4	SRE BUILDING / MGR OFFICE	TAN	(E)
7	2	TERMINAL ADMIN. BUILDING	ALPHA ONE TAN	(E) (F)
8	na	HANGAR (1 UNIT)	na	(E)
9	na	HANGAR (1 UNIT)	na	(E)
10	na	HANGAR (1 UNIT)	na	(E)
11	1	HANGAR (10 UNITS)	WOOD ASSOC.	(E)
12	3	HANGAR (12 UNITS)	METAL ASSOC.	(E)
13	5	HANGAR (1 UNIT)	FALLON	(E)
14	9	HANGAR (1 UNIT)	RAVEN	(E)
15	11	HANGAR (1 UNIT)	SUPERIOR	(E)
16	15	HANGAR (6 UNITS)	CROSSWIND	(E)
17	17	HANGAR (6 UNITS)	CROSSWIND	(E)
18	19	HANGAR (6 UNITS)	TAILWIND	(E)
19	21	HANGAR (6 UNITS)	TAILWIND	(E)
20	23	HANGAR (6 UNITS)	TAILWIND	(E)
21	27	HANGAR (6 UNITS)	TAILWIND	(E)
22	na	WIND CONE / SEG. CIRCLE	TAN	(E)
23	na	ASOS	NWS	(E)
24	na	HANGAR (1 UNIT)	na	(E)
25	na	NDB	TAN	(E)(R)
26	na	100LL TANKS (BURIED)	TAN	(E)
27	na	ELECTRICAL VAULT	TAN	(E)
28	na	ROTATING BEACON	TAN	(E)
29	na	REILS	FAA	(E)
30	na	VASI	FAA	(E)(R)
31	na	HANGAR	na	(F)
32	na	HANGAR	na	(F)
53	na	HANGAR	na	(F)
34	na	HANGAR	na	(F)
35	na	HANGAR	na	(F)
36	na	HANGAR	na	(F)
37	na	COLD STORAGE BLDG	TAN	(F)
38	na	HANGAR	na	(F)
39	na	HANGAR	na	(F)
40	na	HANGAR	na	(F)
41	na	SUPPLEMENTAL WIND SOCKS	TAN	(F)
42	na	PAPI	FAA	(F)
43	na	PAPI	FAA	(F)
44	na	REILS	FAA	(F)

AIRPORT PROJECT LIST

SHORT-TERM (0-5 YEARS)	
A	CONTRUCT NEW HANGARS AND APRON NEAR TAXIWAY B
B	REDUCE RUNWAY 4-22 LENGTH TO 1,035 FEET
C	VMP TREE CLEARING / GRUBBING, GRADING & SEEDING
D	CONSTRUCT ADMINISTRATION BUILDING
E	RECONSTRUCT RUNWAY 12-30 (3,500' x 75')
F	APRON TIE-DOWN REDESIGN & INSTALL OIL/WATER SEPARATOR
G	CONSTRUCT HANGARS IN EXISTING DEVELOPMENT AREA
H	CLEAR / REPAIR AIRPORT SECURITY FENCELINE AND ESTABLISHED SECURITY ROAD

MID- TO LONG-TERM (6-20 YEARS)	
I	RELOCATE ASOS (ULTIMATE LOCATION PENDING SITE ASSESSMENT)
J	EXTEND TAXIWAY A TO THE WEST (3 PHASES)
K	CONSTRUCT NEW HANGAR DEVELOPMENT (2 PHASES)
L	REHABILITATE RUNWAY 4-22
M	CONSTRUCT COLD STORAGE BUILDING
N	OBTAIN ADDITIONAL AVIGATION EASEMENTS
O	EXTEND RUNWAY 12 END ESTIMATED 628 FEET
P	RECONSTRUCT, NARROW & SHIFT CENTERLINE OF TAXIWAY A
Q	CONSTRUCT NEW HANGAR DEVELOPMENT AREA (MULTI-PHASE)



LEGEND

ITEM	(E)XISTING	(F)UTURE
AIRPORT PROPERTY LINE		
FENCE		
RUNWAY SAFETY AREA (RSA)		RSA
OBJECT FREE ZONE (OFZ)		OFZ
RUNWAY OBJECT FREE AREA (ROFA)		ROFA
RUNWAY PROTECTION ZONE (RPZ)		RPZ
BUILDING RESTRICTION LINE (BRL)		BRL
AIRPORT REFERENCE POINT (ARP)		
AIRPORT BUILDINGS		
TURF RUNWAY		
FUTURE DEVELOPMENT		
FUTURE PAVEMENT REMOVAL		
FUTURE LAND AQUISITION		
AIRPORT ROTATING BEACON		
AIRSPACE OBSTRUCTION LIGHT		

MASSDOT APPROVAL

AERONAUTICS DIVISION ADMINISTRATOR

DATED:

SPONSOR APPROVAL

ACCEPTED: CITY OF TAUNTON

DATED:

FAA APPROVAL

SUBJECT TO LETTER DATED:

FEDERAL AVIATION ADMINISTRATION
NEW ENGLAND REGION AIRPORTS DIVISION

DATED:

CASE NO:

GENERAL NOTES:

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6. ALL AIRPORT PROPERTY NOT SPECIFICALLY IDENTIFIED FOR EXISTING OR FUTURE USE IS RESERVED FOR FUTURE AVIATION RELATED DEVELOPMENT.
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12. AERIAL IMAGE TAKEN FROM BING MAPS DATED 2015.

CADD FILE NO. 115-007 SHEET_LAYOUT.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

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AIRPORT SOLUTIONS GROUP
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WESTCOAT DRIVE
P.O. BOX 441
EAST TAUNTON, MA 02718
(508) 821-2973

SHEET TITLE: ULTIMATE AIRPORT LAYOUT PLAN

PROJECT: TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

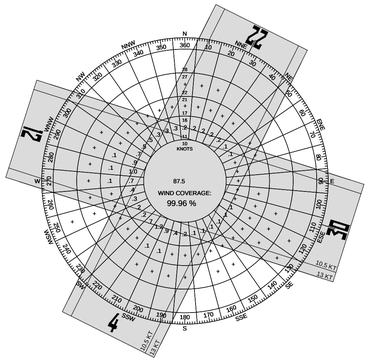
DESIGNER: JBM CADD TECH: CNM APPROVED: RJM

MAY 2015

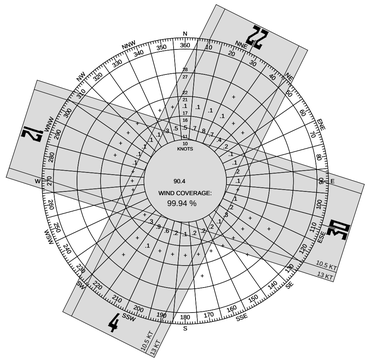
EXHIBIT II

AIRPORT WIND ROSES

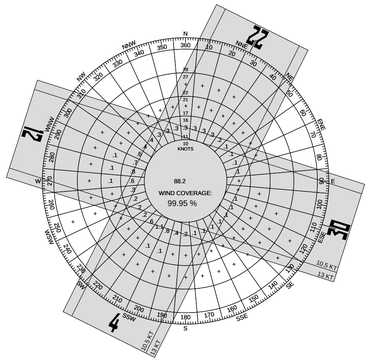
VFR WIND ROSE



IFR WIND ROSE



ALL-WEATHER WIND ROSE



Wind Coverage Provided Under VFR* Conditions 5-Knot Tailwind to Maximum Headwind		
	10.5-knot	13-knot
RUNWAY 4	73.42 %	75.24 %
RUNWAY 22	85.18 %	87.27 %
RUNWAY 4-22	94.31 %	96.84 %
RUNWAY 12	72.73 %	74.49 %
RUNWAY 30	89.43 %	91.69 %
RUNWAY 12-30	94.30 %	96.77 %
COMBINED	99.66 %	99.96 %

* Ceiling greater than 1,000 feet and/or visibility greater than three miles.

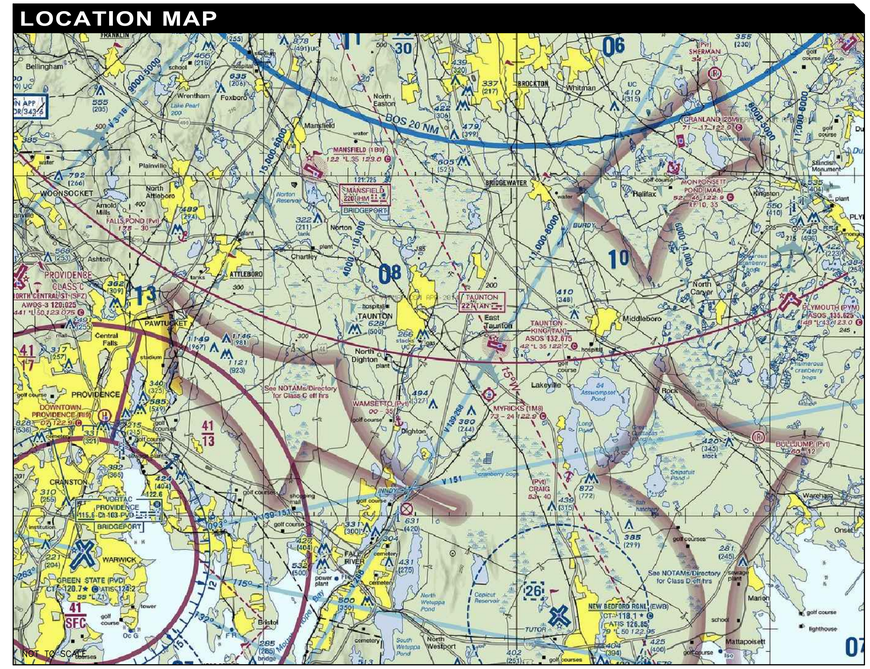
Wind Coverage Provided Under IFR* Conditions 5-Knot Tailwind to Maximum Headwind		
	10.5-knot	13-knot
RUNWAY 4	85.08 %	85.83 %
RUNWAY 22	75.12 %	75.75 %
RUNWAY 4-22	98.00 %	99.00 %
RUNWAY 12	88.75 %	91.16 %
RUNWAY 30	83.90 %	86.26 %
RUNWAY 12-30	93.07 %	95.92 %
COMBINED	99.62 %	99.94 %

* Ceiling less than or equal to 1,000 feet and/or visibility less than 3 miles and ceiling greater than or equal to 200 feet and visibility greater than or equal to 0.50 miles.

Wind Coverage Provided Under All-Weather Conditions 5-Knot Tailwind to Maximum Headwind		
	10.5-knot	13-knot
RUNWAY 4	75.71 %	77.34 %
RUNWAY 22	83.88 %	85.70 %
RUNWAY 4-22	94.98 %	97.23 %
RUNWAY 12	75.68 %	77.51 %
RUNWAY 30	88.75 %	90.98 %
RUNWAY 12-30	94.21 %	96.69 %
COMBINED	99.66 %	99.95 %

NOTE: Wind Data was obtained from TAN ASOS, January 1, 2000 to December 31, 2009, NOAA National Data Center, Report #725068

LOCATION MAP



SUMMARY OF AIRPORT DESIGN DATA

AIRPORT DESIGN DATA ELEMENT	EXISTING CONDITIONS - FAA STANDARDS				ULTIMATE CONDITIONS - FAA STANDARDS			
RUNWAY IDENTIFIER	04	22	12	30	04	22	12	30
DESIGN AIRCRAFT	PIPER J-3		KING AIR C90		PIPER J-3		KING AIR C90	
RUNWAY CLASSIFICATION	UTILITY (<=12,500 LB)		UTILITY (<=12,500 LB)		UTILITY (<=12,500 LB)		OTHER THAN UTILITY (>12,500 LB)	
RUNWAY DESIGN CODE (RDC)	A-I		B-II		A-I SMALL AIRCRAFT (<50 KTS)		B-II	
RUNWAY LENGTH	1,900'		3,500'		1,035'		4,128'	
RUNWAY WIDTH	60'		75'		60'		75'	
RUNWAY END LOCATION - LATITUDE (NAD83)*	41° 52' 31.5570" N	41° 52' 48.3440" N	41° 52' 26.8885" N	41° 52' 16.3914" N	41° 52' 39.2165" N	41° 52' 48.2996" N	41° 52' 28.7738" N	41° 52' 16.3914" N
RUNWAY END LOCATION - LONGITUDE (NAD83)*	71° 01' 21.7240" W	71° 01' 10.5040" W	71° 01' 11.3423" W	71° 00' 27.2727" W	71° 01' 16.6212" W	71° 01' 10.3195" W	71° 01' 19.2599" W	71° 00' 27.2727" W
RUNWAY END ELEVATION (MSL)*	27.0	27.0	35.0	41.3	24.1	27.0	32.5	41.3
RUNWAY APPROACH TYPE	VISUAL	VISUAL	VISUAL	NON-PRECISION	VISUAL	VISUAL	NON-PRECISION	NON-PRECISION
RUNWAY APPROACH SLOPE (FAR PART 77)	20:1	20:1	20:1	34:1	20:1	20:1	34:1	34:1
RUNWAY VISIBILITY MINIMUMS / SURVEY REQUIRED	VIS / NA	VIS / NA	VIS / NVGS	5000 / NVGS	VIS / NA	VIS / NA	5000 / NVGS	5000 / NVGS
RUNWAY APPROACH SLOPE (TH SITING CRITERIA)	15:1 (TYPE 1)	15:1 (TYPE 1)	20:1 (TYPE 3)	20:1 (TYPE 4)	15:1 (TYPE 1)	15:1 (TYPE 1)	20:1 (TYPE 8)	20:1 (TYPE 8)
RUNWAY DEPARTURE SURFACE	NA	NA	NA	YES	NA	NA	YES	YES
RUNWAY DISPLACED THRESHOLD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RW DISPLACED TH LOCATION - LATITUDE*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RW DISPLACED TH LOCATION - LONGITUDE*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RW DISPLACED TH LOCATION - ELEVATION (MSL)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RUNWAY SAFETY AREA (RSA) WIDTH	120'	120'	150'	150'	120'	120'	150'	150'
RUNWAY SAFETY AREA (RSA) LENGTH	240'	240'	300'	300'	240'	240'	300'	300'
RUNWAY PROTECTION ZONE (RPZ) - LxWxW	1000'x250'x450'	1000'x250'x450'	1000'x500'x700'	1000'x500'x700'	1000'x250'x450'	1000'x250'x450'	1000'x500'x700'	1000'x500'x700'
RUNWAY OBSTACLE FREE ZONE (ROFZ) WIDTH	120'	120'	250'	250'	120'	120'	250'	250'
RUNWAY OBSTACLE FREE ZONE (ROFZ) LENGTH	200'	200'	200'	200'	200'	200'	200'	200'
RUNWAY OBJECT FREE AREA (ROFA) WIDTH	250'	250'	500'	500'	250'	250'	500'	500'
RUNWAY OBJECT FREE AREA (ROFA) LENGTH	240'	240'	300'	300'	240'	240'	300'	300'
RUNWAY SURFACE TYPE	TURF / GRAVEL		BITUMINOUS CONCRETE		TURF / GRAVEL		BITUMINOUS CONCRETE	
RUNWAY PAVEMENT DESIGN STRENGTH** / PCN	NA		21K DW / 78 (2013)		NA		21K DW / NA	
RUNWAY EFFECTIVE GRADIENT	0.00%		0.20%		0.28%		0.21%	
RUNWAY MARKINGS	NONE	NONE	VISUAL	NON-PRECISION	NONE	NONE	NON-PRECISION	NON-PRECISION
RUNWAY EDGE LIGHTING	NONE		MIRLS		NONE		MIRLS	
RUNWAY APPROACH LIGHTING	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
RUNWAY VISUAL APPROACH AIDS	NONE	NONE	NONE	REIL / VASI	NONE	NONE	REIL / PAPI	REIL / PAPI
RUNWAY INSTRUMENT NAVIGATIONAL AIDS	NONE	NONE	NONE	RNAV / NDB	NONE	NONE	RNAV / LPV	RNAV / LPV / NDB
TAXIWAY DESIGN GROUP (TDG)	N/A		1A		N/A		1A	
TAXIWAY EDGE LIGHTING	N/A		MITLS		N/A		MITLS	
TAXIWAY MARKINGS	N/A		CL & HOLDING POSITIONS		N/A		CL & HOLDING POSITIONS	
TAXIWAY SAFETY AREA WIDTH (TSA)	N/A		79'		N/A		79'	
TAXIWAY OBJECT FREE AREA WIDTH (TOFA)	N/A		131'		N/A		131'	
TAXIWAY CENTERLINE TO FIXED/MOVABLE OBJECT	N/A		65.5'		N/A		65.5'	

* EXISTING RUNWAY LOCATION AND ELEVATION DATA, INCLUDING DISPLACED THRESHOLD, DATA, IS EXPRESSED IN NAD83 AND NAVD88 AS APPLICABLE.
** PAVEMENT STRENGTHS ARE EXPRESSED IN SINGLE WHEEL (SW) AND DUAL WHEEL (DW) LOADING CAPACITIES - K = 1,000 LBS

SOURCE INFORMATION
1. EXISTING RUNWAY END LOCATION & ELEVATION DATA WAS OBTAINED FROM FAA SURVEY DATABASE (5/11/2010)
2. RUNWAY PAVEMENT DESIGN STRENGTH WAS OBTAINED FROM FAA 5010 (6/1/12)
3. RUNWAY PAVEMENT CLASSIFICATION NUMBER (PCN) OBTAINED FROM MASSDOT AERONAUTICS ANALYSIS (JUNE 2013)
4. RUNWAY ULTIMATE CONDITIONS ARE BASED ON AIRPORT SOLUTIONS GROUP ASSESSMENT (2014)

AIRPORT DATA

		EXISTING	FUTURE
AIRPORT ELEVATION		41.5	SAME
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD83)	LAT. LONG.	41° 52' 28.0826" N 71° 00' 58.7394" W	41° 52' 26.83" N 71° 00' 57.32" W
MEAN MAX. TEMP. (HOTTEST MONTH)		82°F	SAME
FUNCTIONAL ROLE (NPIAS)		GENERAL AVIATION (GA)	SAME
FUNCTIONAL ROLE (FAA ASSET)		LOCAL	SAME
FUNCTIONAL ROLE (MA STATEWIDE AIRPORT SYSTEM PLAN)		COMMUNITY/BUSINESS	SAME
AIRPORT CLASSIFICATION		UTILITY	OTHER THAN UTILITY
AIRPORT REFERENCE CODE (ARC)		B-II	SAME
AIRPORT NAVIGATIONAL AIDS		NDB, ROTATIONAL BEACON, ASOS, LIGHTED WIND CONES, SEGMENTED CIRCLE	SAME, RCO
AIRPORT MAGNETIC DECLINATION SOURCE: GREAT CIRCLE MAPPER WEBSITE, APRIL 2015		14° 42' 00" (0° 3' 36" ANNUAL CHANGE)	

DECLARED DISTANCES

	RUNWAY 12	RUNWAY 30
TAKEOFF RUN AVAILABLE (TORA)	3500'	3500'
TAKEOFF DISTANCE AVAILABLE (TODA)	3500'	3500'
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	3500'	3500'
LANDING DISTANCE AVAILABLE (LDA)	3500'	3500'

MODIFICATION TO STANDARDS

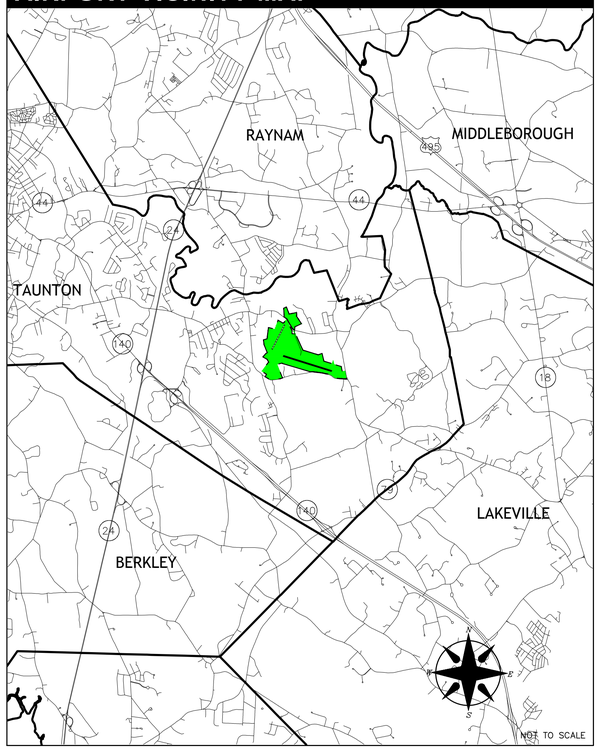
APPROVED:
NO. XXX - ALLOW THE SEPARATION DISTANCE BETWEEN RW 12-30 CENTERLINE TO TW A CENTERLINE TO BE 204.5 FEET IN LIEU OF THE STANDARD OF 240 FEET. (XX-XX-2015)
REQUESTED:
NONE

THE UNDERSIGNED CERTIFIES THAT AIRPORT ELEMENTS SHOWN ON THIS ALP ARE IN ACCORDANCE WITH CRITERIA CONTAINED IN THE CURRENT EDITION OF THE FAA ADVISORY CIRCULAR 150/5300-13A (SEPTEMBER 28, 2012) EXCEPT AS NOTED ABOVE.

SIGNATURE OF SPONSOR

DATE

AIRPORT VICINITY MAP



CADD FILE NO. 115-007 SHEET_EXHIBIT III-TECHNICAL-DATA.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

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AIRPORT SOLUTIONS GROUP
INNOVATIVE AIRPORT DEVELOPMENT SPECIALISTS
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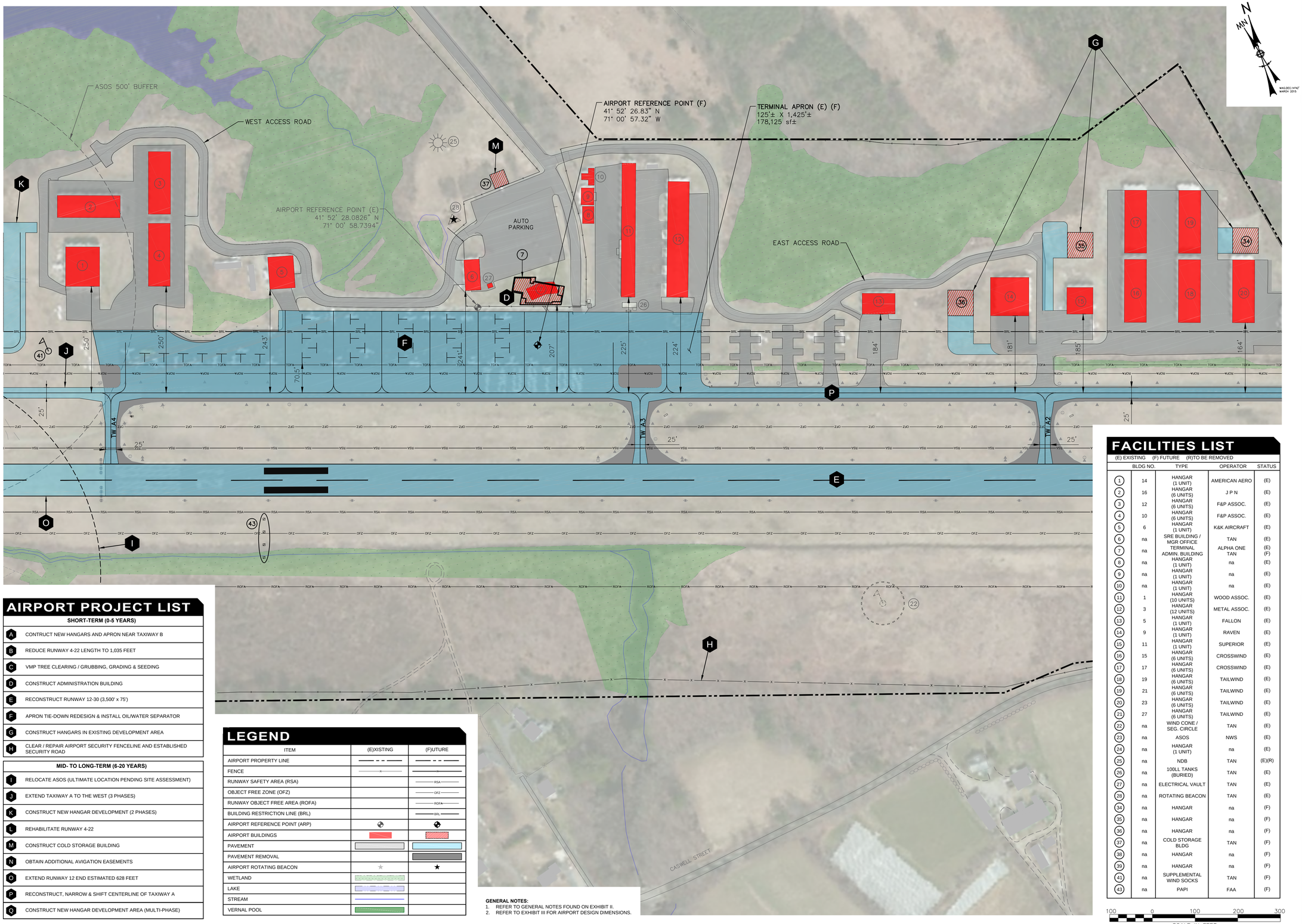
SHEET TITLE
TECHNICAL DATA SHEET

PROJECT
TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

DESIGNER: JBM CADD TECH: CNM APPROVED: RJM

MAY 2015

EXHIBIT III



AIRPORT PROJECT LIST

	SHORT-TERM (0-5 YEARS)
A	CONTRUCT NEW HANGARS AND APRON NEAR TAXIWAY B
B	REDUCE RUNWAY 4-22 LENGTH TO 1,035 FEET
C	VMP TREE CLEARING / GRUBBING, GRADING & SEEDING
D	CONSTRUCT ADMINISTRATION BUILDING
E	RECONSTRUCT RUNWAY 12-30 (3,500' x 75')
F	APRON TIE-DOWN REDESIGN & INSTALL OIL/WATER SEPARATOR
G	CONSTRUCT HANGARS IN EXISTING DEVELOPMENT AREA
H	CLEAR / REPAIR AIRPORT SECURITY FENCELINE AND ESTABLISHED SECURITY ROAD

	MID- TO LONG-TERM (6-20 YEARS)
I	RELOCATE ASOS (ULTIMATE LOCATION PENDING SITE ASSESSMENT)
J	EXTEND TAXIWAY A TO THE WEST (3 PHASES)
K	CONSTRUCT NEW HANGAR DEVELOPMENT (2 PHASES)
L	REHABILITATE RUNWAY 4-22
M	CONSTRUCT COLD STORAGE BUILDING
N	OBTAIN ADDITIONAL AVIGATION EASEMENTS
O	EXTEND RUNWAY 12 END ESTIMATED 628 FEET
P	RECONSTRUCT, NARROW & SHIFT CENTERLINE OF TAXIWAY A
Q	CONSTRUCT NEW HANGAR DEVELOPMENT AREA (MULTI-PHASE)

LEGEND

ITEM	(E)XISTING	(F)UTURE
AIRPORT PROPERTY LINE		
FENCE		
RUNWAY SAFETY AREA (RSA)		RSA
OBJECT FREE ZONE (OFZ)		OFZ
RUNWAY OBJECT FREE AREA (ROFA)		ROFA
BUILDING RESTRICTION LINE (BRL)		BRL
AIRPORT REFERENCE POINT (ARP)		
AIRPORT BUILDINGS		
PAVEMENT		
PAVEMENT REMOVAL		
AIRPORT ROTATING BEACON		
WETLAND		
LAKE		
STREAM		
VERNAL POOL		

GENERAL NOTES:
1. REFER TO GENERAL NOTES FOUND ON EXHIBIT II.
2. REFER TO EXHIBIT III FOR AIRPORT DESIGN DIMENSIONS.

FACILITIES LIST

(E) EXISTING (F) FUTURE (R)TO BE REMOVED

	BLDG NO.	TYPE	OPERATOR	STATUS
1	14	HANGAR (1 UNIT)	AMERICAN AERO	(E)
2	16	HANGAR (6 UNITS)	J P N	(E)
3	12	HANGAR (6 UNITS)	F&P ASSOC.	(E)
4	10	HANGAR (6 UNITS)	F&P ASSOC.	(E)
5	6	HANGAR (1 UNIT)	K&K AIRCRAFT	(E)
6	na	SRE BUILDING / MGR OFFICE	TAN	(E)
7	na	TERMINAL ADMIN. BUILDING	ALPHA ONE TAN	(E) (F)
8	na	HANGAR (1 UNIT)	na	(E)
9	na	HANGAR (1 UNIT)	na	(E)
10	na	HANGAR (1 UNIT)	na	(E)
11	1	HANGAR (10 UNITS)	WOOD ASSOC.	(E)
12	3	HANGAR (12 UNITS)	METAL ASSOC.	(E)
13	5	HANGAR (1 UNIT)	FALLON	(E)
14	9	HANGAR (1 UNIT)	RAVEN	(E)
15	11	HANGAR (1 UNIT)	SUPERIOR	(E)
16	15	HANGAR (6 UNITS)	CROSSWIND	(E)
17	17	HANGAR (6 UNITS)	CROSSWIND	(E)
18	19	HANGAR (6 UNITS)	TAILWIND	(E)
19	21	HANGAR (6 UNITS)	TAILWIND	(E)
20	23	HANGAR (6 UNITS)	TAILWIND	(E)
21	27	HANGAR (6 UNITS)	TAILWIND	(E)
22	na	WIND CONE / SEG. CIRCLE	TAN	(E)
23	na	ASOS	NWS	(E)
24	na	HANGAR (1 UNIT)	na	(E)
25	na	NDB	TAN	(E)(R)
26	na	100LL TANKS (BURIED)	TAN	(E)
27	na	ELECTRICAL VAULT	TAN	(E)
28	na	ROTATING BEACON	TAN	(E)
34	na	HANGAR	na	(F)
35	na	HANGAR	na	(F)
36	na	HANGAR	na	(F)
37	na	COLD STORAGE BLDG	TAN	(F)
38	na	HANGAR	na	(F)
39	na	HANGAR	na	(F)
41	na	SUPPLEMENTAL WIND SOCKS	TAN	(F)
43	na	PAPI	FAA	(F)

100 0 100 200 300
SCALE IN FEET

CADD FILE NO. 115-007 SHEET_LAYOUT.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

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TAN

SHEET TITLE
TERMINAL AREA PLAN

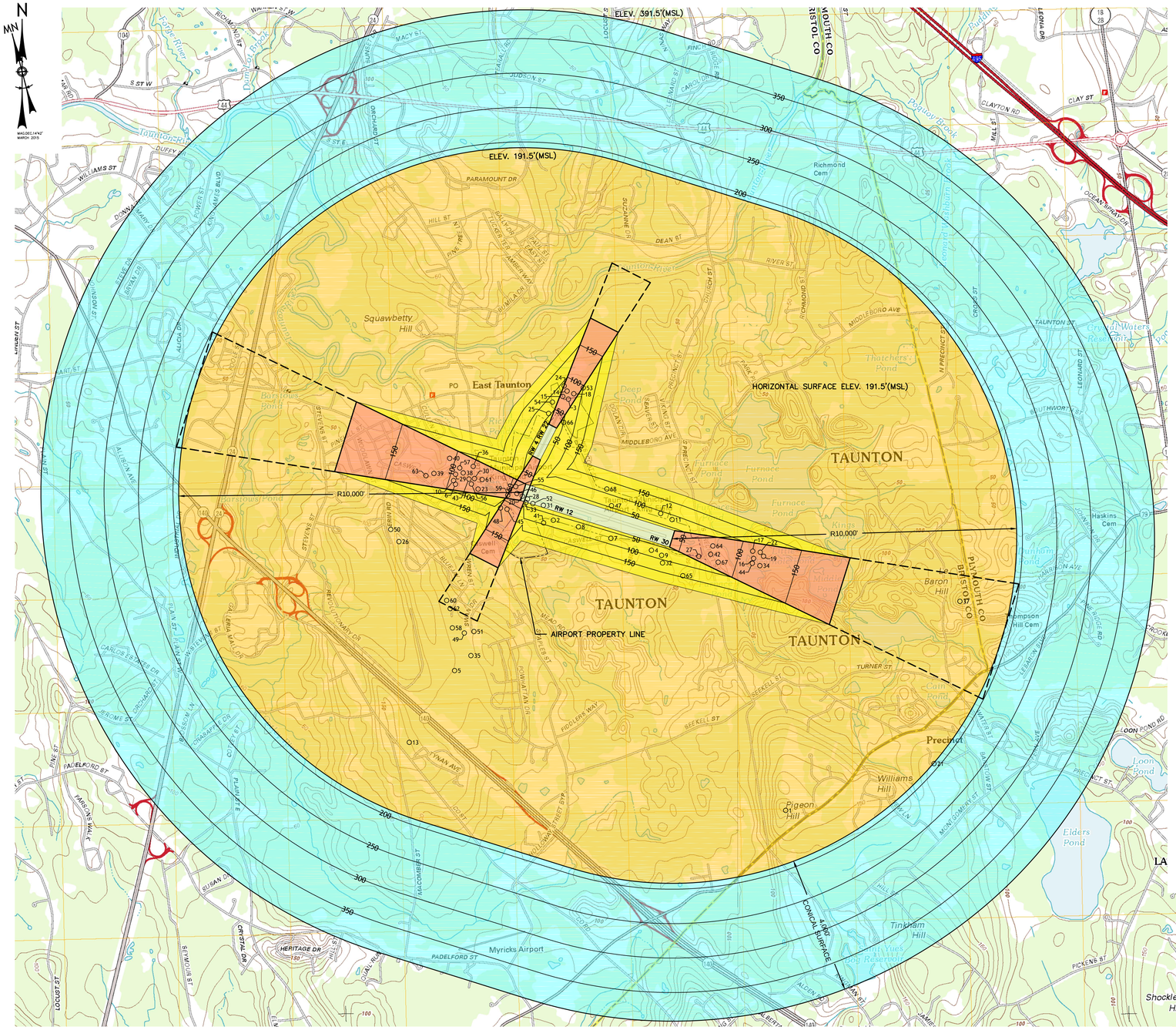
PROJECT
TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

DESIGNER: JBM CADD TECH: CNM APPROVED: RJM

MAY 2015

EXHIBIT IV

SHEET 5 OF 10



PART 77 DIMENSIONAL CRITERIA

EXISTING CONDITIONS*

RUNWAY	RUNWAY CLASSIFICATION	APPROACH PROCEDURE	VISIBILTIY MINIMUMS	PRIMARY SURFACE WIDTH	INNER APPROACH WIDTH	OUTER APPROACH WIDTH	APPROACH LENGTH	APPROACH SLOPE
12	UTILITY	VISUAL	1 MI.	500'	500'	1,500'	5,000'	20:1
30	UTILITY	NON-PRECISION	1 MI.	500'	500'	3,500'	10,000'	34:1
4	UTILITY	VISUAL	NA	250'	250'	1,250'	5,000'	20:1
22	UTILITY	VISUAL	NA	250'	250'	1,250'	5,000'	20:1

ULTIMATE CONDITIONS

RUNWAY	RUNWAY CLASSIFICATION	APPROACH PROCEDURE	VISIBILTIY MINIMUMS	PRIMARY SURFACE WIDTH	INNER APPROACH WIDTH	OUTER APPROACH WIDTH	APPROACH LENGTH	APPROACH SLOPE
12	OTHER THAN UTILITY	NON-PRECISION	1 MI.	500'	500'	3,500'	10,000'	34:1
30	OTHER THAN UTILITY	NON-PRECISION	1 MI.	500'	500'	3,500'	10,000'	34:1
4	UTILITY	VISUAL	NA	250'	250'	1,250'	5,000'	20:1
22	UTILITY	VISUAL	NA	250'	250'	1,250'	5,000'	20:1

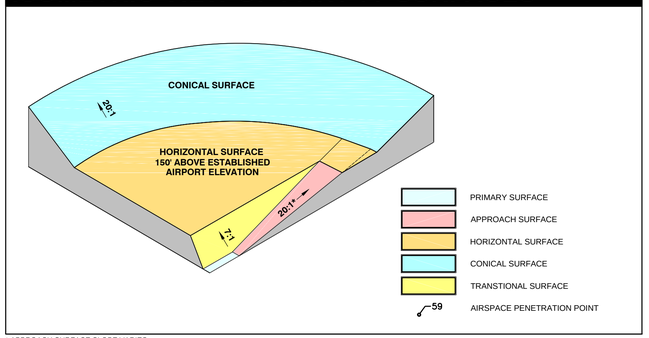
* EXISTING CONDITIONS AS OF APRIL 2015

PART 77 IMAGINARY SURFACE DIMENSIONS

TYPE	DIMENSIONAL STANDARDS (FEET)					
	VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
				B		
	A	B	A	C	D	
EXISTING RUNWAY ENDS	RW 4 RW 22	RW 12		RW 30		
FUTURE RUNWAY ENDS	RW 4 RW 22			RW 12 RW 30		
WIDTH OF PRIMARY SURFACE & APPROACH SURFACE AT INNER END	250'	500'	500'	500'	1,000'	1,000'
PRIMARY SURFACE BEYOND RW END	200'	200'	200'	200'	200'	200'
RADIUS OF HORIZONTAL SURFACE	5,000'	5,000'	5,000'	10,000'	10,000'	10,000'
APPROACH SURFACE WIDTH AT END	1,250'	1,500'	2,000'	3,500'	4,000'	16,000'
APPROACH SURFACE LENGTH	5,000'	5,000'	5,000'	10,000'	10,000'	50,000'
APPROACH SURFACE SLOPE	20:1	20:1	20:1	34:1	34:1	50:1 / 40:1 *
TRANSITIONAL SURFACE SLOPE	7:1	7:1	7:1	7:1	7:1	7:1
CONICAL SURFACE HORIZONTAL DIST	4,000'	4,000'	4,000'	4,000'	4,000'	4,000'
CONICAL SURFACE SLOPE	20:1	20:1	20:1	20:1	20:1	20:1

RUNWAY TYPE: A - UTILITY RUNWAY; B - OTHER THAN UTILITY RUNWAY
VISIBILITY TYPE: C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE; D -VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
* THE PRECISION APPROACH SURFACE EXTENDS 10,000 @ 50:1, THEN EXTENDS ANOTHER 40,000' @ 40:1

ISOMETRIC VIEW OF PART 77 SURFACES



* APPROACH SURFACE SLOPE VARIES
NOT TO SCALE

AIRPORT OBSTRUCTIONS

OBJECT NUMBER	DESCRIPTION	OBJECT ELEVATION (FT. MSL)	SURFACE PENETRATION (FT.)	PART 77 SURFACE	PART 77 MITIGATION / DISPOSITION
1	TREE	254.4286	62.9286	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
2	TREE	129.1643	56.9112	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
3	TREE	126.9253	54.7312	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
4	TREE	128.8493	53.2130	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
5	WATER TOWER	243.7347	52.2347	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
6	TREE	143.7039	49.8000	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
7	TREE	124.0038	47.8229	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
8	TREE	116.5253	47.5905	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
9	TREE	129.2919	45.4083	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
10	TREE	140.6808	44.3884	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
11	TREE	124.2828	43.2584	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
12	TREE	133.1037	42.8036	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
13	TREE	229.2394	37.7394	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
14	TREE	114.9989	33.2727	APPROACH	NO ACTION PENDING FURTHER ANALYSIS

OBJECT NUMBER	DESCRIPTION	OBJECT ELEVATION (FT. MSL)	SURFACE PENETRATION (FT.)	PART 77 SURFACE	PART 77 MITIGATION / DISPOSITION
15	TREE	104.4289	32.5929	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
16	TREE	144.6766	31.8827	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
17	TREE	140.1249	29.9378	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
18	TREE	111.3209	28.6541	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
19	TREE	148.9298	28.5817	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
20	TREE	61.0134	28.4605	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
21	TREE	219.7992	27.3419	CONICAL	NO ACTION PENDING FURTHER ANALYSIS
22	TREE	143.8931	27.2520	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
23	TREE	101.5407	26.5354	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
24	TREE	112.9004	26.5098	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
25	TREE	82.5157	24.4815	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
26	TREE	215.9590	24.4590	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
27	TREE	91.8347	24.3634	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
28	TREE	55.4616	22.6768	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
29	TREE	118.5863	22.3581	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
30	TREE	102.2450	21.8070	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
31	TREE	54.7680	20.9943	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS

OBJECT NUMBER	DESCRIPTION	OBJECT ELEVATION (FT. MSL)	SURFACE PENETRATION (FT.)	PART 77 SURFACE	PART 77 MITIGATION / DISPOSITION
32	TREE	132.5387	19.6261	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
33	TREE	53.4024	19.0632	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
34	TREE	137.9236	18.2141	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
35	TREE	209.5959	18.0959	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
36	TREE	102.2635	18.0009	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
37	TREE	209.3516	17.8516	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
38	TREE	107.6511	17.0747	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
39	TREE	129.9321	16.5391	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
40	TREE	120.1973	15.5116	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
41	TREE	109.7240	15.0697	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
42	TREE	91.1482	14.4981	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
43	TREE	98.5819	13.9257	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
44	TREE	126.6565	13.6741	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
45	TREE	123.5417	13.6098	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
46	TREE	53.7604	13.5478	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
47	POLE	70.4748	12.8173	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
48	TREE	124.3465	11.7368	APPROACH	NO ACTION PENDING FURTHER ANALYSIS

AIRPORT OBSTRUCTIONS

OBJECT NUMBER	DESCRIPTION	OBJECT ELEVATION (FT. MSL)	SURFACE PENETRATION (FT.)	PART 77 SURFACE	PART 77 MITIGATION / DISPOSITION
49	TREE	203.1541	11.6541	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
50	TREE	202.7364	11.2365	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
51	TREE	202.5945	11.0947	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
52	TREE	44.0998	10.9042	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
53	TREE	109.4843	10.3625	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
54	TREE	88.0967	10.2984	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
55	TREE	55.2036	10.2491	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
56	TREE	91.5281	10.0510	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
57	TREE	104.5907	10.0494	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
58	TREE	201.4897	9.9897	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
59	TREE	59.3872	9.5459	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
60	TREE	200.9525	9.4526	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
61	TREE	83.4702	9.3318	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
62	TREE	200.6030	9.1031	HORIZONTAL	NO ACTION PENDING FURTHER ANALYSIS
63	TREE	126.6479	7.5129	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
64	TREE	83.0965	6.7950	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
65	TREE	149.2544	5.9093	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
66	TREE	55.7415	4.8035	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
67	TREE	88.1863	3.3541	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
68	TREE	120.0628	2.6040	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS

** OFF AIRPORT PART 77 OBSTRUCTIONS WILL REQUIRE ADDITIONAL ANALYSIS TO IDENTIFY ANY APPROPRIATE MITIGATION MEASURES

GENERAL NOTES:
1. ALL ELEVATIONS ARE TO MEAN SEA LEVEL (MSL)
2. IMAGE SOURCE: USGS.GOV, USGS US TOPO 7.5 MINUTE MAPS, v1979 & v2012
3. COORDINATE/ELEVATION DATA IS NAD83/NAVD88
4. OBSTRUCTIONS DATA WAS OBTAINED FROM VERIFICATION SURVEY PERFORMED BY COLEAST, DATED OCTOBER 2012
5. SEE *INNER PORTION OF THE APPROACH PLAN AND PROFILE* SHEETS FOR CLOSE IN OBSTRUCTIONS

1,600 800 0 1,600
SCALE: 1"=1,600'

CADD FILE NO. 115-007 SHEET_EXHIBIT V-AIRSPACE.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

FAA DISCLAIMER: THE PREPARATION OF THIS ALP SET HAS BEEN SUPPORTED, IN PART, THROUGH FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (FAA) AS PROVIDED UNDER TITLE 49 U.S.C., SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THE ALP BY THE FAA IS NOT A FINDING OF FEDERAL FINANCIAL ASSISTANCE FOR ANY FUTURE PROJECT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN THE DEVELOPMENT DEPICTED THEREON. IT MEANS ONLY THAT THE PROPOSED DEVELOPMENT IS ACCEPTABLE TO THE ENVIRONMENTALLY ASSISTANCE BE MADE WHEN JUSTIFICATION IS ACCEPTABLE WITH APPROPRIATE FUNDING.

AIRPORT SOLUTIONS GROUP
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AIRPORT CONSULTANTS • WOBURN, MASSACHUSETTS

WESTCOAT DRIVE
P.O. BOX 441
EAST TAUNTON, MA 02718
(508) 821-2973

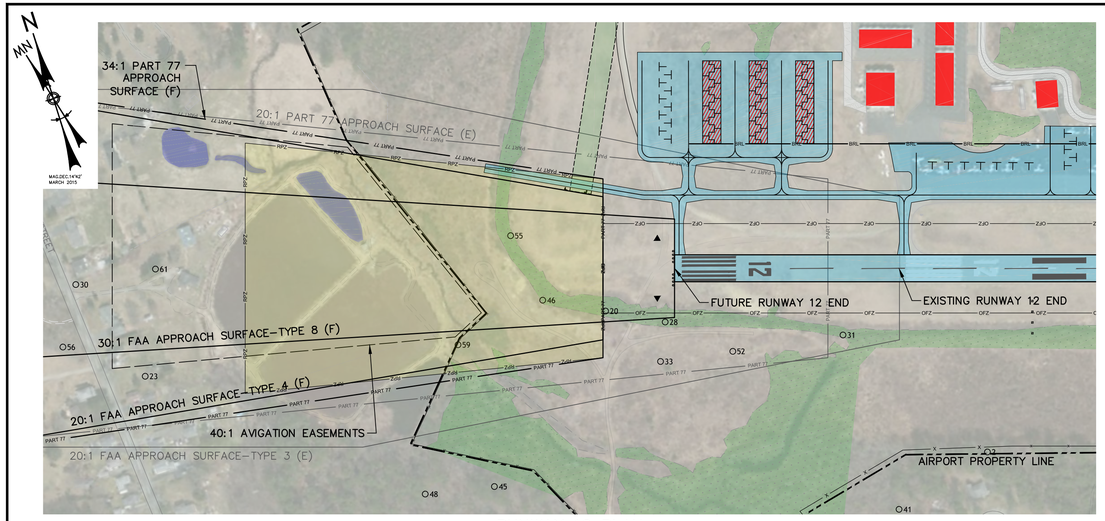
SHEET TITLE: AIRPORT AIRSPACE DRAWING (14 CFR PART 77 SURFACE)

PROJECT: TAUNTON MUNICIPAL AIRPORT 2014 AIRPORT MASTER PLAN UPDATE

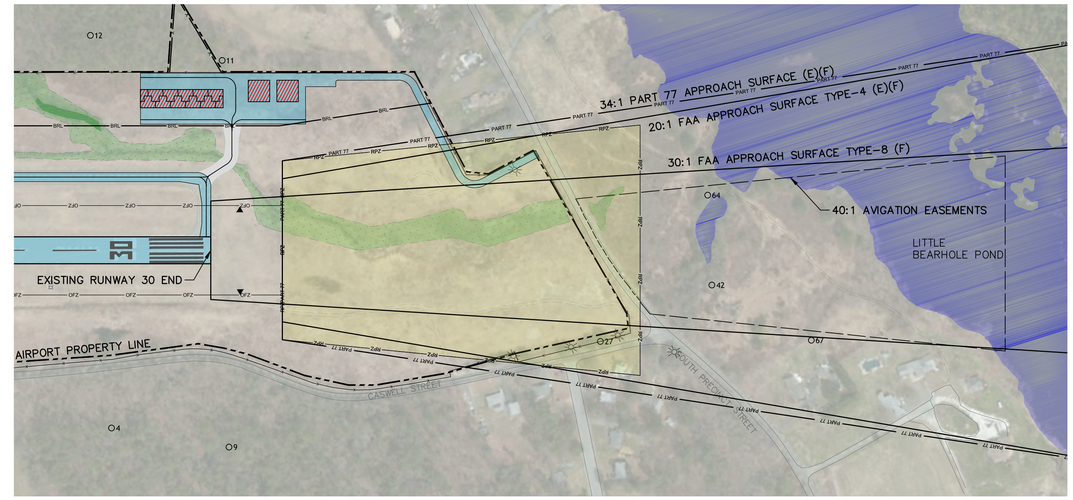
DESIGNER: JBM CADD TECH: CNM APPROVED: RJM

MAY 2015

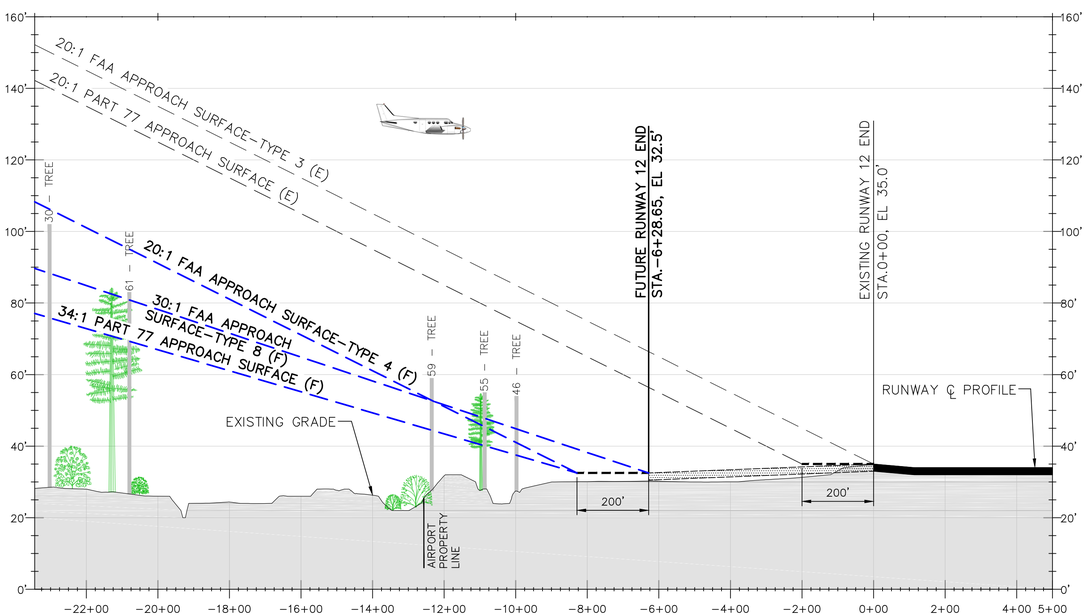
EXHIBIT V



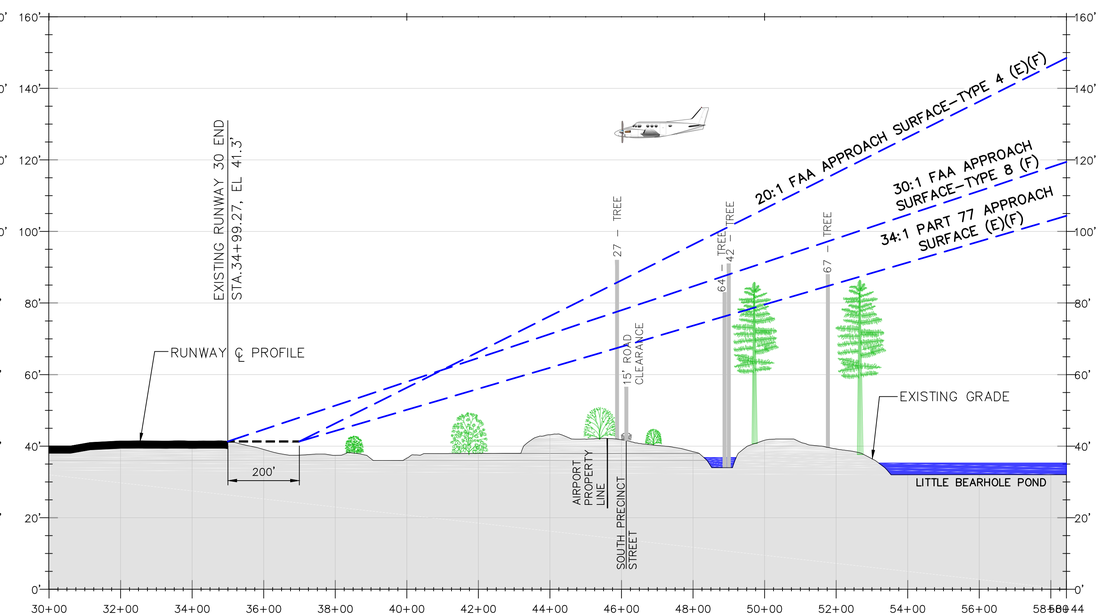
RUNWAY 12 PLAN
SCALE 1" = 200'



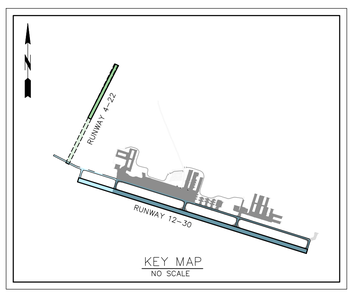
RUNWAY 30 PLAN
SCALE 1" = 200'



RUNWAY 12 PROFILE
HORIZONTAL SCALE 1" = 200'
VERTICAL SCALE 1" = 20'



RUNWAY 30 PROFILE
HORIZONTAL SCALE 1" = 200'
VERTICAL SCALE 1" = 20'



KEY MAP
NO SCALE

AIRPORT OBSTRUCTIONS (PART 77)

OBJECT NUMBER	DESCRIPTION	OBJECT ELEVATION (FT MSL)	SURFACE PENETRATION (FT)	SURFACE	PART 77 MITIGATION / DISPOSITION **
4	TREE	128.8493	53.2130	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
9	TREE	129.2919	45.4083	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
11	TREE	124.2828	43.2584	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
12	TREE	133.1037	42.8036	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
20	TREE	61.0134	28.4605	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
23	TREE	101.5407	26.5354	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
27	TREE	91.8347	24.3634	APPROACH	TO BE REMOVED
28	TREE	55.4616	22.6768	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
30	TREE	102.2450	21.8070	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
31	TREE	54.7680	20.9943	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
33	TREE	53.4024	19.0632	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
41	TREE	109.7240	15.0697	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
42	TREE	91.1482	14.4981	APPROACH	TO BE REMOVED

** OFF AIRPORT OBSTRUCTIONS WILL REQUIRE ADDITIONAL ANALYSIS TO IDENTIFY ANY APPROPRIATE MITIGATION MEASURES.

OBJECT NUMBER	DESCRIPTION	OBJECT ELEVATION (FT MSL)	SURFACE PENETRATION (FT)	SURFACE	PART 77 MITIGATION / DISPOSITION **
45	TREE	123.5417	13.6098	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
46	TREE	53.7604	13.5478	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
48	TREE	124.3465	11.7368	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
52	TREE	44.0998	10.9042	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
55	TREE	55.2036	10.2491	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
56	TREE	91.5281	10.0510	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
59	TREE	59.3872	9.5459	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
61	TREE	83.4702	9.3318	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
64	TREE	83.0965	6.7950	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
67	TREE	88.1863	3.3541	APPROACH	NO ACTION PENDING FURTHER ANALYSIS

NOTES:
1. TREETOP SURVEY DATA FROM SANBORN (4/10/2009).
2. RUNWAY END DATA FROM FAA AVN DATASHEET SYSTEM (DATA FOR 12-33 DATED MAY 2010).
3. GROUND PROFILE INFORMATION FROM MASSGIS.
4. "FAA APPROACH SURFACE" REFLECTS TABLE 3-2 IN FAA AC 150/5300-13A, AIRPORT DESIGN.
5. "PART 77 APPROACH SURFACE" REFLECTS THE REQUIREMENTS OF 14 CFR PART 77.

LEGEND

ITEM	(E)XISTING	(F)UTURE
AIRPORT PROPERTY LINE		
FENCE		
RUNWAY SAFETY AREA (RSA)		RSA
OBJECT FREE ZONE (OFZ)		OFZ
RUNWAY OBJECT FREE AREA (ROFA)		ROFA
RUNWAY PROTECTION ZONE (RPZ)		RPZ
BUILDING RESTRICTION LINE (BRL)		BRL
AIRPORT REFERENCE POINT (ARP)		
AIRPORT BUILDINGS		
TURF RUNWAY		
PAVEMENT		
PAVEMENT REMOVAL		
AIRPORT ROTATING BEACON		
AIRPORT SURFACE PROFILE		
WETLAND		
LAKE		
STREAM		
VERNAL POOL		
AIRSPACE OBSTRUCTION LIGHT		

CADD FILE NO. 115-007 SHEET_EXHIBIT VI-PLAN PROFILE.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

FAA AIRCLEARS: THE PREPARATION OF THIS ALP SET HAS BEEN SUPPORTED, IN PART, THROUGH FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (FAA) AS PROVIDED UNDER TITLE 49 U.S.C., SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THE ALP BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN THE DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE OR WOULD HAVE JUSTIFICATION OR ACCEPTANCE WITH APPROPRIATE PUBLIC FUNDS.

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EAST TAUNTON, MA 02718
(508) 821-2973

SHEET TITLE
INNER PORTION OF THE APPROACH PLAN AND PROFILE – RUNWAY 12–30

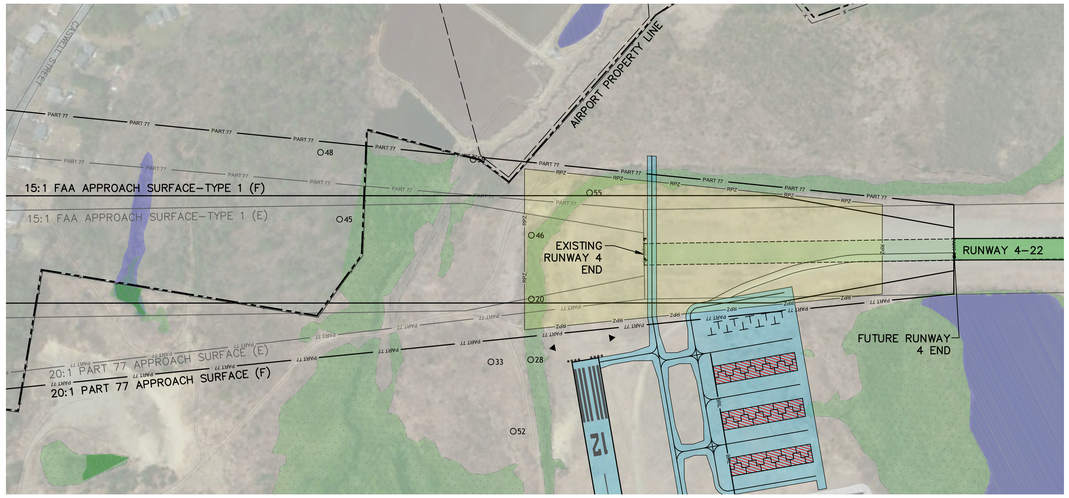
PROJECT
TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

DESIGNER: JBM CADD TECH: CNM APPROVED: RJM

MAY 2015

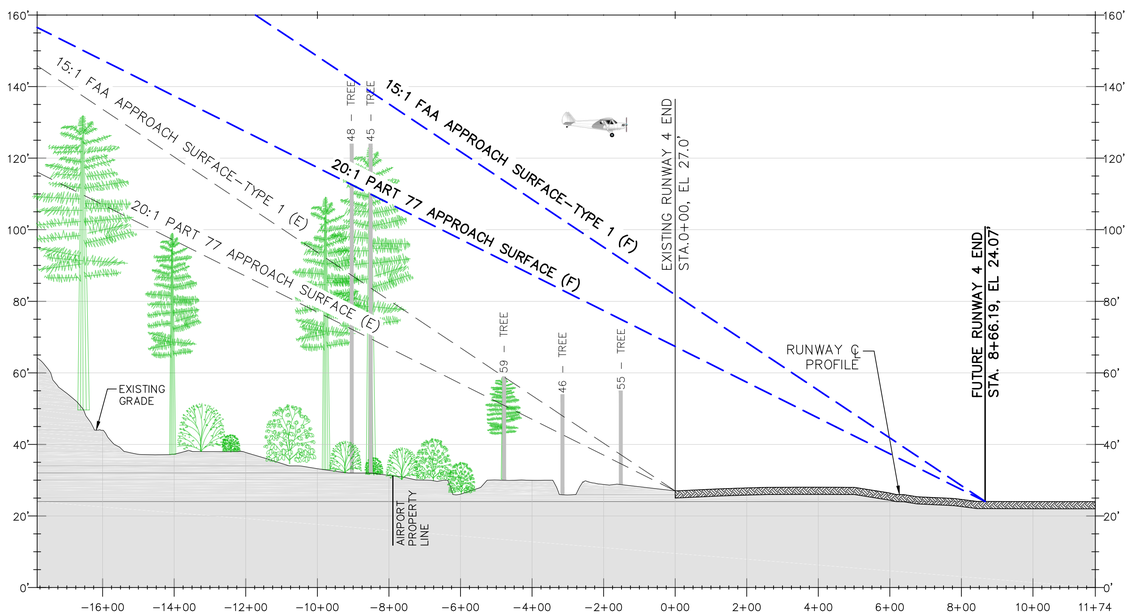
EXHIBIT VI

SHEET 7 OF 10

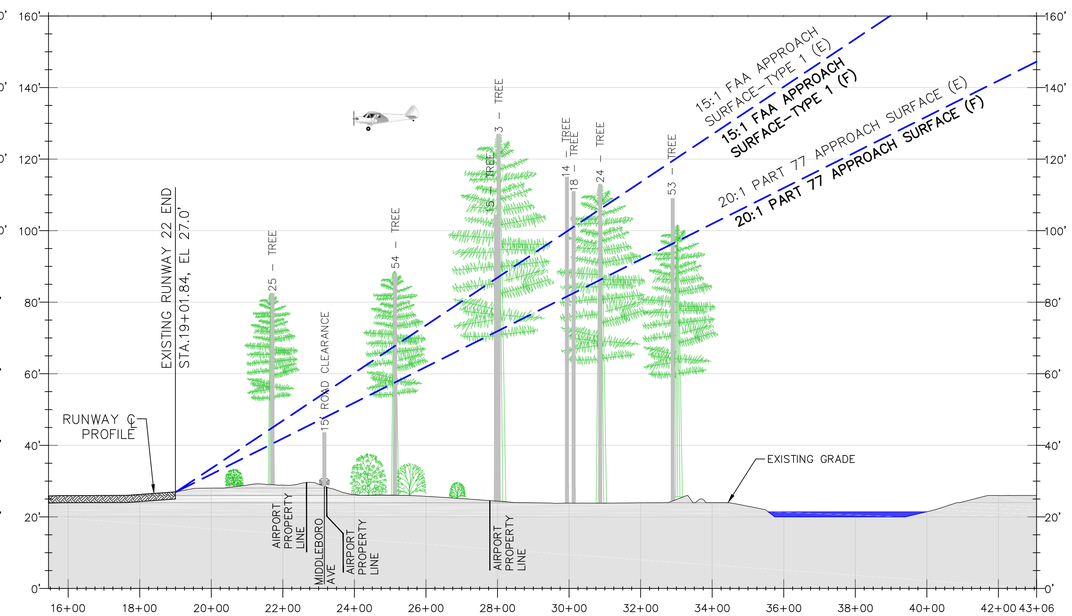


RUNWAY 4 PLAN
SCALE 1" = 200'

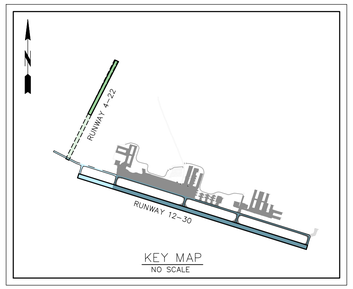
RUNWAY 22 PLAN
SCALE 1" = 200'



RUNWAY 4 PROFILE
HORIZONTAL SCALE 1" = 200'
VERTICAL SCALE 1" = 20'



RUNWAY 22 PROFILE
HORIZONTAL SCALE 1" = 200'
VERTICAL SCALE 1" = 20'



KEY MAP
NO SCALE

AIRPORT OBSTRUCTIONS (PART 77)

OBJECT NUMBER	DESCRIPTION	OBJECT ELEVATION (FT MSL)	SURFACE PENETRATION (FT)	SURFACE	PART 77 MITIGATION / DISPOSITION **
3	TREE	126.9253	54.7312	APPROACH	TO BE REMOVED
14	TREE	114.9989	33.2727	APPROACH	TO BE REMOVED
15	TREE	104.4289	32.5929	APPROACH	TO BE REMOVED
18	TREE	111.3209	28.6541	APPROACH	TO BE REMOVED
20	TREE	61.0134	28.4605	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
24	TREE	112.9004	26.5098	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
25	TREE	82.5157	24.4815	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
28	TREE	55.4616	22.6768	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
33	TREE	53.4024	19.0632	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
45	TREE	123.5417	13.6098	APPROACH	NO ACTION PENDING FURTHER ANALYSIS

** OFF AIRPORT OBSTRUCTIONS WILL REQUIRE ADDITIONAL ANALYSIS TO IDENTIFY ANY APPROPRIATE MITIGATION MEASURES.

OBJECT NUMBER	DESCRIPTION	OBJECT ELEVATION (FT MSL)	SURFACE PENETRATION (FT)	SURFACE	PART 77 MITIGATION / DISPOSITION **
46	TREE	53.7604	13.5478	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
48	TREE	124.3465	11.7368	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
52	TREE	44.0998	10.9042	PRIMARY	NO ACTION PENDING FURTHER ANALYSIS
53	TREE	109.4843	10.3625	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
54	TREE	88.0967	10.2984	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS
55	TREE	55.2036	10.2491	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
59	TREE	59.3872	9.5459	APPROACH	NO ACTION PENDING FURTHER ANALYSIS
66	TREE	55.7415	4.8035	TRANSITIONAL	NO ACTION PENDING FURTHER ANALYSIS

NOTES:
1. TREETOP SURVEY DATA FROM SANBORN (4/10/2009).
2. RUNWAY END DATA FROM FAA AVN DATASHEET SYSTEM (DATA FOR 4-22 DATED FEBRUARY 2003).
3. GROUND CONTOUR INFORMATION FROM MASSGIS.
4. "FAA APPROACH SURFACE" REFLECTS TABLE 3-2 IN FAA AC 150/5300-13A, AIRPORT DESIGN.
5. "PART 77 APPROACH SURFACE" REFLECTS THE REQUIREMENTS OF 14 CFR PART 77.

LEGEND

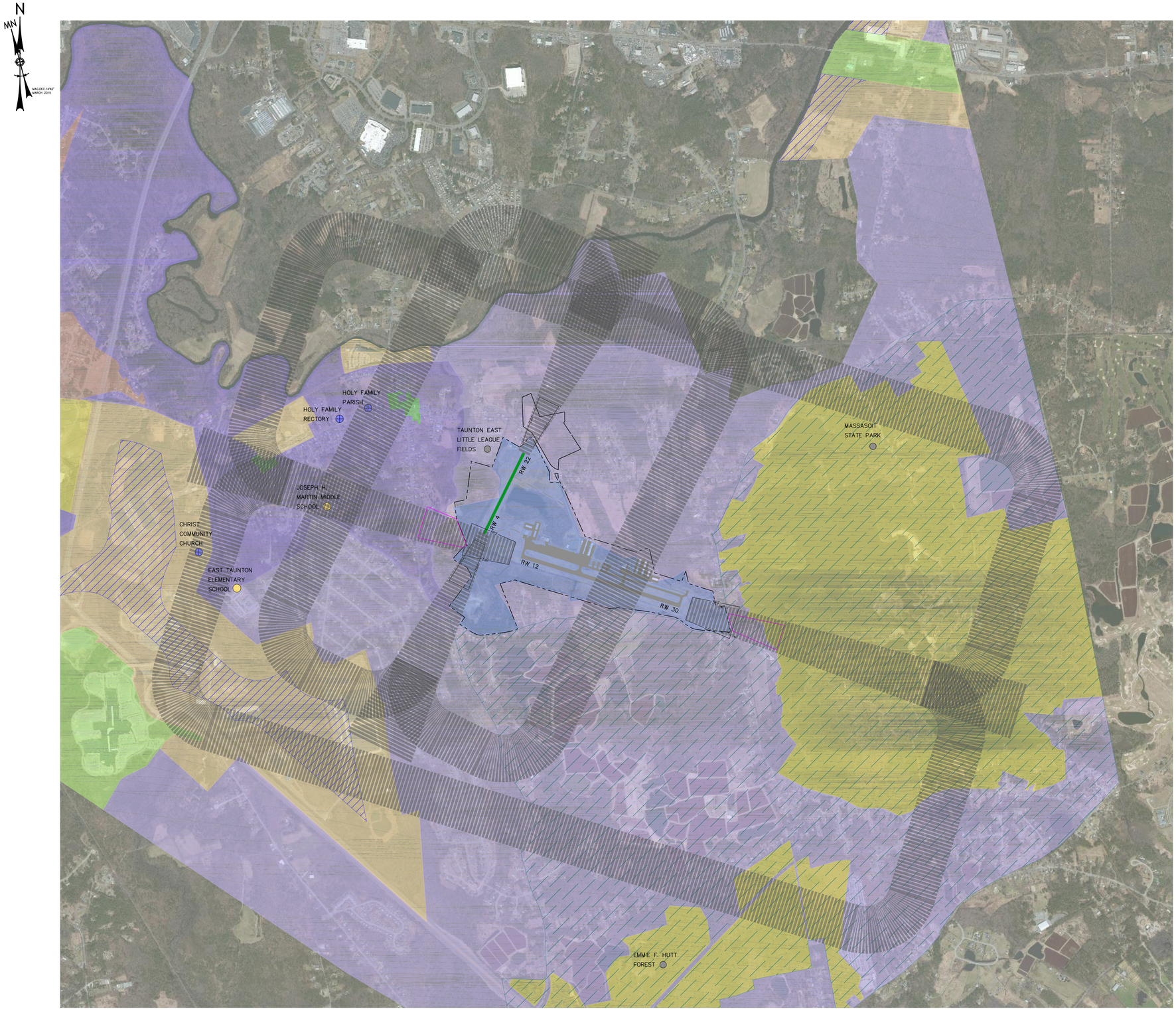
ITEM	(E)XISTING	(F)UTURE
AIRPORT PROPERTY LINE		
FENCE		
RUNWAY SAFETY AREA (RSA)		RSA
OBJECT FREE ZONE (OFZ)		OFZ
RUNWAY OBJECT FREE AREA (ROFA)		ROFA
RUNWAY PROTECTION ZONE (RPZ)		RPZ
BUILDING RESTRICTION LINE (BRL)		BRL
AIRPORT REFERENCE POINT (ARP)		
AIRPORT BUILDINGS		
TURF RUNWAY		
PAVEMENT		
PAVEMENT REMOVAL		
AIRPORT ROTATING BEACON		
AIRPORT SURFACE PROFILE		
WETLAND		
LAKE		
STREAM		
VERNAL POOL		

CADD FILE NO. 115-007 SHEET_EXHIBIT VII-PLAN PROFILE.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

FAA REQUIRED: THE PREPARATION OF THIS ALP SET HAS BEEN SUPPORTED, IN PART, THROUGH FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (FAA) AS PROVIDED UNDER TITLE 49 U.S.C., SECTION 47104. THE CONTENTS OF THIS ALP SET DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN THE DEVELOPMENT DEPICTED HEREIN. ACCEPTANCE BY THE FAA DOES NOT CONSTITUTE APPROVAL OF ANY ENVIRONMENTAL IMPACTS. ACCEPTANCE BY THE FAA DOES NOT



GENERAL LEGEND

- AIRPORT PROPERTY LINE
- GENERALIZED FLIGHT PATTERNS (BI-DIRECTIONAL)
- RUNWAY PROTECTION ZONE (RPZ)
- EXISTING AVIGATION EASEMENTS
- SCHOOLS
- CHURCHES
- PARKS AND RECREATION

ZONING LEGEND

- RURAL RESIDENTIAL
- SUBURBAN RESIDENTIAL
- URBAN RESIDENTIAL
- OPEN SPACE CONSERVATION
- BUSINESS
- HIGHWAY BUSINESS
- INDUSTRIAL
- OFFICE
- OFFICE DISTRICT
- AIRPORT
- CBD
- AQUIFER PROTECTION OVERLAY DISTRICT
- ADULT ENTERTAINMENT OVERLAY

NOTES:

1. ZONING DATA PROVIDED BY CITY OF TAUNTON PLANNING DEPARTMENT
2. IMAGE SOURCE: USGS.GOV, USGS US TOPO 7.5 MINUTE MAPS, V2012.
3. FLIGHT PATTERNS REPRESENT TYPICAL OPERATIONS AROUND TAN, HOWEVER, THESE CAN BE FLUCTUATE SIGNIFICANTLY DEPENDENT ON AIRCRAFT TYPE AND OPERATIONAL REQUIREMENTS.

1000 0 1000 2000 3000
SCALE IN FEET

CADD FILE NO. 115-007 SHEET_EXHIBIT VIII-LAND-USE.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

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P.O. BOX 441
EAST TAUNTON, MA 02718
(508) 821-2973

SHEET TITLE
OFF-AIRPORT LAND USE PLAN

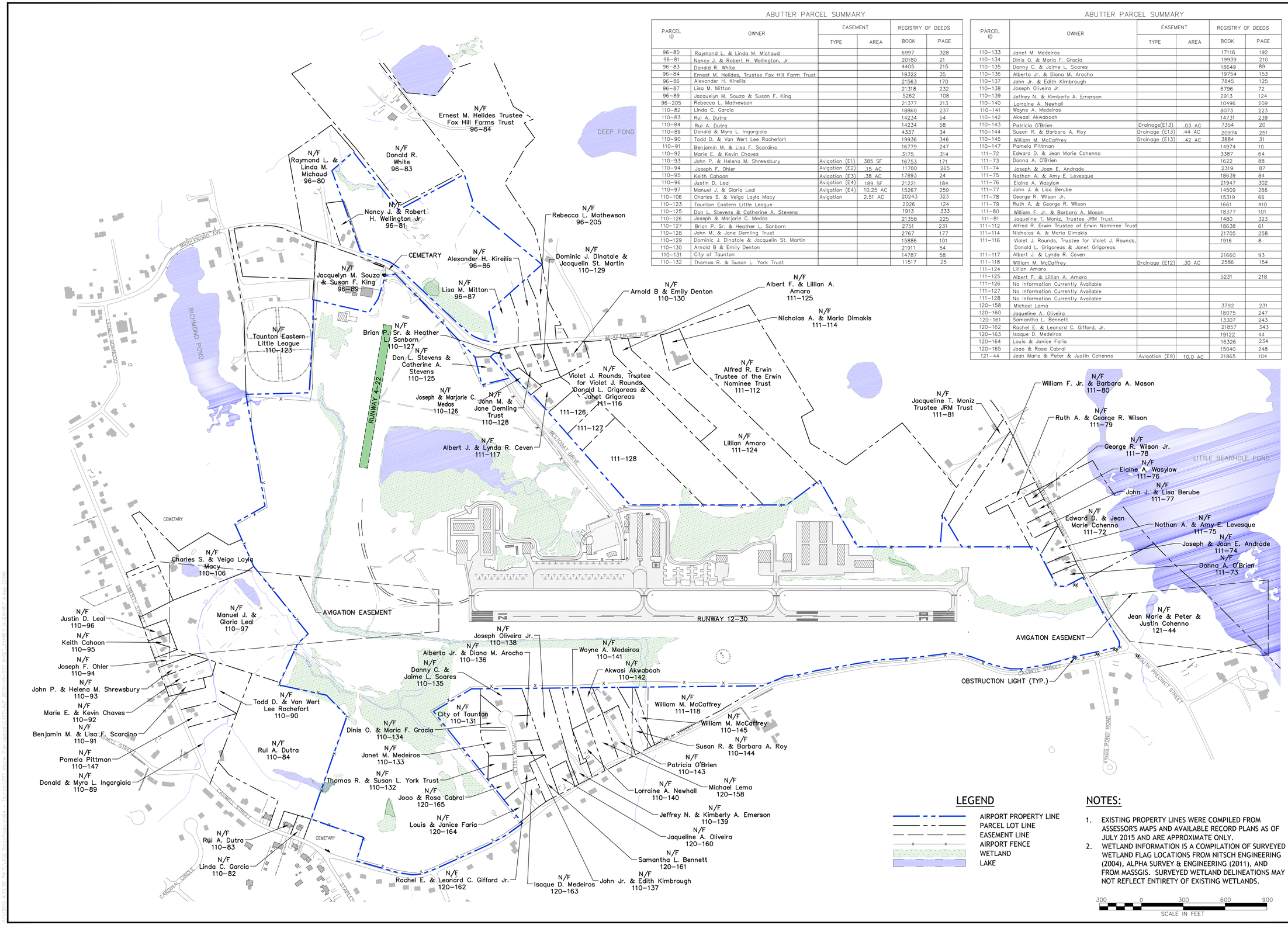
PROJECT
TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

DESIGNER: JBM CADD TECH: CNM APPROVED: RJM

MAY 2015

EXHIBIT VIII

SHEET 9 OF 10



ABUTTER PARCEL SUMMARY

PARCEL ID	OWNER	EASEMENT TYPE	EASEMENT AREA	REGISTRY OF DEEDS BOOK	REGISTRY OF DEEDS PAGE
96–80	Raymond L. & Linda M. Michaud			6997	328
96–81	Nancy J. & Robert H. Wellington, Jr			20180	21
96–83	Donald R. White			4405	215
96–84	Ernest M. Helides, Trustee Fox Hill Farm Trust			19322	35
96–86	Alexander H. Kirellis			21563	170
96–87	Lisa M. Mitton			21318	232
96–89	Jacquelyn M. Souza & Susan F. King			5262	108
96–205	Rebecca L. Mathewson			21377	213
110–82	Linda C. Garcia			18860	237
110–83	Rui A. Dutra			14234	54
110–84	Rui A. Dutra			14234	58
110–89	Donald & Myra L. Ingargiola			4337	34
110–90	Todd D. & Van Wert Lee Rochefort			19936	346
110–91	Benjamin M. & Lisa F. Scardino			16779	247
110–92	Marie E. & Kevin Chaves			3175	314
110–93	John P. & Helena M. Shrewsbury	Avigation (E1)	.385 SF	16753	171
110–94	Joseph F. Ohler	Avigation (E2)	.15 AC	11780	265
110–95	Keith Cahoon	Avigation (E3)	.38 AC	17893	24
110–96	Justin D. Leal	Avigation (E4)	.189 SF	21221	184
110–97	Manuel J. & Gloria Leal	Avigation (E4)	10.25 AC	15267	259
110–106	Charles S. & Veiga Layla Macy	Avigation	2.51 AC	20243	323
110–123	Taunton Eastern Little League			2026	124
110–125	Don L. Stevens & Catherine A. Stevens			1913	333
110–126	Joseph & Marjorie C. Medas			21358	225
110–127	Brian P. Sr. & Heather L. Sanborn			2751	231
110–128	John M. & Jane Demling Trust			2767	177
110–129	Dominic J. Dinatale & Jacquelin St. Martin			15886	101
110–130	Arnold B & Emily Denton			21911	54
110–131	City of Taunton			14787	58
110–132	Thomas R. & Susan L. York Trust			11517	25

ABUTTER PARCEL SUMMARY

PARCEL ID	OWNER	EASEMENT TYPE	EASEMENT AREA	REGISTRY OF DEEDS BOOK	REGISTRY OF DEEDS PAGE
110–133	Janet M. Medeiros			17116	192
110–134	Dinis O. & Maria F. Gracia			19939	210
110–135	Danny C. & Jaime L. Soares			18649	89
110–136	Alberto Jr. & Diana M. Arocho			19754	153
110–137	John Jr. & Edith Kimbrough			7845	125
110–138	Joseph Oliveira Jr.			6796	72
110–139	Jeffrey N. & Kimberly A. Emerson			2913	124
110–140	Lorraine A. Newhall			10496	209
110–141	Wayne A. Medeiros			8073	223
110–142	Akwasi Akwaboah			14731	239
110–143	Patricia O'Brien	Drainage(E13)	.03 AC	7354	20
110–144	Susan R. & Barbara A. Roy	Drainage (E13)	.44 AC	20974	251
110–145	William M. McCaffrey	Drainage (E13)	.42 AC	3884	31
110–147	Pamela Pittman			14974	10
111–72	Edward D. & Jean Marie Cohenno			3387	64
111–73	Donna A. O'Brien			1622	88
111–74	Joseph & Joan E. Andrade			2319	87
111–75	Nathan A. & Amy E. Levesque			18639	84
111–76	Elaine A. Wasylow			21947	302
111–77	John J. & Lisa Berube			14509	266
111–78	George R. Wilson Jr.			15319	66
111–79	Ruth A. & George R. Wilson			1661	410
111–80	William F. Jr. & Barbara A. Mason			18377	101
111–81	Jaqueline T. Moniz, Trustee JRM Trust			1480	323
111–112	Alfred R. Erwin Trustee of Erwin Nominee Trust			18638	61
111–114	Nicholas A. & Maria Dimakis			21705	258
111–116	Violet J. Rounds, Trustee for Violet J. Rounds, Donald L. Grigoreas & Janet Grigoreas			1916	8
111–117	Albert J. & Lynda R. Ceven			21660	93
111–118	William M. McCaffrey	Drainage (E12)	.30 AC	2586	154
111–124	Lillian Amaro				
111–125	Albert F. & Lillian A. Amaro			5231	218
111–126	No Information Currently Available				
111–127	No Information Currently Available				
111–128	No Information Currently Available				
120–158	Michael Lema			3792	231
120–160	Jaqueline A. Oliveira			18075	247
120–161	Samantha L. Bennett			13307	243
120–162	Rachel E. & Leonard C. Gifford, Jr.			21857	343
120–163	Isaque D. Medeiros			19122	44
120–164	Louis & Janice Faria			16326	234
120–165	Joao & Rosa Cabral			15040	248
121–44	Jean Marie & Peter & Justin Cohenno	Avigation (E9)	10.0 AC	21865	104

NOTES:

1. EXISTING PROPERTY LINES WERE COMPILED FROM ASSESSOR'S MAPS AND AVAILABLE RECORD PLANS AS OF JULY 2015 AND ARE APPROXIMATE ONLY.
2. WETLAND INFORMATION IS A COMPILATION OF SURVEYED WETLAND FLAG LOCATIONS FROM NITSCH ENGINEERING (2004), ALPHA SURVEY & ENGINEERING (2011), AND FROM MASSGIS. SURVEYED WETLAND DELINEATIONS MAY NOT REFLECT ENTIRETY OF EXISTING WETLANDS.

CADD FILE NO. 115–007 SHEET_EXHIBIT IX–EXHIBIT A.dwg

A.I.P. PROJECT. NO. 3–25–0047–24

REV.	DATE	DESCRIPTION

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SHEET TITLE: EXHIBIT A – PROPERTY MAP

PROJECT: TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

DESIGNER: JBM CADD TECH: CNM APPROVED: RJM

JULY 2015

EXHIBIT IX

SHEET 10 OF 10

CHAPTER SEVEN:

FINANCIAL IMPLEMENTATION PLAN

7.1 INTRODUCTION

This section of the Airport Master Plan Update (AMPU) presents the financial implementation analysis for the Taunton Municipal Airport (TAN) and will examine various facets of the financial operating condition of the Airport. In addition, this chapter examines the Airport's historic operating revenues and expenses, and provides estimates for future financial results. The projections of Airport revenues and expenses focus on the three planning periods of this Master Plan's Capital Improvement Program (CIP): Phase I (Short Term, 2015-2019), Phase II (Intermediate Term, 2020-2024), and Phase III (Long Term, 2025-2034). These planning periods are used to identify the ability of the Airport to contribute to the local share of anticipated project costs, as required. It should be noted that the TAN AMPU's CIP is used as a guideline, and that capital projects should be undertaken when demand warrants and funding becomes available.

The overall approach for the development of the financial implementation analysis included the following elements:

- Gathered and reviewed key airport documents related to historical financial results, capital improvement plans, operating budgets, regulatory requirements, and airport policies
- Interviewed key airport management personnel to gain an understanding of the existing operating and financial environment, as well as the overall financial management philosophy
- Reviewed the AMPU CIP, cost opinions, and development schedule anticipated for the planning period in order to project the overall financial requirements for the program
- Determined and analyzed the sources and timing of capital funding available to meet the financial requirements for funding the CIP
- Analyzed historical and budgeted operating expenses, developed operations and maintenance expense assumptions, and projected future operating costs for the planning period
- Analyzed historical and budgeted operating revenues, developed operating revenue assumptions, and projected future operating revenues for the planning period
- Completed results of the analysis and evaluation in a Financial Plan Summary that provides conclusions regarding the financial practicality of the CIP

7.2 CAPITAL FUNDING SOURCES

The development of the Taunton Municipal Airport's Master Plan CIP is anticipated to be funded from several sources. These sources include federal grants, state grants, net operating revenues/cash reserves, and other unidentified funding sources, including private funding. Each of these sources of funds is described in the following sections.

7.2.1 Federal Aviation Administration (FAA) Funding

To promote the development of airports to meet the nation's needs, the Federal Government embarked on a Grants-In-Aid Program to units of state and local government after the end of World War II. Following multiple earlier versions of federal funding programs, the Airport Improvement Program (AIP) was established through the Airport and Airway Improvement Act of 1982. The initial AIP provided funding legislation through fiscal year 1992, but since then, the AIP has been amended multiple times (on a yearly or even quarterly basis), most recently with the passage of the FAA Modernization and Reform Act of 2012. Funds obligated for the AIP are drawn from the Airport and Airway Trust fund, which is supported by user fees, fuel taxes, and other similar revenue sources.

AIP grants are generally available for planning, development, or noise compatibility projects at public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS). Eligible projects include those improvements related to enhancing airport safety, capacity, security, and environmental concerns. In general, sponsors can use AIP funds on most airfield capital improvements or repairs and in some specific situations, for terminals, hangars, and non-aviation development. Any professional services that are necessary for eligible projects (such as planning, surveying, and design) are eligible. Aviation demand at the airport must justify the projects, which must also meet Federal environmental and procurement requirements. Projects related to airport operations and revenue-generating improvements are typically not eligible for funding. Operational costs (such as salaries, equipment, and supplies) are also not eligible for AIP grants.

AIP grants are generally divided into two categories. ***Entitlement Grants*** are allocated among NPIAS airports through a formula largely driven by passenger enplanements, landed cargo weights, and types of operations. Currently, "primary" airports, as defined in the NPIAS and include commercial air service of a particular level, receive $1,000,000 annually in entitlement funding. "Non-primary" airports, which include small commercial service airports and general aviation airports, are currently eligible for up to $150,000 of annual AIP funding. Note that AIP grants must be spent on FAA-eligible projects as defined in the most current version of FAA Order 5100.38D, *AIP Handbook*.

Because the overall demand for AIP funds exceeds availability, FAA bases distribution of these funds on present national priorities and objectives. AIP funds

are typically first apportioned into major entitlement categories such as primary, cargo, and general aviation. Remaining funds are distributed to a discretionary funding account. Generally, airports compete for these ***Discretionary Grants***, which are typically awarded based on priority ratings given to each potential project by the FAA. The prioritization process makes certain that the most important and beneficial projects (as viewed by the FAA) are the first to be completed, given the availability of adequate discretionary funding. Each NPIAS airport development project is subject to eligibility and justification requirements as part of the normal AIP funding process.

As of the writing of this document, the AIP program is due for reauthorization and will likely see changes. The future of the AIP program may include changes to federal share amounts, non-primary entitlements, set-asides, and/or passenger facility charges (PFCs).

However, under the current authorization legislation and based on its inclusion in the NPIAS, the Taunton Municipal Airport is currently eligible to receive entitlements of ***$150,000 per year*** through the planning period. Additional funding could be realized through state apportionment funding and AIP discretionary funding, based on the aforementioned project eligibility ranking methodology. For the Taunton Municipal Airport CIP, this financial plan assumes total AIP grant awards (entitlement/discretionary) and state funding of approximately $8.4 million for the Phase I period, $1.9 million during Phase II, and $24.9 million for Phase III. Of those awards, AIP discretionary grants account for approximately $2.6 million in Phase I, $980,000 in Phase II, and $21.5 million in Phase III.

7.2.2 Massachusetts Department of Transportation (MassDOT) – Aeronautics Division

MassDOT Aeronautics is committed to "promote aviation throughout the Commonwealth, while providing an efficient integrated airport system that will enhance airport safety, economic development, and environmental stewardship." In support of that mission statement, MassDOT Aeronautics provides funding assistance to airports within the Commonwealth through two primary mechanisms.

First, MassDOT Aeronautics provides a five percent matching grant to any airport that receives a federal AIP grant. As noted previously, AIP currently provides funding up to 90 percent of an eligible project cost, with the balance being the responsibility of the airport sponsor. In order to assist those sponsors, who are often financially strained, MassDOT provides five percent of the total project cost, meaning that the sponsor is only responsible for the remaining five percent.

Second, MassDOT Aeronautics recognizes that not all airport sponsors are eligible for federal AIP funding, and of those who are, none are eligible for AIP funding from the FAA for routine maintenance. Therefore, MassDOT Aeronautics initiated a grants-in-aid program called the Airport Safety and Maintenance Program (ASMP) specifically designed for this purpose. This program is designed

to assist in the maintenance and repair of airports included in the state airport system plan, excluding those airports owned and operated by the Massachusetts Port Authority (Massport).

MassDOT Aeronautics obtains its funding for airport development and planning projects from a General Appropriations account and from State Transportation Bond Issuance, both of which are approved by the State Legislature. Appropriated funds are derived from aircraft registration fees, aviation gas tax, and fees for air transportation charged to other state agencies.

Under the ASMP, MassDOT Aeronautics can reimburse an airport sponsor for up to 80% of the total project cost as adjusted for federal reimbursement, if any. The local sponsor is responsible for funding the remaining 20% of the total project cost under the ASMP program. The Aeronautics Division also has the ability to fund up to 100% of the total project cost for security improvement projects.

For the Taunton Municipal Airport CIP, the financial plan assumes MassDOT Aeronautics matching grant awards for AIP-eligible projects totaling $187,000 for Phase I, $96,000 for Phase II, and $1.3 million for Phase III. Additionally, the plan assumes the awarding of ASMP and other dedicated MassDOT grants that total $5.6 million for Phase I (primarily for administration building construction), $77,000 for Phase II, and $0 in Phase III.

7.2.3 Net Operating Revenues/Cash Reserves

Currently, the Airport has limited cash reserves and annual net operating revenues to provide some funding for the development of capital projects not eligible for federal funding. The Financial Analysis assumes a restricted application of these sources to capital projects (the Airport is committed to maintaining $80,000 in cash reserves that is unavailable for use in planned capital projects), to ensure that positive year-end cash balances are maintained.

7.2.4 Other Capital Funding

The traditional funding sources described in previous sections are often insufficient to finance the full range of projects programmed for development during a CIP. A lack of traditional funding is projected for all three planning periods that results from the inclusion of non-eligible AIP projects. Consequently, other non-traditional funding sources will be needed to implement project costs of about $345,000 in Phase I (primarily for administration building construction), $11,000 in Phase II, and $617,000 in Phase III. The sources of these other funding needs have not been identified and represents a total capital shortfall of $973,000 through the 20-year planning period. If these funding sources cannot be ultimately identified and obtained in the time frames needed, the associated projects will have to be delayed until such time as appropriate funding can be identified. This source has been referenced in the plan as "Unknown Capital Funding Source."

Note that non-traditional funding sources for an airport typically include the following sources:

- General Fund Revenues
- Bond Issues
- Private Funding

Of these, general fund revenues and general obligation bonds are by far the most common funding sources. Revenue bonds supported by airport generated revenues are seldom used because most general aviation airports do not generate enough income to pay operating expenses and the debt service of capital funding requirements.

General Fund Revenues

Capital development expenditures from general fund revenues have been somewhat difficult to obtain in recent years. One reason for this difficulty is the seemingly universal shortfall in local general fund revenues. Budgetary problems have created an environment where local funding is uncertain. The amount of general fund support for airport improvement projects varies by airport and is generally based upon the local tax base, priority of the development project, historical funding trends, and, of course, local attitudes concerning the importance of aviation. It should be acknowledged that Taunton Municipal Airport has always been a self-sustaining entity that does not receive any direct contributions from the City of Taunton.

Bond Funds

The period since the mid-1990s has seen the unprecedented development of various types of municipal bonds and securities used for airport projects. Municipal securities (municipal bonds) refer generically to interest-bearing obligations issued by state and local governmental entities to finance capital costs. These funding instruments are generally broken down into the following categories: (1) general obligation, (2) revenue and special facility bonds, (3) hybrid source bonds, and (4) industrial development and exempt facility bonds.

For an airport operated by an airport commission and owned by a city, like Taunton, bond issues funding the local share of airport development projects must compete for the same attention and leadership consideration as other departments or divisions within the municipal government (i.e., schools, highways, sewer, etc.). As with the general fund apportionment, bond issues supporting airport development depend greatly on the priority assigned to such projects by the local community.

Private Funds

Items such as storage and maintenance hangars, fuel systems, and pay parking lots are not typically eligible for federal or state grant funding at public airports

because they generate income for the airport. Communities sometimes work with FBOs or other local businesses to fund these types of improvements.

With respect to Taunton Municipal Airport, each of these options would need to be weighed independently to determine the appropriateness of their potential application for eligible projects.

7.3 FINANCIAL ANALYSIS AND IMPLEMENTATION PLAN

This section, along with the tables presented at the end of the section, provides the analysis and results of evaluating the financial reasonableness of implementing the Airport Master Plan Update (AMPU) Capital Improvement Program (CIP) during the planning period (2015 through 2039).

7.3.1 Projects Listed in the Capital Improvement Program (CIP)

Following is a listing and brief description of the projects identified within this AMPU for inclusion in the Taunton Municipal Airport Capital Improvement Program (CIP). The individual projects are listed in order of their CIP identifying letter (letters with associated numbers indicate that there are several parts that make up the overall project) and all projects are assumed to require some level of federal, state, and/or local funding, unless otherwise indicated. Also note that this listing is the best estimate of anticipated projects at the time of the writing of this AMPU; however, it should be understood that many of these projects may change in scope or in timing based on future requirements. Therefore, the CIP must be reviewed, assessed and updated on a regular basis.

A - Landside Development Area 1. This is construction associated with Development Area 1 (as described in **Chapter Five)** by private development interests. It will be comprised of hangars, apron areas, auto parking, and an entrance road. Note that the hangars will be designed to remain clear of TERPS and Part 77 airspace surfaces associated with the Runway 30 approach end. This project will not require any federal, state or local expenditures.

B (1) - Environmental Permitting for 5-yr AMPU CIP (2017-2021). This is a planning effort designed to obtain the environmental permits that will be required to construct projects anticipated in the following five years. (Note that permits are actually only valid for three years, but they can be extended.)

B (2) – Runway 4-22 - Survey & Set New Runway End Pins. This is a survey effort that will establish the new Runway 4 threshold location, assuming the implementation of the recommended alternative for Runway 4-22 in **Chapter Five**. Note that this survey effort must also include submitting the survey data into the FAA AGIS.

B (3) - Conduct Wildlife Hazard Assessment & Establish Wildlife Management Plan. This is an FAA planning effort designed to assess the wildlife hazards present at TAN, and

then to design a management plan to help minimize the potential for animal strikes by aircraft.

C - 100LL Self Fueling. This will entail the purchase and installation of control equipment to allow for self-fueling of aircraft. This is a very high priority for the local pilot population in that it will allow for 24-hour fueling services being made available at TAN. It will also significantly reduce demands on airport personnel time for fueling operations.

D – Snow Removal Equipment Purchase (bucket & box plow). This is the purchase of a plow box and a bucket for the Airport's John Deere 5425. They are required for airfield maintenance and snow removal operations.

E – Runway 4-22 - Off-Airport Obstructions Removal. This is a privately-funded and conducted project for the removal of off-airport obstructions to the FAA *Airport Design* approach surfaces for Runway 22. It will allow for the implementation of the recommended action for Runway 4-22 as described in **Chapter Five.** There are be no federal, state or local expenditures required. (Note that failure to execute this project by the winter of 2017 will result in the adoption of Alternative 6 as being the recommended action.)

F - VMP Tree Clearing / Grubbing, Grading & Seeding. This is a project to implement the recommendations of the Airport's current Vegetation Management Plan (VMP). The extent of this project has yet to be determined.

G - Administration Building (Design/Construct). As part of MassDOT Aeronautics statewide administration building construction program, TAN is scheduled to receive a new 5,500 sf facility to replace its existing dilapidated terminal building. See **Chapter Five** for greater details.

H - Infill Existing Terminal Area. This a placeholder project that is comprised of the private hangar development of the three remaining buildable lots located within the terminal area. No federal, state or local expenditures will be required.

I - Runway 12-30 Rehabilitation / Reconstruction (3,500' x 75'). Runway 12-30 was the subject of a reconstruction in 1998. Assuming a 20-year life expectancy per FAA protocol, this runway will be eligible for new pavement in 2018. It should be noted that at that time, a determination will have to be made as to if the runway can simply be rehabilitated (i.e., mill and overlay) or if it will need to be reconstructed.

J (1) - Install Oil / Water Separator. As part of a previously issued Order-of-Conditions in association with the TAN's Stormwater Pollution Prevention Plan (SWPPP), the Airport is obligated to install an oil / water separator associated with its existing aircraft parking apron.

J (2) - Apron Tie-Down Redesign. This project will implement the apron redesign introduced in **Chapter Five**. It will significantly improve aircraft operational flow in

front of the new administration building and will anticipate the ultimate relocation of Taxiway A (see **Project R**). Additionally, this project will include pavement preservation applications used to extend the life expectancy of the apron pavement.

K – Pave Initial 100 feet of Westcoat Drive. This project includes the paving of the first 100 feet of Westcoat Drive (the Airport's entrance road) from Middleboro Avenue., Note that this section has never been paved by TAN since it originally was not on Airport property. The road is now entirely on Airport property and that failing section of road is in desperate need of paving.

L – Clear / Repair Security Fenceline & Establish Security Road. As noted in **Chapter Five**, the existing security fence is in need of repair and clearing. This project will clear vegetation 10 feet on either side of the fence, repair those areas where vegetation has damaged the fencing, and then establish a gravel security road along the inside of the fenceline. (Note that the road will not be extended through wetlands.) Additionally, the two sections of existing fenceline that are not compliant with the standard security fence height will be replaced with eight-foot high fencing. Implementing a standard height will also assist in wildlife management.

M - Environmental Permitting for 5-yr CIP (2022-2026). This is a planning effort designed to obtain the environmental permits that will be required to construct projects anticipated in the following five years. (Note that permits are actually only valid for three years, but they can be extended.)

N - Construct Cold Storage Building. This project involves the construction of a steel-sided, cold storage building to house airfield maintenance equipment that is currently having to be stored outside and not under cover. The building will only have electrical utilities and will help extend the life expectancy of the Airport's equipment that cannot be stored in the existing maintenance building.

O - Jet-A Fuel Farm. TAN should anticipate a significant increase in turbine traffic over the long term. Therefore, it will be necessary for the Airport to establish a Jet-A fuel farm to support the operation of an associated Jet-A fuel truck.

P - Airport Master Plan Update. The FAA recommends that airports update their master plans every 5-10 years as part of their best management practices. As projects are constructed and conditions (e.g., local, economic, industry, etc.) change, it is important for an airport to regularly monitor and adjust their long-term development path. An AMPU will accomplish that.

Q - Relocate ASOS. In order for Development Area 2 to be made available, TAN's existing ASOS will have to be relocated, as described in **Chapter Five**. It should be noted that by the time the relocation occurs, the ASOS will be over 30 years old. As such, this project may not in fact be the relocation of the ASOS, but the construction of a new AWOS.

R - Relocate & Reconstruct Taxiway A. As described in detail in **Chapter Five**, when Taxiway A is reconstructed, it will be narrowed to 25 feet and its centerline will be relocated five feet further away from Runway 12-30. Because of the centerline relocation, this project will likely be a reconstruction and not rehabilitation.

S - Construct Taxiway A Extension – Phase 1. In order to access Development Area 2 that will be made available with the relocation of the ASOS, Taxiway A will be extended to the west. This project, which is the first phase of a potential three-phase extension, includes approximately 450 feet of total taxiway, including stubs.

T - Construct Taxiway A Extension – Phase 2. This project is Phase 2 of the potential three-phase Taxiway A extension and will access Development Area 2. It includes approximately 375 feet of total taxiway, including stubs. It should be noted that completion of this phase would also provide access to the extended Runway 12-30 (see **Project AA** below).

U - Environmental Permitting for 5-yr CIP (2027-2031). This is a planning effort designed to obtain the environmental permits that will be required to construct projects anticipated in the following five years. (Note that permits are actually only valid for three years, but they can be extended.)

V - Landside Development Area 2 - Phase 1. This is anticipated to be the privately funded construction of Development Area 2 described in **Chapter Five**. It will be comprised of T-hangars, associated apron, and taxilanes. Note that the hangars will be designed such that they will be clear of TERPS and Part 77 airspace surfaces associated with the existing and future approach end to Runway 12. No federal, state or local expenditures will be required.

W - Reconstruct Existing Terminal Apron. This project anticipates the reconstruction or rehabilitation of the existing terminal apron, which, by 2029, will be at the end of its 20-year useful life expectancy. However, it should be noted that pavement preservation techniques proposed previously in **Project J(2)** could extend the life of the pavement beyond this timeframe.

X - Runway 4-22 Rehabilitation / Reconstruction. Runway 4-22 is currently considered to be in fair to poor condition; unfortunately current levels of federal and state funding effectively preclude grants from being expended on this turf/gravel runway. However, assuming that funding levels do return to appropriate levels in the future, and assuming that **Project E** is enacted and the runway preserved, this project will rehabilitate the turf runway and bring it up to FAA standards.

Y - Landside Development Area 2 - Phase 2. Phase 2 of the Development Area 2 construction, this will be comprised of T-hangars, aircraft tie downs, taxilanes, and associated apron. Note that the hangars will be designed to remain clear of TERPS and Part 77 airspace surfaces associated with the current and future approach ends of Runway 12. No federal, state or local expenditures will be required.

Z - Construct Taxiway A Extension – Phase 3. In order to access Development Area 3 as described in **Chapter Five**, Taxiway A will be further extended to the west to access the new development site. This section of the taxiway will have to be constructed at a slight angle when compared to the existing taxiway alignment in order to keep the extension outside of the critical airspace surfaces associated with both the existing and the future Runway 12 threshold ends. Note that this proposed taxiway extension includes approximately 600 feet of total taxiway.

AA - Environmental Permitting for 5-yr CIP (2032-2036). This is a planning effort designed to obtain the environmental permits that will be required to construct projects anticipated in the following five years. (Note that permits are actually only valid for three years, but they can be extended.)

BB - Development Area 3 - Construct Access Road & Install Utilities. This would be the preliminary phase of the overall development of Area 3. Anticipated to be entirely privately funded, this phase would include the establishment of an access road along with the running of appropriate utilities to the site. Note that depending on the agreement struck with the developer, a local or state funding share may be required.

CC - Development Area 3 - Construct Phase 1. This is anticipated to be the first phase of the privately funded construction of Development Area 3 described in **Chapter Five**. It is expected to be comprised of a combination of hangars, associated apron, and taxilanes. No federal, state or local expenditures will be required.

DD - Airport Master Plan Update. The FAA recommends that airports update their master plans every 5-10 years as part of their best management practices. As projects are constructed and conditions (e.g., local, economic, industry, etc.) change, it is important for an airport to regularly monitor and adjust their long-term development path. An AMPU will accomplish that.

EE – Taxiway B Rehabilitation / Reconstruction. The FAA projects airfield pavement to last a minimum of 20 years before it can be eligible for rehabilitation funding. By 2035, Taxiway B will be eligible for a reconstruction or rehabilitation.

FF - Environmental Permitting for 5-yr CIP (2037-2041). This is a planning effort designed to obtain the environmental permits that will be required to construct projects anticipated in the following five years. (Note that permits are actually only valid for three years, but they can be extended.)

GG - Runway 12-30 Extension - Airspace Clearance. In anticipation of the extension of Runway 12-30, the airspace associated with the runway end location must be cleared. This will be through a combination of acquiring new aviation easements, modifying existing easements and removal of vegetative and manmade obstructions.

HH - Runway 12-30 Rehabilitation / Reconstruction (3,500' x 75'). By this time period, Runway 12-30 will again have reached the end of its useful 20-year life expectancy per

FAA protocol, making it eligible for new pavement in 2038. It should be noted that at that time a determination will have to be made as to if the runway can simply be rehabilitated (i.e., mill and overlay) or if it will need to be reconstructed.

II - Runway 12-30 Extension - Construction. As described in **Chapter Five**, as demand warrants, Runway 12-30 could be extended an estimated 563 feet, increasing the runway length to a total of 4,063 feet. It should be noted that this extension could occur earlier in the CIP depending on when the actual demand levels area realized. Additionally, if a level of private funding were to be found, the implementation timing of this project could be accelerated dramatically.

JJ - Development Area 3 - Construct Phase 2. This is anticipated to be the second phase of the privately funded construction of Development Area 3 described in **Chapter Five**. It is expected to be comprised of a combination of hangars, associated apron, and taxilanes. No federal, state or local expenditures will be required.

7.3.2 Estimated Project Costs and Development Schedule

A listing of capital improvement projects has been assembled based on the preferred development alternative for the Taunton Municipal Airport established in Chapter Five of this Master Plan. This project list has been coordinated with the Airport Layout Plan (ALP) drawing set and the CIP, both of which should be continuously updated by airport management, as required. Generally, the CIP itself has three primary purposes:

1. Identify improvement projects that will be required at an airport over a specific period of time;
2. Estimate the order of implementation of the projects included in the plan; and
3. Estimate the total costs and funding sources of the projects.

It is important to note that as the CIP progresses from project planning in the current year to projects planned in future years, the plan becomes less detailed and more flexible. Additionally, the CIP is typically modified on an annual basis as new projects are identified, projects change, and financial environments evolve.

For Taunton Municipal Airport, each proposed capital improvement project within the planning horizon has been assigned to one of three specific planning periods: Phase I, short term (2015-2019); Phase II, intermediate term (2020-2024); and Phase III, long term (2025-2039). These project assignments are depicted in **Table 7.1**, which shows all proposed Airport projects (including AIP funded, ASMP funded, Airport funded, and privately funded) and their estimated costs for each phase within the planning horizon. (Each project's associated "CIP ID" is <u>not</u> an indication of prioritization, importance, or funding participation, but simply a mechanism for tracking the individual projects.) **Table 7.2**, **Table 7.3** and **Table 7.4** break down each of the proposed improvements listed above into their appropriate planning periods, and include estimates of the funding sources for each project.

Table 7-1: Proposed CIP Summary (based on 2015 dollars)

CIP ID	PROJECT	PROPOSED PHASE OF DEVELOPMENT	FUNDING PROGRAM	ESTIMATED CAPITAL COSTS	FEDERAL	STATE	LOCAL	OTHER / PRIVATE
AIRFIELD								
I	RW 12-30 Reconstruction (3,500' x 75')	I	FAA	$3,255,100	$2,929,590	$162,755	$162,755	$0
R	TW A - Reconstruct (Construct)	III	FAA	$2,686,300	$2,417,670	$134,315	$134,315	$0
S	TW A - Extension - Ph 1 (Construct)	III	FAA	$810,000	$729,000	$40,500	$40,500	$0
T	TW A - Extension - Ph 2 (Construct)	III	FAA	$675,000	$607,500	$33,750	$33,750	$0
W	Apron - reconstruct existing terminal apron	III	FAA	$13,236,500	$11,912,850	$661,825	$661,825	$0
X	RW 4-22 Rehabilitation	III	FAA	$950,400	$855,360	$47,520	$47,520	$0
Z	TW A - Extension - Ph 3 (Construct)	III	FAA	$1,188,000	$1,069,200	$59,400	$59,400	$0
EE	TW B - Reconstruction	III	FAA	$753,800	$678,420	$37,690	$37,690	$0
GG	RW 12-30 - Extension (Airspace Clearance)	III	FAA	$453,600	$408,240	$22,680	$22,680	$0
HH	RW 12-30 Reconstruction (3,500' x 75')	III	FAA	$3,255,100	$2,929,590	$162,755	$162,755	$0
II	RW 12-30 - Extension (Construct)	III	FAA	$1,241,300	$1,117,170	$62,065	$62,065	$0
			SUBTOTAL	**$28,505,100**	**$25,654,590**	**$1,425,255**	**$1,425,255**	**$0**
LANDSIDE								
A	Landside Development Site 1	I	PVT	$3,769,700	$0	$0	$0	$3,769,700
H	Infill Existing Terminal Area	I	PVT	$2,065,400	$0	$0	$0	$2,065,400
J (2)	Apron Tie-Down Redesign	I	MassDOT	$281,200	$0	$224,960	$56,240	$0
V	Landside Development Site 2 - Ph. 1	III	PVT	$5,808,000	$0	$0	$0	$5,808,000
Y	Landside Development Site 2 - Ph. 2	III	PVT	$4,455,000	$0	$0	$0	$4,455,000
CC	Landside Development Site 3 - Ph. 1	III	PVT	$8,574,000	$0	$0	$0	$8,574,000
JJ	Landside Development Site 3 - Ph. 2	III	PVT	$8,574,000	$0	$0	$0	$8,574,000
			SUBTOTAL	**$33,527,300**	**$0**	**$224,960**	**$56,240**	**$33,246,100**
MISCELLANEOUS & MAINTENANCE								
B (2)	RW 4-22 - Survey & Set New RW 4 End Pins	I	FAA	$18,300	$16,470	$915	$915	$0
C	100LL Self Fueling	I	MassDOT	$18,000	$0	$14,400	$3,600	$0
D	SRE (Bucket & box plow)	I	MassDOT	$24,000	$0	$19,200	$4,800	$0
E	RW 4-22 - Off-Airport Obstructions Removal	I	PVT	$176,400	$0	$0	$0	$176,400
F	VMP Tree Clearing / Grubbing, Grading & Seeding	I	MassDOT	$635,000	$0	$508,000	$127,000	$0
G	Admin Building (Design/Construct)	I	MassDOT	$5,041,800	$0	$4,789,710	$252,090	$0
J (1)	Install Oil/Water Separator	I	FAA	$185,100	$166,590	$9,255	$9,255	$0
K	Pave Westcoat Dr.	I	MassDOT	$28,800	$0	$23,040	$5,760	$0
L	Clear/Repair Security Fenceline & Establish Security Road	II	FAA	$997,500	$897,750	$49,875	$49,875	$0
N	Cold Storage Building (Construct)	II	FAA	$218,000	$196,200	$10,900	$10,900	$0
O	Jet-A Fuel Farm	II	MassDOT	$96,000	$0	$76,800	$19,200	$0
Q	Relocate ASOS	II	FAA	$216,000	$194,400	$10,800	$10,800	$0
BB	Landside Site 3 - Construct Access Road & Install Utilities	III	PVT	$1,749,600	$0	$0	$0	$1,749,600
			SUBTOTAL	**$9,404,500**	**$1,471,410**	**$5,512,895**	**$494,195**	**$1,926,000**
PLANNING								
B (1)	Environmental Permitting for 5-yr AMPU CIP (2017-2021)	I	FAA	$205,000	$184,500	$10,250	$10,250	$0
B (3)	Conduct Wildlife Hazard Assessment	I	FAA	$85,000	$76,500	$4,250	$4,250	$0
M	Environmental Permitting for 5-yr CIP (2022-2026)	II	FAA	$240,000	$216,000	$12,000	$12,000	$0
P	Airport Master Plan Update	II	FAA	$250,000	$225,000	$12,500	$12,500	$0
U	Environmental Permitting for 5-yr CIP (2027-2031)	III	FAA	$240,000	$216,000	$12,000	$12,000	$0
AA	Environmental Permitting for 5-yr CIP (2032-2036)	III	FAA	$240,000	$216,000	$12,000	$12,000	$0
DD	Airport Master Plan Update	III	FAA	$250,000	$225,000	$12,500	$12,500	$0
FF	Environmental Permitting for 5-yr CIP (2037-2041)	III	FAA	$240,000	$216,000	$12,000	$12,000	$0
			SUBTOTAL	**$1,750,000**	**$1,575,000**	**$87,500**	**$87,500**	**$0**
CAPITAL IMPROVEMENT PROGRAM TOTALS				**$73,186,900**	**$28,701,000**	**$7,250,610**	**$2,063,190**	**$35,172,100**

NOTE: It should be recognized that the accuracy of these cost opinions, although prepared in good faith and with reasonable care, are based on available information at the time of the study. The level of detail and accuracy should be considered to be "order of magnitude" and of a preliminary nature.

Source: Airport Solutions Group, LLC analysis, 2015.

Table 7-2: Proposed CIP - Phase I (Short Term, 2014-2019)

CIP ID	PROJECT	FUNDING PROGRAM	ESTIMATED CAPITAL COSTS	FEDERAL	STATE	LOCAL	OTHER / PRIVATE
A	Landside Development Site 1	PVT	$3,769,700	$0	$0	$0	$3,769,700
B (1)	Environmental Permitting for 5-yr AMPU CIP (2017-2021)	FAA	$205,000	$184,500	$10,250	$10,250	$0
B (2)	RW 4-22 - Survey & Set New RW 4 End Pins	FAA	$18,300	$16,470	$915	$915	$0
B (3)	Conduct Wildlife Hazard Assessment	FAA	$85,000	$76,500	$4,250	$4,250	$0
C	100LL Self Fueling	MassDOT	$18,000	$0	$14,400	$3,600	$0
D	SRE (Bucket & box plow)	MassDOT	$24,000	$0	$19,200	$4,800	$0
E	RW 4-22 - Off-Airport Obstructions Removal	PVT	$176,400	$0	$0	$0	$176,400
F	VMP Tree Clearing / Grubbing, Grading & Seeding	MassDOT	$635,000	$0	$508,000	$127,000	$0
G	Admin Building (Design/Construct)	MassDOT	$5,041,800	$0	$4,789,710	$252,090	$0
H	Infill Existing Terminal Area	PVT	$2,065,400	$0	$0	$0	$2,065,400
I	RW 12-30 Reconstruction (3,500' x 75')	FAA	$3,255,100	$2,929,590	$162,755	$162,755	$0
J (1)	Install Oil/Water Separator	FAA	$185,100	$166,590	$9,255	$9,255	$0
J (2)	Apron Tie-Down Redesign	MassDOT	$281,200	$0	$224,960	$56,240	$0
K	Pave Westcoat Dr.	MassDOT	$28,800	$0	$23,040	$5,760	$0
		SUBTOTAL	**$15,788,800**	**$3,373,650**	**$5,766,735**	**$636,915**	**$6,011,500**
PHASE I PROGRAM TOTALS			**$15,788,800**	**$3,373,650**	**$5,766,735**	**$636,915**	**$6,011,500**

NOTE: It should be recognized that the accuracy of these cost opinions, although prepared in good faith and with reasonable care, are based on available information at the time of the study. The level of detail and accuracy should be considered to be "order of magnitude" and of a preliminary nature.

Source: Airport Solutions Group, LLC analysis, 2015.

Table 7-3: Proposed CIP - Phase II (Intermediate Term, 2020-2024)

CIP ID	PROJECT	FUNDING PROGRAM	ESTIMATED CAPITAL COSTS	FEDERAL	STATE	LOCAL	OTHER / PRIVATE
L	Clear/Repair Security Fenceline & Establish Security Road	FAA	$997,500	$897,750	$49,875	$49,875	$0
M	Environmental Permitting for 5-yr CIP (2022-2026)	FAA	$240,000	$216,000	$12,000	$12,000	$0
N	Cold Storage Building (Construct)	FAA	$218,000	$196,200	$10,900	$10,900	$0
O	Jet-A Fuel Farm	MassDOT	$96,000	$0	$76,800	$19,200	$0
P	Airport Master Plan Update	FAA	$250,000	$225,000	$12,500	$12,500	$0
Q	Relocate ASOS	FAA	$216,000	$194,400	$10,800	$10,800	$0
		SUBTOTAL	**$2,017,500**	**$1,729,350**	**$172,875**	**$115,275**	**$0**
PHASE II PROGRAM TOTALS			**$2,017,500**	**$1,729,350**	**$172,875**	**$115,275**	**$0**

NOTE: It should be recognized that the accuracy of these cost opinions, although prepared in good faith and with reasonable care, are based on available information at the time of the study. The level of detail and accuracy should be considered to be "order of magnitude" and of a preliminary nature.

Source: Airport Solutions Group, LLC analysis, 2015.

Table 7-4: Proposed CIP - Phase III (Long Term, 2025-2039)

CIP ID	PROJECT	FUNDING PROGRAM	ESTIMATED CAPITAL COSTS	FEDERAL	STATE	LOCAL	OTHER / PRIVATE
R	TW A - Reconstruct (Construct)	FAA	$2,686,300	$2,417,670	$134,315	$134,315	$0
S	TW A - Extension - Ph 1 (Construct)	FAA	$810,000	$729,000	$40,500	$40,500	$0
T	TW A - Extension - Ph 2 (Construct)	FAA	$675,000	$607,500	$33,750	$33,750	$0
U	Environmental Permitting for 5-yr CIP (2027-2031)	FAA	$240,000	$216,000	$12,000	$12,000	$0
V	Landside Development Site 2 - Ph. 1	PVT	$5,808,000	$0	$0	$0	$5,808,000
W	Apron - reconstruct existing terminal apron	FAA	$13,236,500	$11,912,850	$661,825	$661,825	$0
X	RW 4-22 Rehabilitation	FAA	$950,400	$855,360	$47,520	$47,520	$0
Y	Landside Development Site 2 - Ph. 2	PVT	$4,455,000	$0	$0	$0	$4,455,000
Z	TW A - Extension - Ph 3 (Construct)	FAA	$1,188,000	$1,069,200	$59,400	$59,400	$0
AA	Environmental Permitting for 5-yr CIP (2032-2036)	FAA	$240,000	$216,000	$12,000	$12,000	$0
BB	Landside Site 3 - Construct Access Road & Install Utilities	PVT	$1,749,600	$0	$0	$0	$1,749,600
CC	Landside Development Site 3 - Ph. 1	PVT	$8,574,000	$0	$0	$0	$8,574,000
DD	Airport Master Plan Update	FAA	$250,000	$225,000	$12,500	$12,500	$0
EE	TW B - Reconstruction	FAA	$753,800	$678,420	$37,690	$37,690	$0
FF	Environmental Permitting for 5-yr CIP (2037-2041)	FAA	$240,000	$216,000	$12,000	$12,000	$0
GG	RW 12-30 - Extension (Airspace Clearance)	FAA	$453,600	$408,240	$22,680	$22,680	$0
HH	RW 12-30 Reconstruction (3,500' x 75')	FAA	$3,255,100	$2,929,590	$162,755	$162,755	$0
II	RW 12-30 - Extension (Construct)	FAA	$1,241,300	$1,117,170	$62,065	$62,065	$0
JJ	Landside Development Site 3 - Ph. 2	PVT	$8,574,000	$0	$0	$0	$8,574,000
		SUBTOTAL	**$55,380,600**	**$23,598,000**	**$1,311,000**	**$1,311,000**	**$29,160,600**
PHASE III PROGRAM TOTALS			**$55,380,600**	**$23,598,000**	**$1,311,000**	**$1,311,000**	**$29,160,600**

NOTE: It should be recognized that the accuracy of these cost opinions, although prepared in good faith and with reasonable care, are based on available information at the time of the study. The level of detail and accuracy should be considered to be "order of magnitude" and of a preliminary nature.

Source: Airport Solutions Group, LLC analysis, 2015.

Note that the cost opinions contained in these tables should be considered to be "planning level" or "order-of-magnitude" and were derived from analyzing similar projects - each should be re-evaluated in detail at the time of project initiation. It should also be recognized that "private" development initiatives often are able to realize cost savings not available to publicly-funding projects; therefore, the private investment requirements may be overstated.

Phase I (shown in Table 7.2) contains approximately $15.8 million in capital projects including the reconstruction of Runway 12-30, the construction of a new Administration Building, the clearance of vegetative obstructions, the reconfiguration of the apron area, the installation of an oil-water separator, and the installation of self-fueling equipment for 100LL. It is estimated that the sponsor (local) share of Phase I capital costs will be approximately $1.4 million, the state share just over $5.0 million, with the balance (roughly $3.4 million) being eligible for funding from the FAA. Also anticipated in Phase I is an estimated $6.0 million in private investment for the construction of hangars and the clearance of obstructions associated with Runway 4-22.

Phase II contains slightly more than $2.0 million in total capital projects, as shown in Table 7.3. These projects include the clearance and maintenance of the security fenceline, the relocation of the ASOS, the establishment of Jet-A fuel services, and the construction of a cold storage building. It is estimated that the

Airport share of Phase I capital costs will each be approximately $115,000, the state share nearly $173,000, with the remaining $1.7 million being eligible for FAA funding. No private investments are currently anticipated during this period.

Table 7.4 lists the Phase III development that includes significant airfield improvements such as the extension of Taxiway A, the extension of Runway 12-30, and the development of two separate sites for hangars, as well as the reconstruction of various pavement structures. Phase III capital costs are currently estimated at $55.4 million, of which $23.6 million could be eligible for funding from the FAA, $1.3 million could be provided by the state, and another $1.3 million would be required of the Airport. An estimated $29 million in private investment would have to be also realized for the construction of hangar and associated apron facilities.

When combined, the overall development program for the Taunton Municipal Airport represents over $73 million in development projects, of which approximately 39.2% is eligible for federal participation, 8.8% eligible for state funding, 3.8% required from local sources, with the remaining funding requirements being met through private development.

7.3.3 Airport Operating Revenues and Expenses

Airport revenues are typically generated through user fees charged by a given airport for the facilities and services that it provides. These user fees are typically established by that airport based on the market conditions within its area and can vary dramatically from airport-to-airport. For Taunton Municipal Airport, the airport operating revenues are realized from the following primary sources (note that the Airport does not receive any contributions from the City of Taunton):

- Land Leases
    - Fixed Base Operator (FBO) Tenants
    - Other Business Tenants
    - General Tenants
- Other Revenues
    - Fuel Sales
    - Miscellaneous Revenues

Landside facility development and levels of aviation activity are typically the primary factors affecting airport operating revenues. Note that as additional airport development occurs, the number of based aircraft and itinerant aircraft operations will normally increase and new/updated leases will be enacted, typically resulting in airport operating revenues increasing in a corresponding fashion.

Airport operating revenues are offset by airport operating expenses, typically referred to as Operation and Maintenance (O&M) costs. Airport operating expenses are comprised of the day-to-day costs incurred by operating the airport

itself. They do not include non-cash and capital costs associated with depreciation and infrastructure development. Primary components of O&M costs at Taunton Municipal Airport include the following:

- Personnel Services – Includes full-time salaries, overtime pay, accrued personal leave, payroll taxes, health insurance, retirement benefits, unemployment insurance and workers' compensation expense.
- Fixed Costs – Includes building rentals, insurance (building, vehicle, liability, etc.), phones (cell/land), utilities (power, natural gas, trash, etc.), fueling equipment, among others.
- Aviation Fuel Costs – Identified separately due to its large percentage of the overall expense budget.
- Miscellaneous Costs – Includes office supplies, maintenance supplies, etc.

The historic operating revenues and expenses for Taunton Municipal Airport over the last five fiscal years are presented in **Table 7.5**.

Table 7-5: Airport Operating Revenues and Expenses (FY2010 – FY 2014)

	FY2010	FY2011	FY2012	FY2013	FY2014 (Actual)
Airport Operating Revenues					
Land Leases					
Business Tenants	$13,864	$12,160	$14,176	$18,124	$22,887
General Tenants	$72,381	$75,153	$68,098	$68,761	$68,375
Sub-Total:	*$86,245*	*$87,313*	*$82,274*	*$86,885*	*$91,263*
Other Revenues					
Aviation Fuel	$155,790	$172,729	$194,938	$230,215	$222,593
Misc	$6,261	$5,270	$5,882	$6,430	$8,581
Sub-Total:	*$162,051*	*$177,999*	*$200,820*	*$236,645*	*$231,174*
City Contributions	$0	$0	$0	$0	$0
Total Operating Reveues:	$248,296	$265,312	$283,095	$323,530	$322,437
Airport Operating Expenses					
Personnel Costs	$65,098	$73,597	$68,468	$66,070	$104,876
Fixed Costs	$33,316	$44,613	$28,005	$37,201	$55,411
Aviation Fuel Costs	$129,721	$146,844	$173,791	$186,660	$158,679
Miscellaneous Costs	$3,789	$4,478	$5,312	$21,293	$2,647
Total Operating Expenses:	$231,925	$269,532	$275,576	$311,223	$321,613
NET OPERATING INCOME:	**$16,371**	**-$4,219**	**$7,519**	**$12,307**	**$824**

Source: Airport Solutions Group.

7.3.4 Projected Operating Revenues and Expenses

The continued growth of Taunton Municipal Airport, in terms of activity, tenants, new leases and facility development, will impact the Airport's operating revenues and expenses over the planning period. Actual future financial outcomes will be determined by a variety of factors, many of which are impossible to identify at the current time. However, the projections developed in this evaluation depict future airport operating revenues and expenses based on recent financial results, budgeted revenues and expenses for 2014, and activity and tenant growth trends identified in previous sections.

Projections of future airport operating revenues and expenses at Taunton Municipal Airport for the periods 2015 through 2039 are presented in **Table 7.6**.

Table 7-6: Airport Operating Revenues and Expenses (FY2013 – FY 2033)

	FY2014 (Actual)	FY2015	FY2019	FY2024	FY2039
Airport Operating Revenues					
Land Leases					
Business Tenants	$22,887	$25,176	$29,389	$33,251	$44,687
General Tenants	$68,375	$78,290	$101,630	$114,985	$220,770
Sub-Total:	*$91,263*	*$103,466*	*$131,019*	*$148,236*	*$265,457*
Other Revenues					
Aviation Fuel	$222,593	$231,497	$270,818	$321,647	$453,716
Misc	$8,581	$8,753	$9,475	$10,461	$14,060
Sub-Total:	*$231,174*	*$240,250*	*$280,293*	*$332,108*	*$467,776*
City Contributions	$0	$0	$0	$0	$0
Total Operating Reveues:	$322,437	$343,716	$411,312	$480,344	$733,233
Airport Operating Expenses					
Personnel Costs	$104,876	$107,813	$120,405	$138,233	$185,774
Fixed Costs	$55,411	$56,962	$63,616	$73,034	$98,152
Aviation Fuel Costs	$158,679	$162,646	$186,641	$221,671	$312,688
Miscellaneous Costs	$2,647	$2,727	$3,069	$3,559	$4,783
Total Operating Expenses:	$321,613	$330,148	$373,731	$436,497	$601,397
NET OPERATING INCOME:	**$824**	**$13,568**	**$37,581**	**$43,847**	**$131,836**

Source: Airport Solutions Group.

The estimates for future operating revenues were established through close consideration of historical trends, as well as proposed airport development initiatives and how they might impact those future revenues. In most instances, revenue projections resulted from normal, conservative growth factors refined to more closely reflect the circumstances of the Airport. These revenues were projected to increase between 2.5% and 3.5% annually with an average at the standard 3% annual growth rate. The exception to these rates are one-time increases (approximately 10% for the individual year) related to previously described hangar development areas that are projected to add to the revenue

base for the Airport in 2017, 2019, 2026, 2030, 2033, and 2039. Also note that additional "Miscellaneous" revenues could be realized through the one-time sales of airport assets, such as airport property identified as surplus for long-term airport need and designated for non-aviation related uses. (Note that while TAN could generate revenue from such property sales, none have been projected in this analysis. However, they do remain an option for the Airport.)

On the operating expenses side, increases in salaries and wages, as well as overall operational activities are based on accepted inflationary growth rates (ranging from 2.8% and 3.5% average annual growth), with the higher growth factors being applied to fuel costs in order to account for some volatility in the supply market.

The projected operating revenues presented in Table 7.6 are based on historical year-end financial results for FY2010-FY2014. Additionally, forecasted increases in airport based and itinerant aircraft activities, as well as airport tenant populations presented in previous chapters of this Master Plan, have been considered in these projections as a percentage annual increase. As reflected in Table 7.5 and Table 7.6, based on projected activity growth and assumptions regarding future tenant growth and development at the Taunton Municipal Airport, operating revenues are projected to increase from $322,437 in FY2014 to $733,233 by 2039. Additionally, operations and maintenance expenses are projected to increase from $321,613 in FY2014 to $601,397 by FY 2039. When combined, these projections reflect a balanced airport operations and maintenance budget throughout the planning period.

7.4 FINANCIAL PLAN SUMMARY

The primary goal is for the Airport to evolve into a facility that will best serve the air transportation needs of the region while simultaneously maintaining itself as a self-sustaining economic generator for the City of Taunton. This Master Plan Update can best be described as being the road map to helping the Airport achieve these goals. But it should be recognized that planning is a continuous process that does not end with the completion of the Master Plan in that the fundamental basic issues that have driven this Master Plan will remain valid for many years. Therefore, the ability to continuously monitor the existing and forecast status of airport activity will be a key ingredient in maintaining the applicability and relevance of this study.

In order to realize those goals through the successful implementation of airport development projects, sound and measured decisions by the Taunton Municipal Airport must be made. Two of the most important factors in influencing the decision to move forward with a specific improvement are airport activity and funding timing. Both factors must be considered in the implementation of this Master Plan in that while airport activity levels provide the "what" and the "why" in the establishment of airport improvements, the timing of funding provides the "how." Through the course of this Master Plan effort, the "what" and the "why"

have been discussed in detail in previous sections. This section has addressed the "how" by providing an overview of the practical financial realities required to implement this overall airport development program. However, although every effort has been made in this chapter to conservatively estimate when facility development may be required, aviation demand and the availability of financial resources for capital projects will ultimately dictate when facility improvements need to be implemented, accelerated or delayed.

For the Taunton Municipal Airport, the Financial Plan Summary presented below in **Table 7-7, Table 7-8,** and **Table 7-9** include projection totals for operating revenues, operating expenses, capital expenditures, capital funding, and cash flow that result from the projections presented above.

Previous sections of this analysis provided a practical approach for scheduling capital expenditures to match the availability of capital financing. (It should be noted that this plan assumes that the Airport will maintain a cash reserve of $80,000 for emergency funding purposes – this money would not be available for capital expenditures.) Based on the assumptions identified within the previous sections and subject to the availability of FAA and MassDOT funding (it is important to state that identification of a potential funding source does not guarantee its availability), and the identification of currently unidentified Unknown Capital Funding Sources described in the analysis, implementation of the Master Plan CIP is financially feasible. However, the most significant concern of implementing this CIP is the identification of those Unknown Capital Funding Sources, without which, several projects would have to be shifted to later phases until such time as that funding is identified or is made available by accumulating airport revenue.

Beyond the obvious concern over those unidentified funding sources, the "reasonableness" of funding the capital program can be best characterized by the level of identified funding (not Unknown Capital Funding Source) indicated in each phase of the program. In Phase I, 95.9% of the funding sources have been identified, in Phase II, 99.5% of the funding has been identified, and in Phase III, 98.7% has been identified. With respect to Phase I, it should be noted that the Airport has been in discussions with the City of Taunton to secure an individual city contribution (approximately $253,000) for the local fund match for the administration building construction project. The MassDOT-sponsored airport administration building program provides 95% of the estimated design and construction costs for the facility.

Key assumptions supporting the financial plan relate to the availability and timeliness of the funding sources that have been indicated. Continuation of the AIP entitlement program at authorized funding levels is essential. Additionally, receiving AIP discretionary grants of approximately $2.6 million during Phase I, $980,000 during Phase II, and $21.5 million during Phase III, as well as MassDOT funding of $5.8 million during Phase I, $173,000 during Phase II, and $1.3 million during Phase III, are critical to the financial feasibility of implementing these projects. Without these levels of discretionary funding, these

projects are not practically feasible and would have to be delayed or cancelled unless another source of funds could be acquired.

The following tables present the detailed financial analysis for implementation of the Taunton Municipal Airport CIP.

Table 7-7: Actual and Projected Operating Revenues

		Phase I (2015-2019)						Phase II	Phase III
	Actual	Projected						Projected	Projected
Revenues	2014	2015	2016	2017	2018	2019	*Total*	2020-2024	2025-2039
Annual Operating Revenues									
City Contributions									
	$0	$0	$0	$0	$0	$0	*$0*	*$0*	*$0*
Annual Growth Rate		0.0%	0.0%	0.0%	0.0%	0.0%	*0.0%*	*0.0%*	*0.0%*
Total City Contributions	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
Airport Revenues									
Land Leases									
Business Tenants	$22,887	$25,176	$27,694	$28,248	$28,813	$29,389	*$139,320*	*$158,341*	*$629,871*
Annual Growth Rate		10.0%	10.0%	2.0%	2.0%	2.0%	*5.1%*	*2.5%*	*2.0%*
General Tenants	$68,375	$78,290	$88,468	$93,334	$97,721	$101,630	*$459,443*	*$547,555*	*$2,634,959*
Annual Growth Rate		14.5%	13.0%	5.5%	4.7%	4.0%	*8.2%*	*2.5%*	*4.4%*
Other Revenues									
Aviation Fuel	$222,593	$231,497	$240,757	$250,387	$260,402	$270,818	*$1,253,861*	*$1,503,082*	*$6,338,480*
Annual Growth Rate		4.0%	4.0%	4.0%	4.0%	4.0%	*4.0%*	*3.5%*	*2.3%*
Miscellaneous	$8,581	$8,753	$8,928	$9,107	$9,289	$9,475	*$45,552*	*$50,295*	*$198,169*
Annual Growth Rate		2.0%	2.0%	2.0%	2.0%	2.0%	*2.0%*	*2.0%*	*2.0%*
Total Airport Revenues	*$322,437*	*$343,716*	*$365,847*	*$381,076*	*$396,225*	*$411,312*	*$1,898,176*	*$2,259,273*	*$9,801,479*
Total Annual Operating Revenues	$322,437	$343,716	$365,847	$381,076	$396,225	$411,312	*$1,898,176*	*$2,259,273*	*$9,801,479*
Annual Growth Rate		6.6%	6.4%	4.2%	4.0%	3.8%	*5.0%*	*3.2%*	*2.9%*
Capital Funding									
Refunds and Reimbursments	$0	$0	$0	$0	$0	$0	*$0*	*$0*	*$0*
Grant Revenue	$312,889	$0	$0	$0	$0	$0	*$0*	*$0*	*$0*
Sale of Assets	$0	$0	$0	$0	$0	$0	*$0*	*$0*	*$0*
Cash Balance	*$273,770*	$0	$0	$0	$0	$0	*$0*	*$0*	*$0*
Total Capital Funding	$586,659	$0	$0	$0	$0	$0	*$0*	*$0*	*$0*
Total Available Revenue/Funding	$909,096	$343,716	$365,847	$381,076	$396,225	$411,312	*$1,898,176*	*$2,259,273*	*$9,801,479*
Annual Growth Rate		-62.2%	6.4%	4.2%	4.0%	3.8%	*-14.7%*	*3.2%*	*2.9%*
Total Annual Non-Operating Revenues	$0	$0	$0	$0	$0	$0	*$0*	*$0*	*$0*
Total Annual Revenues	$322,437	$343,716	$365,847	$381,076	$396,225	$411,312	*$1,898,176*	*$2,259,273*	*$9,801,479*
Annual Growth Rate		6.6%	6.4%	4.2%	4.0%	3.8%	*5.0%*	*3.2%*	*2.9%*

Source: Airport Solutions Group.

Table 7-8: Actual and Projected Operating Expenses

Expenses	Actual 2014	Phase I (2015-2019) Projected 2015	2016	2017	2018	2019	*Total*	Phase II Projected 2020-2024	Phase III Projected 2025-2039
Operations & Maintenance Expenses									
Personnel Costs	$104,876	$107,813	$110,832	$113,935	$117,125	$120,405	*$570,110*	$654,524	$2,618,528
Annual Growth Rate		2.8%	2.8%	2.8%	2.8%	2.8%	*2.8%*	2.8%	2.0%
Fixed Costs	$55,411	$56,962	$58,557	$60,197	$61,883	$63,616	*$301,215*	$345,814	$1,383,474
Annual Growth Rate		2.8%	2.8%	2.8%	2.8%	2.8%	*2.8%*	2.8%	2.0%
Aviation Fuel Costs	$158,679	$162,646	$168,339	$174,231	$180,329	$186,641	*$872,186*	$1,035,885	$4,368,301
Annual Growth Rate		2.5%	3.5%	3.5%	3.5%	3.5%	*3.3%*	3.5%	2.3%
Miscellaneous Costs	$2,647	$2,727	$2,809	$2,893	$2,980	$3,069	*$14,478*	$16,785	$67,419
Annual Growth Rate		3.0%	3.0%	3.0%	3.0%	3.0%	*3.0%*	3.0%	2.0%
Total O&M Expenses/Expenditures	$321,613	$330,148	$340,537	$351,256	$362,317	$373,731	*$1,757,989*	$2,053,008	$8,437,722
Annual Growth Rate		2.7%	3.1%	3.1%	3.1%	3.2%	*3.0%*	3.2%	2.2%
Capital Expenses									
Engineering Consultants	$204,498	$204,498	$204,498	$204,498	$204,498	$204,498	*$1,022,490*	$1,022,490	$4,192,978
Annual Growth Rate		0.0%	0.0%	0.0%	0.0%	0.0%	*0.0%*	0.0%	2.6%
Capital Improvement Projects	$0	$83,287	$85,786	$88,360	$91,011	$93,741	*$442,185*	$512,616	$2,058,550
Annual Growth Rate		3.0%	3.0%	3.0%	3.0%	3.0%		3.0%	2.0%
Total Capital Expenses/Expenditures	$204,498	$287,785	$290,284	$292,858	$295,509	$298,239	*$1,464,675*	$1,535,106	$6,251,528
Annual Growth Rate		40.7%	0.9%	0.9%	0.9%	0.9%	*7.8%*	1.0%	2.4%
Total Expenses/Expenditures	$526,111	$617,933	$630,821	$644,114	$657,826	$671,970	*$3,222,664*	$3,588,114	$14,689,250
Annual Growth Rate		17.5%	2.1%	2.1%	2.1%	2.2%	*5.0%*	2.2%	2.3%

Source: Airport Solutions Group.

Table 7-9: Financial Plan Summary - Budgeted and Projected Net Revenues, Capital Funding and Capital Expenditures

Operating and Capital Cash Flow	Actual	Phase I (2015-2019) Projected						Phase II Projected	Phase III Projected
	Total	2015	2016	2017	2018	2019	Total	2020-2024	2025-2039
Operating Cash Flow									
Revenues:									
Total Operating Revenues	$2,653,502	$343,716	$365,847	$381,076	$396,225	$411,312	$1,898,176	$2,259,273	$9,801,479
City Contributions (Direct)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Expenses:									
Total Operation and Maintenance Expenses	$2,474,320	$330,148	$340,537	$351,256	$362,317	$373,731	$1,757,989	$2,053,008	$8,437,722
Net Operating Cash Flow	$179,182	$13,568	$25,310	$29,820	$33,908	$37,581	$140,187	$206,265	$1,363,757
Net Operating Cash Flow Available for Capital Expenditures	$179,182	$13,568	$25,310	$29,820	$33,908	$37,581	$140,187	$321,540	$1,363,757
22 Account - Grants	$15,144	$0	$150,000	$22,530	$172,530	$0	$0	$0	$0
25 Account - General	$1,392,836	$69,130	$82,698	$84,193	$80,000	$80,000	$69,130	$80,000	$182,115
Airport Fund Balance	$1,407,981	$69,130	$232,698	$106,723	$252,530	$80,000	$69,130	$80,000	$182,115
Total Airport Operating Funds Available For Capital Expenditures (TTL Airport Fund - Reserve)	$1,587,163	$2,698	$178,008	$56,543	$206,438	$37,581	$209,317	$401,540	$1,545,872
Capital Cash Flow									
Capital Projects:									
FAA (AIP 90% Grant)	$0	$0	$277,470	$0	$2,929,590	$166,590	$3,373,650	$1,729,350	$23,598,000
MassDOT (ASMP 80% Grant/AIP 5% Match)	$0	$0	$49,015	$5,297,710	$162,755	$257,255	$5,766,735	$172,875	$1,311,000
Airport (ASMP 20% Match/AIP 5% Match/Other)	$0	$0	$23,815	$379,090	$162,755	$71,255	$636,915	$115,275	$1,311,000
Total Public/Airport Capital Expenditures	$0	$0	$350,300	$5,676,800	$3,255,100	$495,100	$9,777,300	$2,017,500	$26,220,000
Capital Funding Sources:									
AIP Entitlement Grants (Primary + Rollover)		$150,000	$300,000	$172,530	$322,530	$150,000	$1,095,060	$900,000	$3,525,000
AIP Discretionary Grants	$3,348,012	$0	$0	$0	$2,607,060	$16,590	$2,623,650	$979,350	$21,498,000
MassDOT Aeronautics Division	$464,735	$0	$49,015	$5,297,710	$162,755	$257,255	$5,766,735	$172,875	$1,311,000
Unknown Capital Funding Source	$0	$0	$0	$345,077	$128,847	$33,674	$507,598	$11,125	$617,111
Total Capital Funding Sources	$3,812,747	$150,000	$349,015	$5,815,317	$3,221,192	$457,519	$9,993,043	$2,063,350	$26,951,111
									$0
Total Funds Available for Capital Expenditures	*$5,399,910*	$152,698	$377,023	$5,849,330	$3,255,100	$495,100	$10,202,360	$2,464,890	$28,496,983
Non-CIP Capital Expenditures (airport projects)	$0	$0	$0	$0	$0	$0	$0	$0	$0
AIP-Eligible Expenditures	$0	$0	$308,300	$0	$3,255,100	$185,100	$3,748,500	$1,921,500	$26,220,000
Non-AIP-Eligible Expenditures	$0	$0	$42,000	$5,676,800	$0	$310,000	$6,028,800	$96,000	$0
Capital Improvement Program Expenditures	*$0*	$0	$350,300	$5,676,800	$3,255,100	$495,100	$9,777,300	$2,017,500	$26,220,000
FAA AIP Entitlement Rollover	*NA*	$150,000	$22,530	$172,530	$0	$0			
Ending Airport Fund Balance (with Reserve)	*NA*	$82,698	$84,193	$80,000	$80,000	$80,000	$425,060	$447,390	$2,276,983

Source: Airport Solutions Group.

APPENDIX A:

GLOSSARY

ADVISORY CIRCULAR (AC) - Federal Aviation Administration Advisory Circular. This is a FAA document, which provides guidance on aviation issues.

AIRCRAFT APPROACH CATEGORY - An aircraft approach category is a FAA grouping of aircraft based on approach speed. The aircraft approach categories are:

(1) Category A: Speed less than 91 knots;
(2) Category B: Speed 91 knots or more but less than 121 knots;
(3) Category C: Speed 121 knots or more but less than 141 knots;
(4) Category D: Speed 141 knots or more but less than 166 knots.

AIR NAVIGATION AID FACILITY (NAVAID) - Any facility used or available for use as an aid to air navigation, including landing areas; lights; any apparatus or equipment for disseminating weather information, for signaling, for radio direction-finding, or for radio or other electronic communication; and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or during the landing or takeoff of aircraft.

AIR TRAFFIC CONTROL (ATC) SERVICE - A service provided for the purpose of promoting the safe, orderly, and expeditious flow of air traffic, including airport, approach, and enroute air traffic control services. ATC is provided by the Federal Aviation Administration, a branch of the federal government under the Department of Transportation.

AIRPLANE DESIGN GROUP (PHYSICAL CHARACTERISTICS) - The FAA Airplane Design Group subdivides airplanes by wingspan. The airplane Design Groups are:

(1) Group I: Wingspan up to but not including 49 feet (15 m);
(2) Group II: Wingspan 49 feet (15 m) up to but not including 79 feet (24 m);
(3) Group III: Wingspan 79 feet (24 m) up to but not including 118 feet (36 m);
(4) Group IV: Wingspan 118 feet (36 m) up to but not including 171 feet (52 m);
(5) Group V: Wingspan 171 feet (52 m) up to but not including 197 feet (60 m)
(6) Group VI: Wingspan 197 feet (60 m) up to but not including 262 feet (80 m).

AIRPORT HAZARD - An airport hazard is any structure or natural object located on or in the vicinity of a public airport, or any use of land near such airport, that obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to aircraft landing, taking of, or taxiing at the airport.

AIRPORT IMPROVEMENT PROGRAM (AIP) – FAA program that is the primary source of funding for airport projects as grants. This funding is provided at specific levels, with the funding priority based on the airport's Capital Improvement Program (CIP)

AIRPORT TRAFFIC CONTROL TOWER (ATCT) - A facility providing airport traffic control service to an airport and its associated airspace area.

APPROACH LIGHT SYSTEM (ALS) - An airport lighting system designed to assist pilots in finding the runway during instrument approaches for landing. The lights extend from the runway end outwards along the extended centerline for a certain distance, depending on the type of runway.

APPROACH END OF RUNWAY - The approach end of runway is the near end of the runway as viewed from the cockpit of a landing airplane.

APPROACH SURFACE - An imaginary surface extending out from the end of the Primary Surface at a slope and width defined in FAR Part 77, above which the airspace must be free of obstacles as aircraft approach or depart the runway.

AUTOMATED SURFACE OBSERVING SYSTEM (ASOS) - Automated Surface Observing System units are automated sensor suites generally located on airports that are designed to serve meteorological and aviation observation needs.

AVGAS - Aviation fuel used for aircraft with internal-combustion engines. The most common Avgas is currently 100LL.

BASED AIRCRAFT - An aircraft permanently stationed at an airport by agreement between the airport owner (management or FBO) and the aircraft owner.

CAPITAL IMPROVEMENT PROGRAM (CIP) – The Capital Improvement Program provides a schedule of development for the proposed projects identified in an Airport Master Plan.

CATEGORY I, II, AND III LANDINGS -

- Category I: 200 foot ceiling and 2400 foot RVR;
- Category II: 100 foot ceiling and 1200 foot RVR;
- Category IIIA: zero ceiling and 700 root RVR;
- Category IIIB: zero ceiling and 150 foot RVR;
- Category IIIC: zero ceiling and zero RVR.

To make landing under these conditions, aircraft must be equipped with special avionics, pilot must be qualified to land under specified conditions for that category, and aircraft must have proper ground equipment for conditions.

CEILING - The height above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken" "overcast", or "obscured" and not classified as "thin" or "partial". The ceiling is reported in feet above the surface in a given location.

CLEAR ZONE - Defined by FAR Part 77 as an area off each runway end to be void of trees and other obstacles. The FAA has replaced this area with the Runway Protection Zone (RPZ).

CLEARWAY - A clearway is an area beyond the stop end of runway, not less than 500 feet (150 m) wide, centered on the extended centerline of the runway, and controlled by the airport authorities. -The clearway is expressed in terms or a geometric plane extending from the end of the runway, with an upward slope not exceeding 1.25 percent, above which no object nor terrain may protrude. Threshold lights, however, may protrude above the clearway plane if their height above the end of the runway is 26 inches (66 cm) or less and if they are located to each side of the runway. A clearway increases the allowable operating takeoff weights of turbine-powered airplanes. For most airplanes, the maximum usable length of the clearway is less than 1,000 feet (300 m).

DECISION HEIGHT (DH) - The height above the highest runway elevation in the touchdown zone at which a missed approach shall be initiated if the required visual reference has not been established. This term is used only in procedures where an electronic glide slope provides the reference for descent, as in ILS.

DECLARED DISTANCE - Declared distances are the runway distances that limit turbine-powered airplane operations and thus the airport operational capacity. The distances are the accelerated stop -distance available (ASDA), the Landing Distance Available (LDA), the Takeoff Distance Available (TODA), and the Takeoff Run Available (TORA).

(1) ASDA is equal to TORA plus the length of the stopway (SWY), if provided.
(2) LDA is equal to the length of runway available and suitable for the landing ground run of airplanes.
(3) TODA is equal to TORA plus the length of the clearway (CWY) if provided.
(4) TORA is equal to the length of runway available and suitable for the takeoff ground run of airplanes.

DESIGN AIRCRAFT - The Design Aircraft is an aircraft whose dimensions and/or other requirements make it the most demanding aircraft for an airport's facilities (i.e. runways and taxiways). The Design Aircraft is used as the basis for airport planning and design; because if the airport's facilities are designed to accommodate the Design Aircraft, they can accommodate less demanding aircraft as well. An aircraft can be utilized as the Design Aircraft for an airport if

it will (has) conduct (ed) 500 or more annual operations (250 landings) at that airport.

DISPLACED THRESHOLD - A displaced threshold is a threshold located at a point on the runway other than at the runway end. Except for the approach standards defined in FAR Part 77, approach surfaces are associated with the threshold location.

DISTANCE MEASURING EQUIPMENT (DME) - Equipment (airborne and ground) used to measure, in nautical miles, the distance of an aircraft from a NAVAID.

DME FIX - A geographical position determined by reference to a NAVAID, which provides distance and azimuth information. The DME fix is defined by a specified distance in nautical miles and a radial in degrees magnetic from that aid.

END-AROUND TAXIWAY (EAT) – Taxiways constructed to allow an aircraft to cross the extended centerline of the runway without specific clearance from ATC. EAT projects must be pre-approved by the FAA Office of Airport Safety and Standards, Airport Engineering Division.

FEDERAL AVIATION REGULATION (FAR) - Regulations developed by the FAA in order to maintain safety, define standards, and institute uniform practices throughout the industry.

FINAL APPROACH FIX (FAF) - The fix from or over which final approach (IFR) to an airport is executed.

FINAL APPROACH - A flight path of a landing aircraft in the direction of landing along the extended runway centerline from the base leg to the runway. For instrument approaches, the final approach begins at the final approach fix (FAF).

FIX - A geographical position determined by visual reference to the surface by reference to one or more radio NAVAIDs, by celestial plotting, or by another navigational device.

FIXED BASE OPERATION OR FIXED BASE OPERATOR (FBO) - A sales and/or service facility located at an airport, or the person who operates such a facility.

GENERAL AVIATION (GA) - All civil aircraft and aviation activity except that of the certified air carriers and military operations. GA includes corporate flying and private flying (recreation or personal).

GLIDESLOPE - Vertical guidance provided by a ground based radio transmitter to an aircraft landing by use of an Instrument Landing System. This guidance informs the pilot if the aircraft is either too high or too low as it flies its approach to the runway for landing.

GLOBAL POSITIONING SYSTEM (GPS) - GPS is a navigational system based on the use of multiple satellites strategically placed in the earth's orbit. GPS is used by aircraft equipped with the proper GPS receiving equipment for enroute navigation, as well as instrument approaches to airports for landing. GPS allows aircraft to fly more freely and set waypoints (destinations) without the need or reliance on ground based radio navigation facilities such as VORs.

HAZARD TO AIR NAVIGATION - Any object which has a substantial adverse effect upon the safe and efficient use of navigable air-space by aircraft or on the operation of air navigation facilities is a hazard to air navigation. The FAA will conduct an aeronautical study of any object to determine whether or not the object is a hazard to air navigation. As part of the airport layout plan approval process, the FAA con-ducts aeronautical studies of all obstructions to air navigation identified on the Airport Layout Plan. Hazards or potential hazards to air navigation are eliminated by either altering the existing or proposed object or adjusting the aviation operation to accommodate the object, in that order of priority.

HEIGHT ABOVE AIRPORT (HAA) - Indicates the height of the MDA above the published airport elevation. This is published in conjunction with circling minimums.

HOLDING - A predetermined maneuver which keeps an aircraft within a specified airspace while awaiting further clearance.

HOLDING FIX - A specified geographical point or NAVAID used as a reference point in establishing and maintaining the position of an aircraft while holding.

IFR CONDITIONS - Weather conditions below the minimum prescribed for flight under VFR.

INITIAL APPROACH - The segment of a standard instrument approach procedure between the initial approach fix and the intermediate fix, or the point where the aircraft is established on the intermediate segment of the final approach course.

INITIAL APPROACH ALTITUDE - The altitude prescribed for the initial approach segment of an instrument approach.

INSTRUMENT FLIGHT RULES (IFR) - Aircraft operation rules as pre-scribed by Federal Aviation Regulations for flying by instruments.

INSTRUMENT LANDING SYSTEM (ILS) - A system of electronic devices whereby the pilot guides his aircraft to a runway solely by reference to instruments in the cockpit. In some instances the signals received from the ground can be fed into the automatic pilot for automatically controlled approaches. The ILS consists of a Localizer, Glideslope and Marker Beacons (and Approach Light System).

ITINERANT OPERATIONS - All aircraft operations other than local operations.

JET-A – Type of aviation fuel designed for use in aircraft powered by gas-turbine engines.

LOCAL OPERATION - Operations performed by an aircraft that:
(a) operates within the local traffic pattern or within sight of the airport;
(b) are known to be departing for or arriving from an Airport within a 20 mile radius of the Airport in question;
(c) execute practice maneuvers such as touch and goes or simulated instrument approaches at the airport.

The majority of local operations are conducted by based aircraft.

LOCALIZER TYPE DIRECTIONAL AID (LDA) - A facility of comparable utility and accuracy to a localizer but which is not part of a complete ILS and will not be aligned with the runway.

LOCALIZER - A ground based radio transmitter which provides pilots with course guidance as they approach a runway for landing utilizing an Instrument Landing System. The course guidance is known as "azimuth".

MEDIUM INTENSITY APPROACH LIGHT SYSTEM (MALS) - An airport approach light system of medium intensity.

MARKER BEACON - An instrument, which provides aural and/or visual identification of a specific position along an Instrument Landing System approach to a runway.

MEDIUM INTENSITY RUNWAY LIGHTS (MIRL) - An airport runway lighting system of medium intensity.

MOVEMENT AREA - The runways, taxiways, and other areas of an airport which are used for taxiing, takeoff, and landing of aircraft, excluding loading ramps and parking areas.

NAUTICAL MILE (NM) - The unit measure of distance in both nautical and aeronautical context. A nautical mile equals 1.15 statute miles (6,080 feet). The measure of speed in regards to nautical miles is known as KNOTS (nautical miles per hour).

NON DIRECTIONAL BEACON (NDB) - A radio beacon transmitting non directional signals whereby an aircraft equipped with direction finding equipment can determine headings to or from the radio beacon and "home" in on a track to or from it.

NATIONAL AIRSPACE SYSTEM (NAS) - The common system of air navigation and air traffic control encompassing communications facilities, air navigation facilities, airways, controlled airspace special use airspace, and flight procedures authorized by FAR's for domestic and international aviation.

NON-PRECISION APPROACH - A standard instrument approach procedure in which no electronic glide slope is provided. A localizer, NDB, or VOR is often used.

NONPRECISION INSTRUMENT RUNWAY - A nonprecision instrument runway is one with an instrument approach procedure utilizing air navigation facilities, with only horizontal guidance, or area-type navigation equipment for which a straight in nonprecision instrument approach procedure has been approved or planned, and no precision approach facility of procedure is planned or indicated on an FAA or DOD approved Airport Layout Plan, or on other FAA of DOD planning documents.

NOTICE TO AIRMEN (NOTAM) - A notice identified either as a NOTAM or an Airmen Advisory containing information concerning the establishment, condition, or change in any component of, or hazard in, the National Airspace System, the timely knowledge of which is essential to personnel concerned with flight operations.

(1) NOTAM: A Notice to Airmen in message form requiring expeditious and wide dissemination by telecommunications means.
(2) AIRMEN ADVISORY: A Notice to Airmen normally only given local dissemination, during pre-flight or in-flight briefing, or otherwise during contact with pilots.

OBSTACLE FREE ZONE (OFZ) - An OFZ is an area:

(1) Comprised of the runway OFZ, the approach OFZ, and the inner-transitional surface OFZ.

(A) Runway OFZ: The runway OFZ is the volume of space above a surface longitudinally centered on the runway. The elevation of any point on the surface is the same as the elevation of the nearest point on the runway centerline. The runway OFZ extends 200 feet (60 m) beyond each end of the runway and its width is:

1) 120 feet (36 m) for visual runways serving or expected to serve only small airplanes with approach speeds less than 50 knots.
2) 250 feet (75 m) for nonprecision instrument and visual runways serving or expected to serve small airplanes with approach speeds of 50 knots or more and no large airplanes.
3) 300 feet (90 m) for precision instrument runways serving or expected to serve only small airplanes.
4) 180 feet (54 m), plus the wingspan of the most demanding airplane, plus 20 feet (6 m) per 1,000 feet (300 m) or airport elevation; or, 400 feet (120

m), whichever is greater, for runways serving or expected to serve large airplanes.

(B) Approach OFZ: The approach OFZ is the volume of space above a surface which has the same width as the runway OFZ and rises at a slope of 50 (horizontal) to 1 (vertical) away from the runway into the approach area. It begins 200 feet (60 m) from the runway threshold at the same elevation as the runway threshold and it extends 200 feet (60 m) beyond the last light unit in the approach lighting system. The approach OFZ applies only to runways with an approach lighting system.

(C) Inner-Transitional Surface OFZ: The inner-transitional surface OFZ is the volume or space above the surfaces which slope 3 (horizontal) to 1 (vertical) laterally from the edges of the runway.

1) OFZ and approach OFZ end at the height of 150 feet (45 m) above the established airport elevation. The inner-transitional surface OFZ applies only to precision instrument runways.
2) Free of all fixed objects. FAA approved frangible equipment, which provides an. essential aviation service may be located in the OFZ, provided the amount of penetration is kept to a practical minimum.
3) Clear of vehicles as well as parked, holding, or taxiing aircraft in the proximity of an airplane conducting an approach, missed approach, landing, takeoff' or departure.

OBSTRUCTION TO AIR NAVIGATION - An existing object, including a mobile object, is, and a future object would be, an obstruction to air navigation if it is of a greater height than any of the heights or surfaces defined in FAR PART 77.23.

OPERATION - Generally thought of as either a take-off or a landing of an aircraft. FAA ATCT operations include all radio contacts with an aircraft, regardless of whether or not they are taking off or landing. Operations used for planning purposes include only takeoffs, landings and touch and goes.

PRECISION APPROACH PATH INDICATOR (PAPI) - An airport approach light aid to pilots. See GVGI.

PRECISION INSTRUMENT RUNWAY - A precision instrument runway is one with an instrument approach procedure utilizing an Instrument Landing System (ILS), microwave landing system (MLS), or precision approach radar (PAR). A planned precision instrument runway is one for which a precision approach system or procedure is indicated on an FAA or DOD approved airport layout plan, or on other FAA or DOD planning documents.

PRIMARY SURFACE - An imaginary horizontal surface extending out an equal distance on each side of the runway centerline a width as defined in FAR Part 77.

RW - Runway.

RUNWAY ALIGNMENT INDICATOR LIGHTS (RAIL) - (usually part of a MALS system).

RADAR (RADIO DETECTION AND RANGING) - A device which, by measuring the time interval between transmission and reception of radio pulses, provides information on range, azimuth and/or elevation of objects in the path of the transmitted pulses.

RADAR SERVICE - A term which encompasses aircraft separation, navigation guidance, and/or flight track monitoring services based on the use of radar which can be provided by a controller to a pilot of a radar-identified aircraft.

RADAR SURVEILLANCE - The radar observation of a given geographic area for the purpose of performing some radar function.

RADIAL - A magnetic bearing extending from a VOR, a VORTAC, or a TACAN navigational facility.

RUNWAY END IDENTIFIER LIGHTS (REIL) - Flashing strobe lights (usually white) which indicate the end or a runway. They are located at each end of the runway.

RELIEVER AIRPORT - An airport designated as having the primary function of relieving congestion at a commercial airport and providing more general aviation access to the overall community. Reliever Airports are allowed to receive AIP (federal) funds for improvement.

RUNWAY - A runway is a defined rectangular area on an airport prepared for the landing or takeoff of airplanes.

RUNWAY PROTECTION ZONE (RPZ) - A trapezoidal area centered about the extended runway centerline beginning 200 feet beyond the end of the area usable for takeoff or landing. The dimensions are a function of the approach visibility minimum and the type of aircraft. Refer to AC 150/5300-13 for specific dimensions and land use guidelines.

RUNWAY SAFETY AREA (RSA) - A runway safety area is a rectangular area, centered on the runway centerline, which includes the runway (and stopway, if present) and the runway shoulders. The portion abut-ting the edge of the runway shoulders, runway ends, and stopways is cleared, drained, graded and usually turfed. Under normal conditions, the runway safety area is capable of supporting snow removal, firefighting, and rescue equipment and accommodating the occasional passage of aircraft without causing major damage to the aircraft.

RUNWAY VISUAL RANGE (RVR) - An instrumentally derived value, based on standard calibrations, that represents the horizontal distance a pilot will see down the runway from the approach end.

SAFETY AREA - An actual graded area surrounding the runway that can be safely negotiated in case of an emergency by an aircraft that will be using that runway.

SEPARATION - Spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

SEPARATION MINIMA - The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

SMALL AIRCRAFT - A small aircraft is an aircraft of 12,500 pounds (5,700 kg) or less maximum certificated takeoff weight.

STATUTE MILE - A regular "highway" mile measuring 5,280 feet.

STOP END OF RUNWAY - The stop end of runway is the far runway end as viewed from the cockpit of a landing airplane.

STOPWAY - A stopway is an area beyond the stop end of the takeoff runway which is no less wide than the runway and is centered on the extended centerline a' the runway. It is able to support an airplane during an aborted takeoff without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

STRAIGHT-IN APPROACH - Entry into the traffic pattern by interception of the extended runway centerline (final approach) without executing any other portion of the traffic pattern.

TW - Taxiway.

TAXI - To operate an airplane under its own power on the ground, except the movement incident to actual takeoff and landing.

TAXILANE - A taxilane is the portion of the aircraft parking area used for access between taxiways, aircraft parking positions, hangars, storage facilities, etc. A taxilane is outside the movement area, and is normally not controlled by the Air Traffic Control Tower.

TAXIWAY - A taxiway is a defined path, from one part of an airport to another, selected or prepared for the taxiing of aircraft.

TAXIWAY DESIGN GROUP (TDG) – FAA aircraft classification system for taxiway design based on design aircraft undercarriage dimensions. These include the overall Main Gear Width (MGW) and the Cockpit to Main Gear Distance (CMG).

TAXIWAY OBJECT FREE AREA (TOFA) - Taxiway and taxilane OFA clearing standards prohibit service vehicle roads, parked aircraft, and other objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. Vehicles may operate within the OFA provided they give right of way to oncoming aircraft by either maintaining a safe distance ahead or behind the aircraft or by exiting the OFA to let the aircraft pass.

TAXIWAY SAFETY AREA (TSA) - A taxiway safety area is an area centered on the taxiway centerline, which includes the taxiway and taxiway shoulders that must be:

(1) cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;
(2) drained by grading or storm sewers to prevent water accumulation;
(3) capable, under dry conditions, of supporting snow removal equipment, Aircraft Rescue and Fire Fighting (ARFF) equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and
(4) free of objects, except for objects that need to be located in the TSA because of their function.

THRESHOLD - The threshold is the beginning of that portion of the runway available and suitable for the landing of airplanes.

THRESHOLD CROSSING HEIGHT (TCH) - The height of the straight line extension of the visual or electronic glide slope above the runway threshold.

TOUCH AND GO - A training operation in which a landing approach is made, the aircraft touches-down on the runway, but does not fully reduce speed to turn off the runway. Instead, after the landing, full engine power is applied while still rolling and a takeoff is made, thereby practicing both maneuvers as part of one motion. It counts as two separate aircraft operations.

TRACK - The flight path of an aircraft over the surface of the earth.

TRAFFIC PATTERN - The traffic flow that is prescribed for aircraft landing at or taking off from an airport. The usual traffic pattern consists of five segments, or "legs". These components are the upwind leg, crosswind leg, downwind leg, base leg, and the final approach. Traffic patterns are followed by aircraft in order to exit the airport area after takeoff in an orderly fashion, and to enter an Airport area and ultimately land, also in an orderly fashion.

TRANSITION ZONE - An imaginary surface extending upward at a 7 -to 1 slope (i.e. up one foot for every seven feet moved horizon-tally) from the Primary Surface and Approach Surface defined in Federal Aviation Regulations (FAR) Part 77.

TURBINE - A mechanical device or engine that spins in reaction to fluid flow through or over it. This device is used in turbofan, turbojet, and turboprop-powered aircraft.

TURBOFAN - A turbojet engine whose thrust has been increased by the addition of a low-pressure compressor fan.

TURBOJET - An engine that derives power from a fanned wheel spinning in reaction to burning gases escaping from a combustion chamber. The turbine in turn drives a compressor and other accessories.

TURBOPROP - A turbine engine in which the rotating turbine turns a propeller.

UTILITY AIRPORT - A utility airport is an airport designed, constructed, and maintained to serve airplanes in Aircraft Approach Category A and B. For discussion on airport type, see paragraph 5.

VFR CONDITIONS - Basic weather conditions prescribed for flight under Visual Flight Rules; usually implies a ceiling of at least 1000 feet and a forward visibility of three miles or more.

VERY HIGH FREQUENCY OMNI DIRECTIONAL RANGE (VOR) - A ground radio station that provides a pilot of a properly equipped air-craft with his radial location in reference to that station. A VORTAC is an electronic air navigation facility combining a VOR and a TACAN.

VISIBILITY, PREVAILING - The horizontal distance at which targets of known distance are visible over at least half of the horizon. It is normally determined by an observer on or close to the ground viewing buildings or other similar objects during the day and ordinary city lights at night.

VISUAL APPROACH SLOPE INDICATOR (VASI) - The VASI is a device used by pilots to determine their position in regard to the recommended approach path for a particular airport. See also GVGI.

VISUAL FLIGHT RULES (VFR) - "See and be seen" flight rules. Each pilot is responsible for the safe spacing and proper operation of his aircraft. Under VFR, a pilot is not required to file a flight plan or be in constant radar and communication contact with air traffic control. Visual flight rules are determined by weather and require a ceiling of at least 1,000 feet and visibility of at least 3 miles.

VFR TRAFFIC - Aircraft traffic operated solely in accordance with Visual Flight Rules.

VISUAL APPROACH - A VFR approach granted to an IFR flight by air traffic control under special circumstances. Visual approaches are normally conducted by aircraft operating under visual flight rules.

VISUAL RUNWAY - A visual runway is a runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA or Department of Defense (DOD) approved layout plan, or, on other FAA or DOD planning documents.

VORTAC - A combination of the civil VOR/DME and the military TACAN which can provide both distance and direction of an aircraft from the station.

WAKE TURBULENCE - The air turbulence caused by a moving aircraft, originating at the tips of the wings. The turbulence is caused by vortices generated by an aircraft's wingtips as it travels through the air. This turbulence is greatest when the aircraft is taking off and landing.

WIND COVERAGE - Wind coverage is the percent of time for which aeronautical operations are considered safe due to acceptable crosswind components.

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APPENDIX B:

TAN PAVEMENT PLAN

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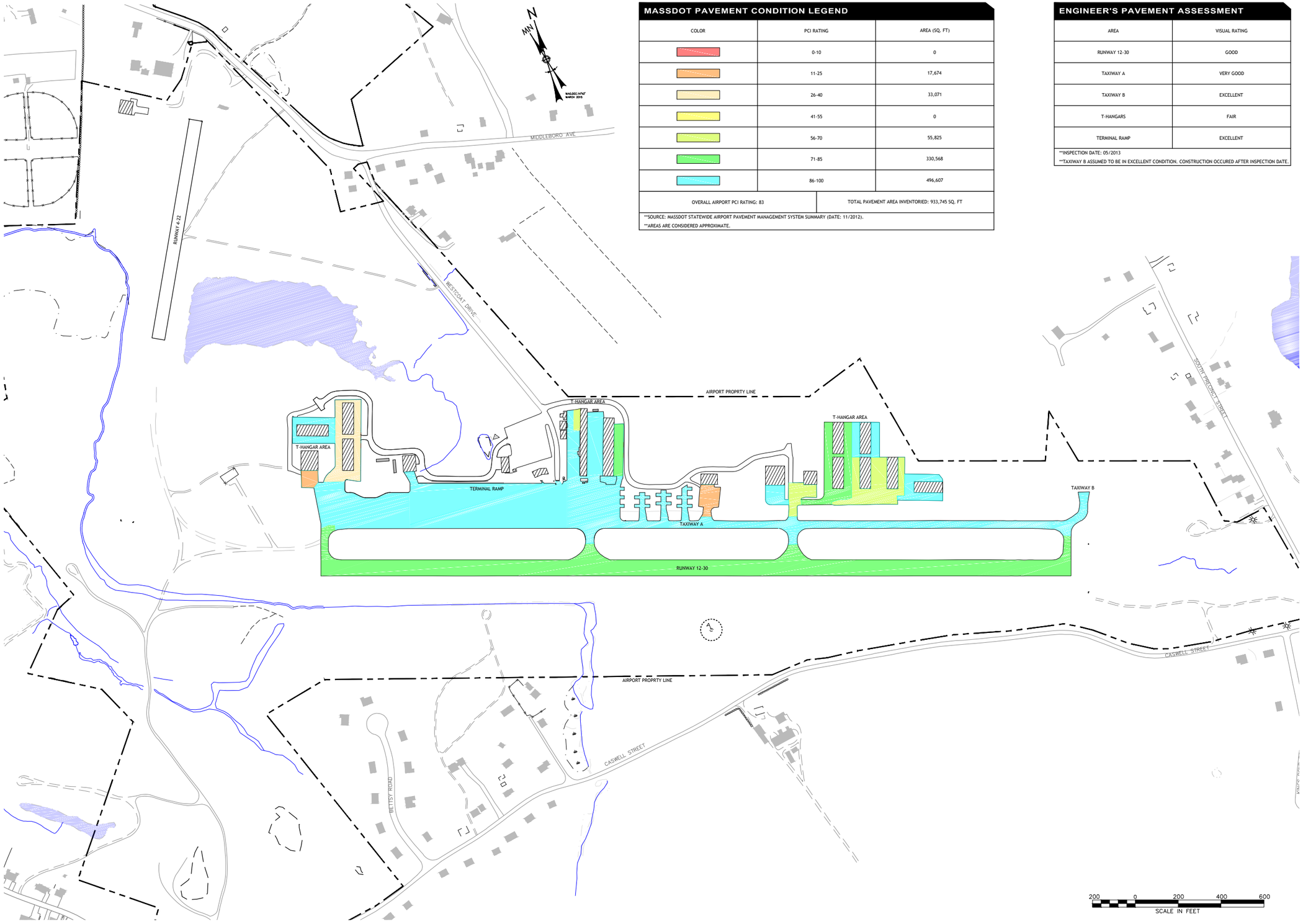

MASSDOT PAVEMENT CONDITION LEGEND

COLOR	PCI RATING	AREA (SQ. FT)
	0-10	0
	11-25	17,674
	26-40	33,071
	41-55	0
	56-70	55,825
	71-85	330,568
	86-100	496,607
OVERALL AIRPORT PCI RATING: 83		TOTAL PAVEMENT AREA INVENTORIED: 933,745 SQ. FT

**SOURCE: MASSDOT STATEWIDE AIRPORT PAVEMENT MANAGEMENT SYSTEM SUMMARY (DATE: 11/2012).
**AREAS ARE CONSIDERED APPROXIMATE.

ENGINEER'S PAVEMENT ASSESSMENT

AREA	VISUAL RATING
RUNWAY 12-30	GOOD
TAXIWAY A	VERY GOOD
TAXIWAY B	EXCELLENT
T-HANGARS	FAIR
TERMINAL RAMP	EXCELLENT

**INSPECTION DATE: 05/2013
**TAXIWAY B ASSUMED TO BE IN EXCELLENT CONDITION. CONSTRUCTION OCCURED AFTER INSPECTION DATE.

CADD FILE NO. 115-007 SHEET_PAVEMENT.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV	DATE	DESCRIPTION

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SHEET TITLE
PAVEMENT CONDITION

PROJECT
TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

DESIGNER: JBM CADD TECH: TJL APPROVED: RAL

JUNE 2015

P1.1

SHEET 1 OF 1

APPENDIX C:

TAN UTILITIES PLAN

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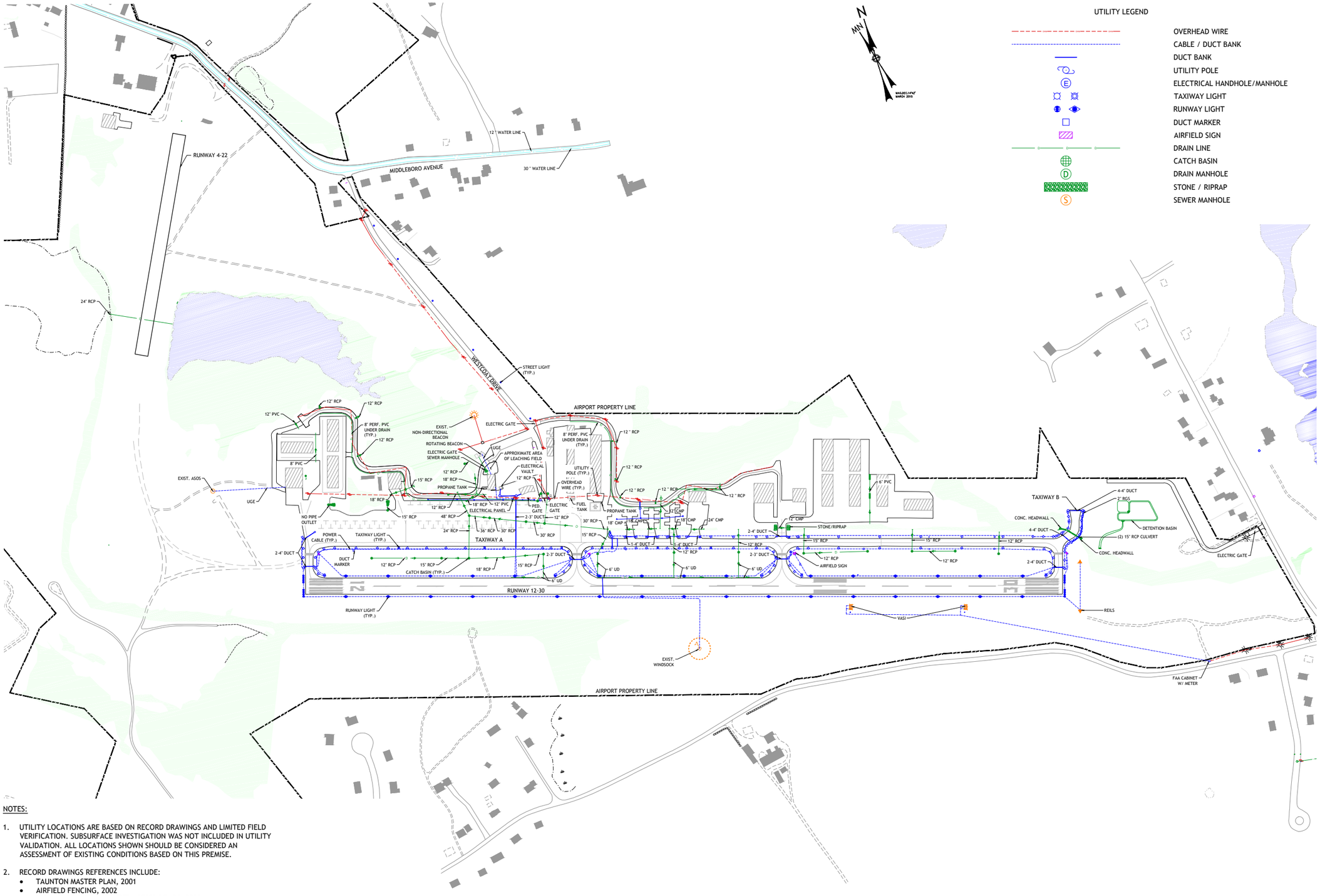

NOTES:

1. UTILITY LOCATIONS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD VERIFICATION. SUBSURFACE INVESTIGATION WAS NOT INCLUDED IN UTILITY VALIDATION. ALL LOCATIONS SHOWN SHOULD BE CONSIDERED AN ASSESSMENT OF EXISTING CONDITIONS BASED ON THIS PREMISE.

2. RECORD DRAWINGS REFERENCES INCLUDE:
   - TAUNTON MASTER PLAN, 2001
   - AIRFIELD FENCING, 2002
   - REBUILD OF EAST AND WEST ACCESS ROADS, 2003
   - RECONSTRUCT PARALLEL TAXIWAY, 2005
   - RECONSTRUCT MAIN APRON, 2006
   - CONSTRUCT TAXIWAY B, 2014

CADD FILE NO. 115-007 SHEET_EXHIBIT-UTILITIES.dwg

A.I.P. PROJECT. NO. 3-25-0047-24

REV.	DATE	DESCRIPTION

PLAN PREPARED IN ACCEPTANCE OF THIS MAP WE HAVE BEEN SUPPORTED IN PART BY THROUGH FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (FAA) AS PROVIDED UNDER TITLE 49 U.S.C., SECTION 47104. THE CONTENTS OF THIS MAP DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE BY THE FAA OF THIS MAP DOES NOT IMPLY ITS APPROVAL OF THE PROJECTS HEREIN NOR DOES IT COMMIT THE FAA TO FUNDING THESE PROJECTS. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE MTA. ACCEPTANCE BY THE MTA DOES NOT IMPLY THAT THE PROJECTS WILL BE FUNDED OR APPROVED IN THE FUTURE. ACCEPTANCE BY THE MTA DOES NOT COMMIT THE MTA TO FUNDING OR ANY OTHER APPROVAL OF ANY PROJECT BEYOND THE ENVIRONMENTAL ANALYSIS. ACCEPTANCE BY THE MTA DOES NOT IMPLY THAT THE PROJECTS WILL BE ENVIRONMENTALLY ACCEPTABLE OR WOULD HAVE JUSTIFICATION IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

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SHEET TITLE: UTILITIES LAYOUT

PROJECT: TAUNTON MUNICIPAL AIRPORT
2014 AIRPORT MASTER PLAN UPDATE

DESIGNER: JBM | CADD TECH: TJL | APPROVED: RAL

JUNE 2015

U1.1

SHEET 1 OF 1

APPENDIX D:

TAN WETLANDS DELINEATIONS

(Order of Resource Area Delineation [ORAD]; MassDEP File Number SE 73-2516 issued on August 17, 2012.)

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ANRAD GENERAL NOTES:

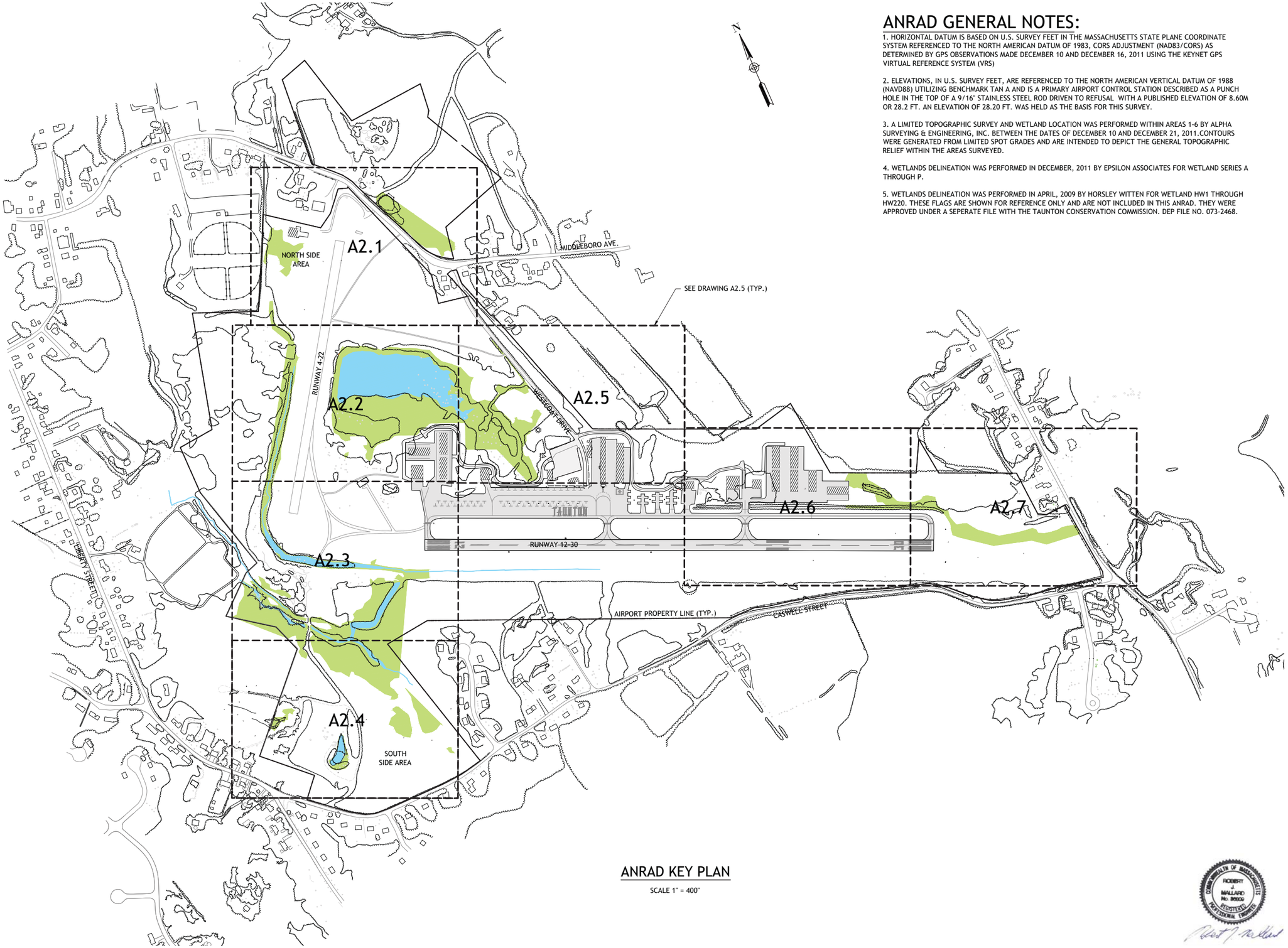
1. HORIZONTAL DATUM IS BASED ON U.S. SURVEY FEET IN THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM REFERENCED TO THE NORTH AMERICAN DATUM OF 1983, CORS ADJUSTMENT (NAD83/CORS) AS DETERMINED BY GPS OBSERVATIONS MADE DECEMBER 10 AND DECEMBER 16, 2011 USING THE KEYNET GPS VIRTUAL REFERENCE SYSTEM (VRS)

2. ELEVATIONS, IN U.S. SURVEY FEET, ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UTILIZING BENCHMARK TAN A AND IS A PRIMARY AIRPORT CONTROL STATION DESCRIBED AS A PUNCH HOLE IN THE TOP OF A 9/16" STAINLESS STEEL ROD DRIVEN TO REFUSAL WITH A PUBLISHED ELEVATION OF 8.60M OR 28.2 FT. AN ELEVATION OF 28.20 FT. WAS HELD AS THE BASIS FOR THIS SURVEY.

3. A LIMITED TOPOGRAPHIC SURVEY AND WETLAND LOCATION WAS PERFORMED WITHIN AREAS 1-6 BY ALPHA SURVEYING & ENGINEERING, INC. BETWEEN THE DATES OF DECEMBER 10 AND DECEMBER 21, 2011.CONTOURS WERE GENERATED FROM LIMITED SPOT GRADES AND ARE INTENDED TO DEPICT THE GENERAL TOPOGRAPHIC RELIEF WITHIN THE AREAS SURVEYED.

4. WETLANDS DELINEATION WAS PERFORMED IN DECEMBER, 2011 BY EPSILON ASSOCIATES FOR WETLAND SERIES A THROUGH P.

5. WETLANDS DELINEATION WAS PERFORMED IN APRIL, 2009 BY HORSLEY WITTEN FOR WETLAND HW1 THROUGH HW220. THESE FLAGS ARE SHOWN FOR REFERENCE ONLY AND ARE NOT INCLUDED IN THIS ANRAD. THEY WERE APPROVED UNDER A SEPERATE FILE WITH THE TAUNTON CONSERVATION COMMISSION. DEP FILE NO. 073-2468.



ANRAD KEY PLAN

SCALE 1" = 400'

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PROJECT

PREPARATION OF AN ENVIRONMENTAL ASSESSMENT (EA)/ ENVIRONMENTAL IMPACT REPORT (EIR) ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION (ANRAD)

OWNER

TAUNTON MUNICIPAL AIRPORT COMMISSION
TAUNTON MUNICIPAL AIRPORT
TAUNTON, MASSACHUSETTS

PROJECT NO.	115-002
CADD FILE	ANRAD-PLANS
DESIGNED BY	EPL
DRAWN BY	DJA
CHECKED BY	MLB
DATE	JULY 30, 2012
DRAWING SCALE	1"=400'

SHEET TITLE

ANRAD KEY PLAN

GRAPHIC SCALE 1"=400'

DRAWING NO.

A1.1

1 OF 8

ANRAD SUBMISSION 07-30-2012

MIDDLEBORO AVE.

WETLAND EXTENDS OUTSIDE STUDY AREA

VERNAL POOL BOUNDARY

GRAVEL ROAD (TYP.)

25' MINIMUM WETLAND PROTECTION ZONE PER CITY OF TAUNTON CONSERVATION ORDINANCE

HANGAR

100' BUFFER ZONE PER WPA REGULATIONS AND 100' MAXIMUM WETLAND PROTECTION ZONE PER CITY OF TAUNTON CONSERVATION ORDINANCE

WETLAND

WETLAND EXTENDS OUTSIDE STUDY AREA

HW WETLAND FLAGS BY HORSLEY WITTEN (DEP FILE NO. 073-2468)

EXISTING CONTOUR (TYP.)

RUNWAY 4-22 GRAVEL/TURF SURFACE

WESTCOAT DRIVE

AIRPORT PROPERTY LINE (TYP.)

CONTINUE DRAWING A2.2

LEGEND:

- BORDERING VEGETATED WETLAND
- ISOLATED VEGETATED WETLAND (FRESHWATER WETLAND PER TAUNTON CONSERVATION ORDINANCE)
- MEAN ANNUAL HIGH WATER
- ISOLATED LAND SUBJECT TO FLOODING
- TOP OF BANK
- 25' — 25' LIMIT OF NO DISTURBANCE
- 100' BZ — 100' BUFFER ZONE
- 200' RA — 200' RIVERFRONT AREA
- AIRPORT PROPERTY LINE
- TREE LINE
- D — DRAINAGE LINE
- VERNAL POOL BOUNDARY
- ACOE DATA POINT

COMMONWEALTH OF MASSACHUSETTS ROBERT J. MALLARD No. 39800 REGISTERED PROFESSIONAL ENGINEER

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OWNER

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TAUNTON MUNICIPAL AIRPORT
TAUNTON, MASSACHUSETTS

PROJECT NO.	115-002
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DRAWN BY	DJA
CHECKED BY	MLB
DATE	JULY 30, 2012
DRAWING SCALE	1"=50'

SHEET TITLE

ANRAD PLAN 1

GRAPHIC SCALE 0 25 50 100

DRAWING NO.

A2.1

2 OF 8

ANRAD SUBMISSION 07-30-2012

CONTINUE DRAWING A2.1

PERENNIAL STREAM

HW & MAHW FLAGS BY HORSLEY WITTEN (DEP FILE NO. 073-2468)

RUNWAY 4-22 (GRAVEL/TURF SURFACE)

200' RIVERFRONT AREA

25' MINIMUM WETLAND PROTECTION ZONE PER CITY OF TAUNTON CONSERVATION ORDINANCE

100' BUFFER ZONE PER WPA REGULATIONS AND 100' MAXIMUM WETLAND PROTECTION ZONE PER CITY OF TAUNTON CONSERVATION ORDINANCE

HW WETLAND FLAGS BY HORSLEY WITTEN (DEP FILE NO. 073-2468)

POND

WETLAND EXTENDS OUTSIDE STUDY AREA

WEST ACCESS ROAD

HANGAR

HANGAR

AUTOMATED SURFACE OBSERVATION STATION

CONTINUE DRAWING A2.3

CONTINUE DRAWING A2.5

LEGEND:

- BORDERING VEGETATED WETLAND
- ISOLATED VEGETATED WETLAND (FRESHWATER WETLAND PER TAUNTON CONSERVATION ORDINANCE)
- MEAN ANNUAL HIGH WATER
- ISOLATED LAND SUBJECT TO FLOODING
- TOP OF BANK
- 25' LIMIT OF NO DISTURBANCE
- 100' BUFFER ZONE
- 200' RIVERFRONT AREA
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- TREE LINE
- DRAINAGE LINE
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- ACOE DATA POINT

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DESIGNED BY	EPL
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CHECKED BY	MLB
DATE	JULY 30, 2012
DRAWING SCALE	1"=50'

SHEET TITLE

ANRAD PLAN 2

GRAPHIC SCALE 0 25 50 100

DRAWING NO.

A2.2

ANRAD SUBMISSION 07-30-2012

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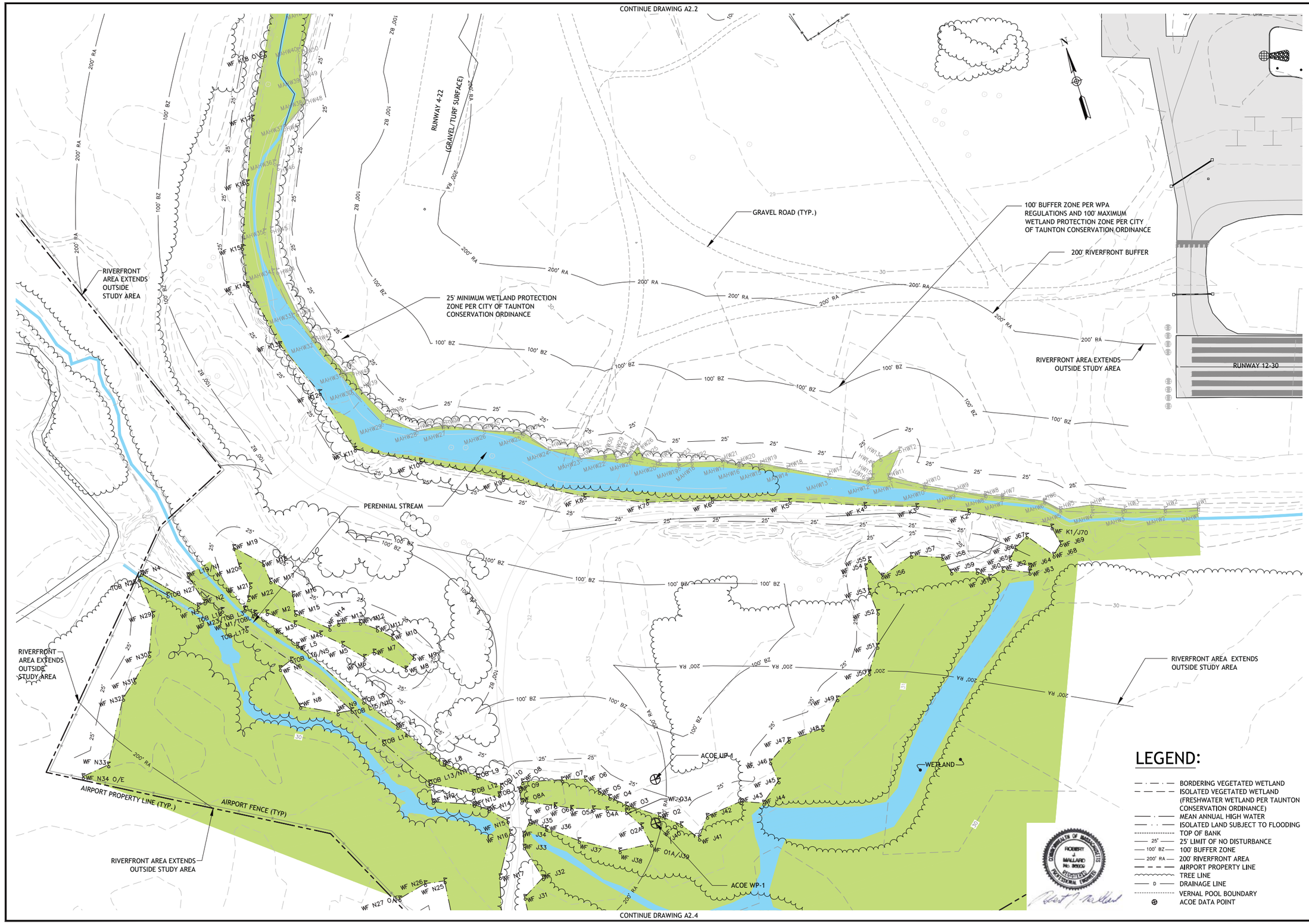

CONTINUE DRAWING A2.4

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TAUNTON MUNICIPAL AIRPORT
TAUNTON, MASSACHUSETTS

PROJECT NO.	115-002
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DESIGNED BY	EPL
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DRAWING SCALE	1"=50'

SHEET TITLE
ANRAD PLAN 3

GRAPHIC SCALE 0 25 50 100

DRAWING NO.
A2.3

ANRAD SUBMISSION 07-30-2012

CONTINUE DRAWING A2.3

RIVERFRONT AREA EXTENDS OUT OF STUDY AREA

100' BUFFER ZONE PER WPA REGULATIONS AND 100' MAXIMUM WETLAND PROTECTION ZONE PER CITY OF TAUNTON CONSERVATION ORDINANCE

WF H27 O/E OPEN WETLANDS EXTEND OUTSIDE OF STUDY AREA

VERNAL POOL BOUNDARY

WF H1 OPEN WETLANDS EXTEND OUTSIDE OF STUDY AREA

AIRPORT FENCE (TYP.)

AIRPORT PROPERTY LINE (TYP.)

CASWELL STREET

ACOE WP-2

ACOE UP-2

WETLAND

PILE

PILE

PILE

VERNAL POOL BOUNDARY

VERNAL POOL BOUNDARY IS COINCIDENT WITH I-SERIES WETLAND BOUNDARY

WF J1 OPEN WETLANDS EXTEND OUTSIDE OF STUDY AREA

WF P1 OPEN WETLANDS EXTEND OUTSIDE OF STUDY AREA

WETLANDS EXTEND TO THE OUTSIDE OF STUDY AREA

ISOLATED LAND SUBJECT TO FLOODING (ILSF) PER TAUNTON CONSERVATION ORDINANCE

LEGEND:

- BORDERING VEGETATED WETLAND
- ISOLATED VEGETATED WETLAND (FRESHWATER WETLAND PER TAUNTON CONSERVATION ORDINANCE)
- MEAN ANNUAL HIGH WATER
- ISOLATED LAND SUBJECT TO FLOODING
- TOP OF BANK
- 25' — 25' LIMIT OF NO DISTURBANCE
- 100' BZ — 100' BUFFER ZONE
- 200' RA — 200' RIVERFRONT AREA
- AIRPORT PROPERTY LINE
- TREE LINE
- D — DRAINAGE LINE
- VERNAL POOL BOUNDARY
- ACOE DATA POINT

COMMONWEALTH OF MASSACHUSETTS ROBERT J. MALLARD No. 34800 REGISTERED PROFESSIONAL ENGINEER

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PREPARATION OF AN ENVIRONMENTAL ASSESSMENT (EA)/ ENVIRONMENTAL IMPACT REPORT (EIR) ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION (ANRAD)

OWNER
TAUNTON MUNICIPAL AIRPORT COMMISSION
TAUNTON MUNICIPAL AIRPORT
TAUNTON, MASSACHUSETTS

PROJECT NO.	115-002
CADD FILE	G1.2-INDEX
DESIGNED BY	EPL
DRAWN BY	DJA
CHECKED BY	MLB
DATE	JULY 30, 2012
DRAWING SCALE	1"=50'

SHEET TITLE
ANRAD PLAN 4

GRAPHIC SCALE 0 25 50 100

DRAWING NO.
A2.4

ANRAD SUBMISSION 07-30-2012

CONTINUE DRAWING A2.1

CONTINUE DRAWING A2.2

100' BUFFER ZONE PER WPA REGULATIONS AND 100' MAXIMUM WETLAND PROTECTION ZONE PER CITY OF TAUNTON CONSERVATION ORDINANCE

25' MINIMUM WETLAND PROTECTION ZONE PER CITY OF TAUNTON CONSERVATION ORDINANCE

AIRPORT PROPERTY LINE (TYP.)

WESTCOAT DRIVE

EAST ACCESS ROAD

WEST ACCESS ROAD

MAIN PARKING LOT

ADMINISTRATIVE OFFICE/ SRE BUILDING

HANGAR

HANGAR

HANGAR

WETLAND

ACOE WP-4

ACOE UP-4

WF B80 OPEN WETLANDS EXTEND OUTSIDE OF STUDY AREA

WF B32 CON 5

CONTINUE DRAWING A2.6

LEGEND:

- BORDERING VEGETATED WETLAND
- ISOLATED VEGETATED WETLAND (FRESHWATER WETLAND PER TAUNTON CONSERVATION ORDINANCE)
- MEAN ANNUAL HIGH WATER
- ISOLATED LAND SUBJECT TO FLOODING
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OWNER

TAUNTON MUNICIPAL AIRPORT COMMISSION
TAUNTON MUNICIPAL AIRPORT
TAUNTON, MASSACHUSETTS

PROJECT NO.	115-002
CADD FILE	G1.2.INDEX
DESIGNED BY	EPL
DRAWN BY	DJA
CHECKED BY	MLB
DATE	JULY 30, 2012
DRAWING SCALE	1"=50'

SHEET TITLE

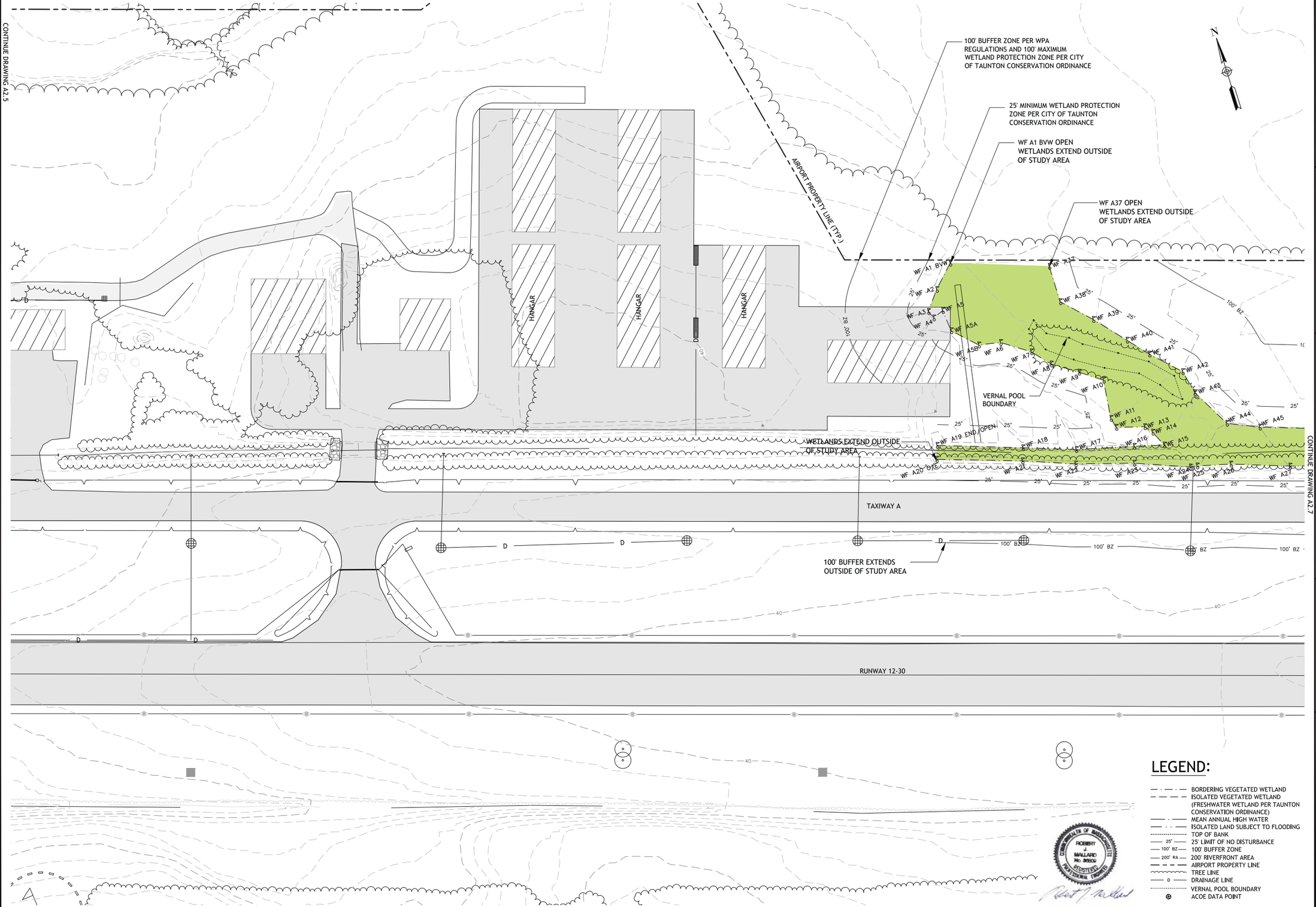
ANRAD PLAN 5

GRAPHIC SCALE 0 25 50 100

DRAWING NO.

A2.5

ANRAD SUBMISSION 07-30-2012



LEGEND:

- BORDERING VEGETATED WETLAND
- ISOLATED VEGETATED WETLAND (FRESHWATER WETLAND PER TAUNTON CONSERVATION ORDINANCE)
- MEAN ANNUAL HIGH WATER
- ISOLATED LAND SUBJECT TO FLOODING
- TOP OF BANK
- 25' LIMIT OF NO DISTURBANCE
- 100' BUFFER ZONE
- 200' RIVERFRONT AREA
- AIRPORT PROPERTY LINE
- TREE LINE
- DRAINAGE LINE
- VERNAL POOL BOUNDARY
- ACOE DATA POINT

COMMONWEALTH OF MASSACHUSETTS
ROBERT J. MALLARD
No. 30800
REGISTERED PROFESSIONAL ENGINEER

AIRPORT SOLUTIONS GROUP
INNOVATIVE AIRPORT DEVELOPMENT SPECIALISTS
AIRPORT DESIGN • CONSTRUCTION • MANAGEMENT
PHONE (781) 491-0083 FAX (781) 491-0360
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NO.	DATE	DESCRIPTION	BY

PREPARATION OF AN ENVIRONMENTAL ASSESSMENT (EA)/ ENVIRONMENTAL IMPACT REPORT (EIR) ABBREVIATED NOTICE OF RESOURCE AREA DELINEATION (ANRAD)

OWNER

TAUNTON MUNICIPAL AIRPORT COMMISSION
TAUNTON MUNICIPAL AIRPORT
TAUNTON, MASSACHUSETTS

PROJECT NO.	115-002
CADD FILE	G1.2-INDEX
DESIGNED BY	EPL
DRAWN BY	DJA
CHECKED BY	MLB
DATE	JULY 30, 2012
DRAWING SCALE	1"=50'

SHEET TITLE

ANRAD PLAN 6

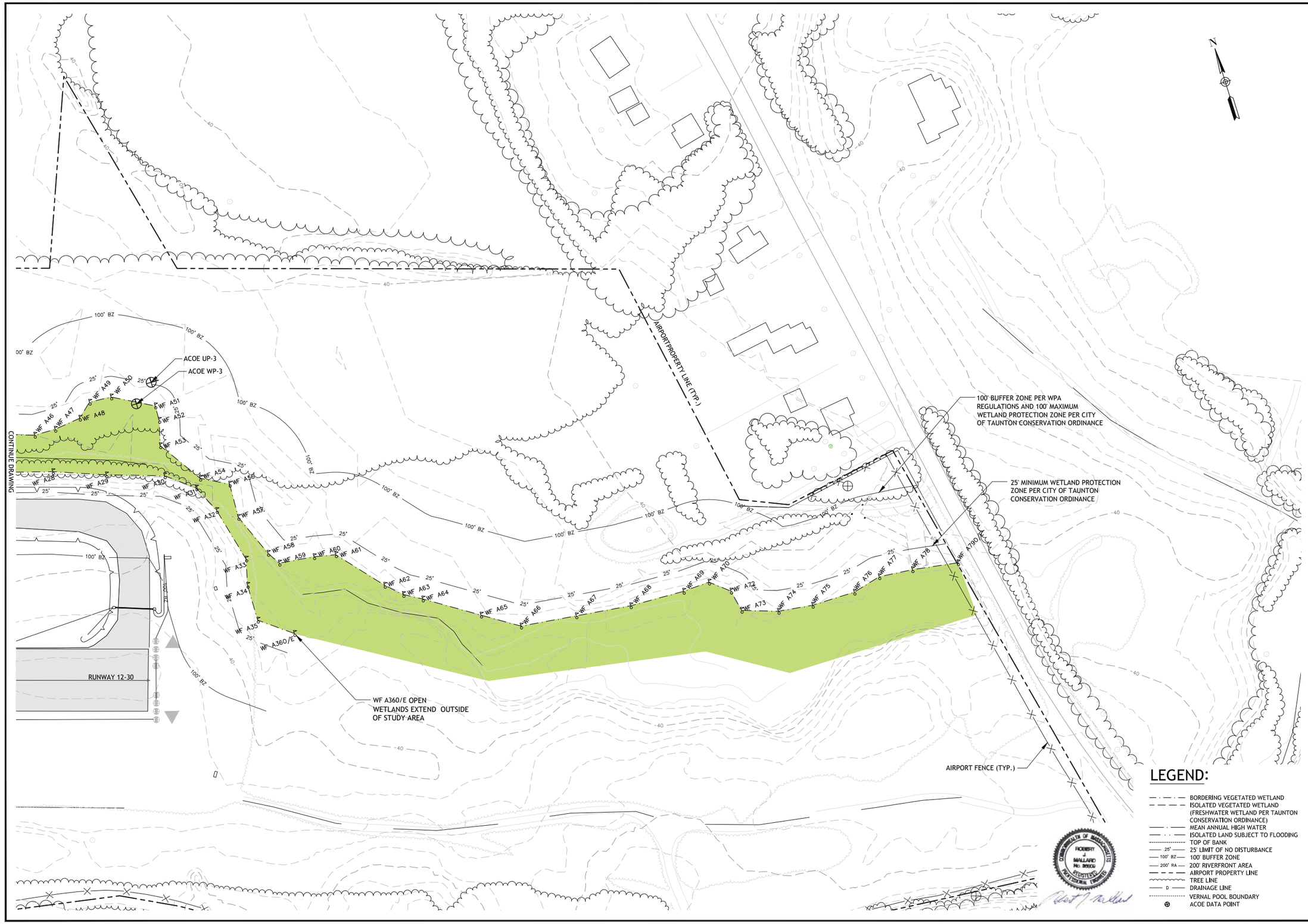
GRAPHIC SCALE 0 25 50 100

DRAWING NO.

A2.6

7 OF 8

ANRAD SUBMISSION 07-30-2012



AIRPORT SOLUTIONS GROUP
INNOVATIVE AIRPORT DEVELOPMENT SPECIALISTS
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DRAWN BY	DJA
CHECKED BY	MLB
DATE	JULY 30, 2012
DRAWING SCALE	1"=50'

SHEET TITLE
ANRAD PLAN 7

GRAPHIC SCALE
0 25 50 100

DRAWING NO.
A2.7

8 OF 8

ANRAD SUBMISSION 07-30-2012

APPENDIX E:

TAN FAA DATA

(FAA Form 5010; FAA AFD; FAA Airport Survey Detail; and Terminal Area Forecasts [TAF])

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 03/13/2014
AFD EFF 02/06/2014
Form Approved OMB 2120-0015

> 1 ASSOC CITY: TAUNTON
> 2 AIRPORT NAME: TAUNTON MUNI - KING FIELD
3 CBD TO AIRPORT (NM): 03 E
4 STATE: MA
6 REGION/ADO: ANE/NONE
LOC ID: TAN
5 COUNTY: BRISTOL MA
7 SECT AERO CHT: NEW YORK
FAA SITE NR: 09336.*A

GENERAL

10 OWNERSHIP: PU
> 11 OWNER: CITY OF TAUNTON
> 12 ADDRESS: CITY HALL, 15 SUMMER STREET
TAUNTON, MA 02780
> 13 PHONE NR: 508-821-1000
> 14 MANAGER: DANIEL RAPOSA
> 15 ADDRESS: PO BOX 441
EAST TAUNTON, MA 02718
> 16 PHONE NR: 508-821-2973
> 17 ATTENDANCE SCHEDULE:
ALL ALL 0800 - 1700

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 41-52-28.0826N ESTIMATED
20 ARPT LONG: 071-00-58.7394W
21 ARPT ELEV: 41.5 SURVEYED
22 ACREAGE: 256
> 23 RIGHT TRAFFIC:
> 24 NON-COMM LANDING: NO
25 NPIAS/FED AGREEMENTS: NGY
> 26 FAR 139 INDEX:

SERVICES

> 70 FUEL: 100LL
> 71 AIRFRAME RPRS: MAJOR
> 72 PWR PLANT RPRS: MAJOR
> 73 BOTTLE OXYGEN: NONE
> 74 BULK OXYGEN: NONE
75 TSNT STORAGE: TIE
76 OTHER SERVICES:
INSTR

FACILITIES

> 80 ARPT BCN: CG
> 81 ARPT LGT SKED: SEE RMK
> 82 UNICOM: 122.700
> 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
85 CONTROL TWR: NONE
86 FSS: BRIDGEPORT
87 FSS ON ARPT: NO
88 FSS PHONE NR:
89 TOLL FREE NR: 1-800-WX-BRIEF

BASED AIRCRAFT

90 SINGLE ENG:	102
91 MULTI ENG:	2
92 JET:	0
TOTAL:	104
93 HELICOPTERS:	5
94 GLIDERS:	0
95 MILITARY:	0
96 ULTRA-LIGHT:	0

OPERATIONS

100 AIR CARRIER:	0
102 AIR TAXI:	100
103 G A LOCAL:	30,000
104 G A ITNRNT:	3,400
105 MILITARY:	50
TOTAL:	33,550

OPERATIONS FOR 12 MONTHS ENDING 06/01/2012

RUNWAY DATA

> 30 RUNWAY IDENT:	04/22	12/30		
> 31 LENGTH:	1,900	3,500		
> 32 WIDTH:	60	75		
> 33 SURF TYPE-COND:	TURF-GRVL-F	ASPH-G		
> 34 SURF TREATMENT:				
35 GROSS WT: SW		21.0		
36 (IN THSDS) DW				
37 DTW				
38 DDTW				
> 39 PCN:				

LIGHTING/APCH AIDS

		MED		
> 40 EDGE INTENSITY:	- / -	NPI - F / NPI - G	- / -	- / -
> 42 RWY MARK TYPE-COND:	/	/ V4L	/	/
> 43 VGSI:	/	/ 45	/	/
44 THR CROSSING HGT:	/	/ 3.60	/	/
45 VISUAL GLIDE ANGLE:	/		/	/
> 46 CNTRLN-TDZ:	- / -	- / -	- / -	- / -
> 47 RVR-RVV:	- / -	- / -	- / -	- / -
> 48 REIL:	/	/ Y	/	/
> 49 APCH LIGHTS:	/	/	/	/

OBSTRUCTION DATA

50 FAR 77 CATEGORY:	A(V) / A(V)	A(V) / A(NP)	/	/
> 51 DISPLACED THR:	/	/	/	/
> 52 CTLG OBSTN:	TREES / TREES	TREES / TREES	/	/
> 53 OBSTN MARKED/LGTD:	/	/	/	/
> 54 HGT ABOVE RWY END:	60 / 85	23 / 40	/	/
> 55 DIST FROM RWY END:	800 / 1,000	1,000 / 1,000	/	/
> 56 CNTRLN OFFSET:	125B / 125L	135R / 125L	/	/
57 OBSTN CLNC SLOPE:	12:1 / 12:1	34:1 / 20:1	/	/
58 CLOSE-IN OBSTN:	N / N	N / N	/	/

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL (TORA):	/	/	/	/
> 61 TAKE OFF DIST AVBL (TODA):	/	/	/	/
> 62 ACLT STOP DIST AVBL (ASDA):	/	/	/	/
> 63 LNDG DIST AVBL (LDA):	/	/	/	/

(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

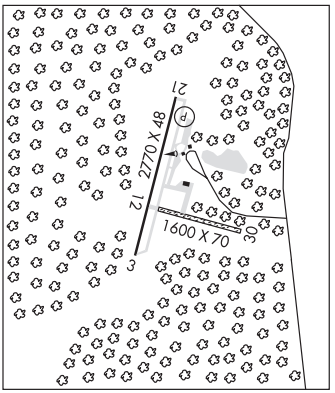
> 110 REMARKS:

A 033 RWY 04/22 SFC ROUGH & LOOSE STONES.
A 081 RWY APT ACTVT MIRL RY 12/30; VASI RY 30 & LIGHTED WINDSOCK - CTAF.
A 110-001 AVOID FLYING OVER THE ELEMENTARY SCHOOL AT THE DEPARTURE END OF RY 30.
A 110-004 HELS AVOID OVERFLIGHT OF DENSELY POPULATED AREAS W & S OF ARPT.

111 INSPECTOR: (S) 112 LAST INSP: 06/01/2012 113 LAST INFO REQ:

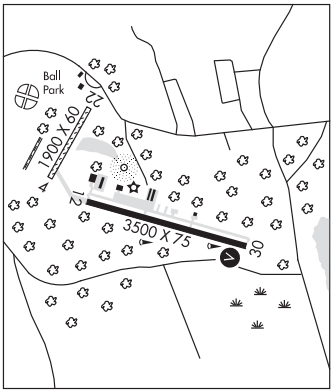
STOW

MINUTE MAN AIR FLD (6B6) 2 N UTC–5(–4DT) N42°27.64´ W71°31.07´ **NEW YORK**
268 B S4 **FUEL** 100LL TPA—See Remarks NOTAM FILE BDR **L–33C, 34J**
RWY 03–21: H2770X48 (ASPH) S–12.5 LIRL **IAP**
RWY 03: Hill.
RWY 21: REIL. PAPI(P2L)—GA 3.5° TCH 24´. Trees.
RWY 12–30: 1600X70 (TURF–GRVL) 0.3% up NW
RWY 12: Trees.
RWY 30: Trees.
AIRPORT REMARKS: Attended 1400–2100Z‡. Tree obstruction in apch, primary and transition surfaces Rwy 03 and Rwy 12–30. Upwind and crosswind apchs not recommended. Noise abatement procedures in effect notify arpt manager 978–897–3933 of intention to opr between 0400–1100Z‡. TPA for light acft 1300(1032). Helicopters use rgt tfc. Rotating bcn OTS 0400–1200Z‡. ACTIVATE REIL Rwy 21—CTAF.
AIRPORT MANAGER: 978-897-3933
COMMUNICATIONS: CTAF/UNICOM 122.8
Ⓡ**BOSTON APP/DEP CON** 124.4
RADIO AIDS TO NAVIGATION: NOTAM FILE MHT.
MANCHESTER (L) VOR/DME 114.4 MHT Chan 91 N42°52.11´ W71°22.17´ 210° 25.3 NM to fld. 470/15W.
DME unusable:
Byd 10 right of course



TANNER–HILLER (See BARRE/BARRE PLAINS on page 106)

TAUNTON MUNI – KING FLD (TAN)(KTAN) 3 E UTC–5(–4DT) N41°52.47´ W71°00.98´ **NEW YORK**
42 B S4 **FUEL** 100LL NOTAM FILE TAN **L–33D**
RWY 12–30: H3500X75 (ASPH) S–21 MIRL **IAP**
RWY 12: Trees.
RWY 30: REIL. VASI(V4L)—GA 3.6° TCH 45´. Trees.
RWY 04–22: 1900X60 (TURF–GRVL)
RWY 04: Trees.
RWY 22: Trees.
AIRPORT REMARKS: Attended 1300–2200Z‡. Rwy 04–22 surface rough and loose stones. Avoid flying over the elementary school at the departure end of Rwy 30. Helicopters avoid overflight of densely populated areas west and south of arpt. ACTIVATE MIRL Rwy 12–30; VASI Rwy 30 and lgtd windsock—CTAF.
AIRPORT MANAGER: 508-821-2973
WEATHER DATA SOURCES: ASOS 132.675 (508) 824–5005.
COMMUNICATIONS: CTAF/UNICOM 122.7
Ⓡ**PROVIDENCE APP/DEP CON** 128.7 (1045–0500Z‡)
BOSTON CENTER APP/DEP CON 124.85 (0500–1045Z‡)
RADIO AIDS TO NAVIGATION: NOTAM FILE PVD.
PROVIDENCE (H) VORTACW 115.6 PVD Chan 103 N41°43.46´ W71°25.78´ 078° 20.6 NM to fld. 49/14W. **HIWAS.**
VOR portion unusable:
085°–105° byd 8 NM blo 3,000´
195°–228° byd 30 NM blo 2,500´
229°–254° byd 30 NM blo 2,000´
255°–279° byd 30 NM blo 2,500´
280°–335° byd 30 NM blo 3,000´
336°–194° byd 30 NM blo 2,000´
TACAN AZIMUTH & DME unusable:
220°–240° byd 35 NM blo 3,000´
241°–310° byd 30 NM blo 3,000´
TACAN AZIMUTH unusable:
195°–219° byd 30 NM blo 2,500´
311°–335° byd 30 NM blo 3,000´
336°–194° byd 30 NM blo 2,000´
NDB (MHW) 227 TAN N41°52.53´ W71°00.97´ at fld. NOTAM FILE TAN. NDB unmonitored.
NDB unusable:
090°–180° byd 15 NM



TURNERS FALLS (See MONTAGUE on page 118)

Rpt Date:03/16/2014 Report : APT002

Airport Detail for KTAN

TAUNTON MUNI - KING FIELD

TAUNTON

AL# :5175

State: MASSACHUSETTS
Country: UNITED STATES
Phone : (508)821-2973
Category: AIRPORT
FAR Part 139: No

Magnetic Variation/Year: W 16 1985
Site Nbr: 09336.
Sectional Chart: NEW YORK
Survey Code: 8T

Weather Station:
Control Tower:
Control Zone: Y
Control Zone Operational: P

Coordinates

Latitude: N 41° 52' 28.0826"
Longitude: W 071° 00' 58.7394"
Field Elevation: 41.5
Elipsoid Elevation: -28.9 -28.9 E
Horz Datum: NAD83
Vert Datum: NAVD88

Office

Flight Inspection: ACY
Procedure Development: 110
Region Code: NE

Auto Weather

Weather Source: ASOS
Location: KTAN
Type: 3
Frequency: 132.675
Service A:

Altimeter

Type	Primary	Airport ID	Field Alt Source	Latitude	Longitude	Start	End
R	No	KEWB	ASOS	N 41° 40' 35.6000"	W 070° 57' 28.1000"		
L	Yes	KTAN	ASOS	N 41° 52' 28.0826"	W 071° 00' 58.7394"		

Runway List

04 A 22 A 12 A 30 A

Runway Detail

Landing Strip

Surface:	TURF	P	Width:	60	Physical Length:	1900

Rwy Number: 04 **KTAN04**

Status: A Survey: 0
Markings: -

Threshold

Latitude:	N 41° 52' 31.5570"
Longitude:	W 071° 01' 21.7240"
Elevation:	27.0
Elipsoid Elev:	
Horz. Datum:	NAD83
Vert. Datum:	NGVD29

Displaced Threshold

Latitude:	
Longitude:	
Elevation:	
Elipsoid Elev:	
Horz. Datum:	NAD83
Vert. Datum:	NGVD29

Landing Length:	1900
FI RWY Length:	1900
FI RWY Height:	27
Tdz Elevation:	27.0
True Bearing:	26.55
Ft Disp Th:	
Gradient:	0.0%
RVR Touchdown:	
MidPoint:	
Rollout:	
Rail:	No
RWY Survey:	
Assoc. Fac:	

Rwy Number: 22 **KTAN22**

Status: A Survey: 0
Markings: -

Threshold

Latitude:	N 41° 52' 48.3440"
Longitude:	W 071° 01' 10.5040"
Elevation:	27.0
Elipsoid Elev:	
Horz. Datum:	NAD83
Vert. Datum:	NGVD29

Displaced Threshold

Latitude:	
Longitude:	
Elevation:	
Elipsoid Elev:	
Horz. Datum:	NAD83
Vert. Datum:	NGVD29

Landing Length:	1900
FI RWY Length:	1900
FI RWY Height:	27
Tdz Elevation:	27.0
True Bearing:	206.55
Ft Disp Th:	
Gradient:	0.0%
RVR Touchdown:	
MidPoint:	
Rollout:	
Rail:	No
RWY Survey:	
Assoc. Fac:	

Runway Detail

Landing Strip

Surface:	ASPH	G	Width:	75	Physical Length:	3500

Rwy Number: 12 **KTAN12**

Status: A Survey: 8T
Markings: NPI-F

Threshold

Latitude:	N 41° 52' 26.8885"
Longitude:	W 071° 01' 11.3423"
Elevation:	35.0
Elipsoid Elev:	60.0 S
Horz. Datum:	NAD83
Vert. Datum:	NAVD88

Displaced Threshold

Latitude:	
Longitude:	
Elevation:	
Elipsoid Elev:	
Horz. Datum:	NAD83
Vert. Datum:	NAVD88

Landing Length:	3500
FI RWY Length:	3500
FI RWY Height:	41.3
Tdz Elevation:	41.0
True Bearing:	107.68
Ft Disp Th:	
Gradient:	0.2%
RVR Touchdown:	

Lights Config	Len	Owner	Com Dt	Pilot Cntl
MIRL		F		122.700

Rwy Number: 30 **KTAN30**

Status: A Survey: 8T
Markings: NPI-G

Threshold

Latitude:	N 41° 52' 16.3914"
Longitude:	W 071° 00' 27.2727"
Elevation:	41.3
Elipsoid Elev:	-53.6 S
Horz. Datum:	NAD83
Vert. Datum:	NAVD88

Displaced Threshold

Latitude:	
Longitude:	
Elevation:	
Elipsoid Elev:	
Horz. Datum:	NAD83
Vert. Datum:	NAVD88

Landing Length:	3500
FI RWY Length:	3500
FI RWY Height:	35
Tdz Elevation:	41.5
True Bearing:	287.69
Ft Disp Th:	
Gradient:	-0.2%
RVR Touchdown:	

VGSI Lights Type: VASI-4L
Owner:F Pilot Cntl Freq: 122.700

Th Cross Ht:	44.5
High Angle:	
Com.Date:	09/17/1982
Com.Angle:	3.60
DWB Elev:	
DWB Thres:	
Ref Pt Lat:	N 41° 52' 18.6200"
Ref Pt Long:	W 071° 00' 36.6200"
Ref Pt Elev:	40.8
Ref PtThres:	742.6

Lights Config	Len	Owner	Com Dt	Pilot Cntl
REIL		F	09/17/1982	
MIRL		F		122.700

MidPoint:			MidPoint:		
Rollout:			Rollout:		
Rail:	No		Rail:	No	
RWY Survey:	VG 05/11/2010	THIRD PARTY	**RWY Survey:**	VG 05/11/2011	THIRD PARTY
Assoc. Fac:			**Assoc. Fac:**		

Remarks

Topic	Priority	Date	Remark
SURVEY	1	11/05/99	ADAM SURVEY 1/86
NFDD-1	2	02/12/03	PER NFDD 16 DATED 1/24/2003, RWY 4/22 LENGTH MODIFIED. DATA FOR 4/22 AND MODIFIED ARP RECEIVED ON 76-101 DATED 2/4/2003.
NFDD-2	3	04/04/60	PER NFDD 48 DATED 3/13/2006, NAME CHANGED FROM 'TAUNTON MUNI.'
GENERAL	4	08/15/07	SECONDARY ALTIMETER SOURCE ADDED PER AVN-100, FRANK JOHNSON
DATA SOURCE	5	09/13/11	ARPT AND RWY 12/30 PER THIRD PARTY VJA SURVEY DATED 05/11/2010. (NFDD 223-15 DATED 11/18/2011) NAVAIDS INCLUDE ON SURVEY: TAN NDB

GPS Procedures

Procedure Control	Description	Proc Type	Amendment	Runway	Status	Owner
22043	RNAV (GPS) RWY 30	PROC/G	ORIG			B

SIAPS

Nav Ident	Nav Type	Description	Amendment	Type
TAN	NDB/M	NDB RWY 30	5	B

APO TERMINAL AREA FORECAST DETAIL REPORT
Forecast Issued February 2014

TAN

	Enplanements			AIRCRAFT OPERATIONS										
				Itinerant Operations					Local Operations					
Fiscal Year	**Air Carrier**	**Commuter**	**Total**	**Air Carrier**	**Air Taxi & Commuter**	**GA**	**Military**	**Total**	**Civil**	**Military**	**Total**	**Total Ops**	**Total Tracon Ops**	**Based Aircraft**
REGION:ANE **STATE:**MA **LOCID:**TAN														
CITY:TAUNTON **AIRPORT:**TAUNTON MUNI - KING FIELD														
1990	0	0	0	0	80	30,000	0	30,080	90,000	0	90,000	120,080	-	142
1991	0	0	0	0	80	25,000	0	25,080	90,000	0	90,000	115,080	-	127
1992	0	0	0	0	50	25,000	0	25,050	100,000	0	100,000	125,050	-	129
1993	0	0	0	0	50	25,000	0	25,050	100,000	0	100,000	125,050	-	129
1994	0	0	0	0	50	25,000	0	25,050	100,000	0	100,000	125,050	-	129
1995	0	0	0	0	50	20,000	0	20,050	70,000	0	70,000	90,050	-	98
1996	0	0	0	0	50	20,000	0	20,050	70,000	0	70,000	90,050	-	98
1997	0	0	0	0	80	20,000	0	20,080	35,000	0	35,000	55,080	-	79
1998	0	0	0	0	80	20,000	0	20,080	35,000	0	35,000	55,080	-	79
1999	0	0	0	0	80	20,000	0	20,080	35,000	0	35,000	55,080	-	79
2000	0	0	0	0	80	20,000	0	20,080	35,000	0	35,000	55,080	-	79
2001	0	0	0	0	80	20,000	0	20,080	35,000	0	35,000	55,080	-	79
2002	0	0	0	0	80	20,000	0	20,080	35,000	0	35,000	55,080	-	79
2003	0	0	0	0	80	20,000	0	20,080	35,000	0	35,000	55,080	-	79
2004	0	0	0	0	80	20,000	0	20,080	35,000	0	35,000	55,080	-	133
2005	0	0	0	0	100	40,000	30	40,130	40,000	0	40,000	80,130	-	154
2006	0	0	0	0	100	60,000	40	60,140	50,000	0	50,000	110,140	-	133
2007	0	0	0	0	100	60,000	40	60,140	50,000	0	50,000	110,140	-	147
2008	0	0	0	0	100	60,000	40	60,140	50,000	0	50,000	110,140	-	114
2009	0	0	0	0	75	3,500	40	3,615	30,000	0	30,000	33,615	-	127

2010	0	0	0	0	75	3,400	40	3,515	28,000	0	28,000	31,515	-	110
2011	0	2	2	0	75	3,400	40	3,515	30,000	0	30,000	33,515	-	111
2012	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2013*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2014*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2015*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2016*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2017*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2018*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2019*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109

APO TERMINAL AREA FORECAST DETAIL REPORT
Forecast Issued February 2014

TAN

	AIRCRAFT OPERATIONS													
	Enplanements			Itinerant Operations					Local Operations					
Fiscal Year	**Air Carrier**	**Commuter**	**Total**	**Air Carrier**	**Air Taxi & Commuter**	**GA**	**Military**	**Total**	**Civil**	**Military**	**Total**	**Total Ops**	**Total Tracon Ops**	**Based Aircraft**
2020*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2021*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2022*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2023*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2024*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2025*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2026*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2027*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2028*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2029*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2030*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109

2031*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2032*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2033*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2034*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2035*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2036*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2037*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2038*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2039*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109
2040*	0	0	0	0	100	3,400	50	3,550	30,000	0	30,000	33,550	-	109

APPENDIX F:

TAN STAKEHOLDER SURVEY RESULTS

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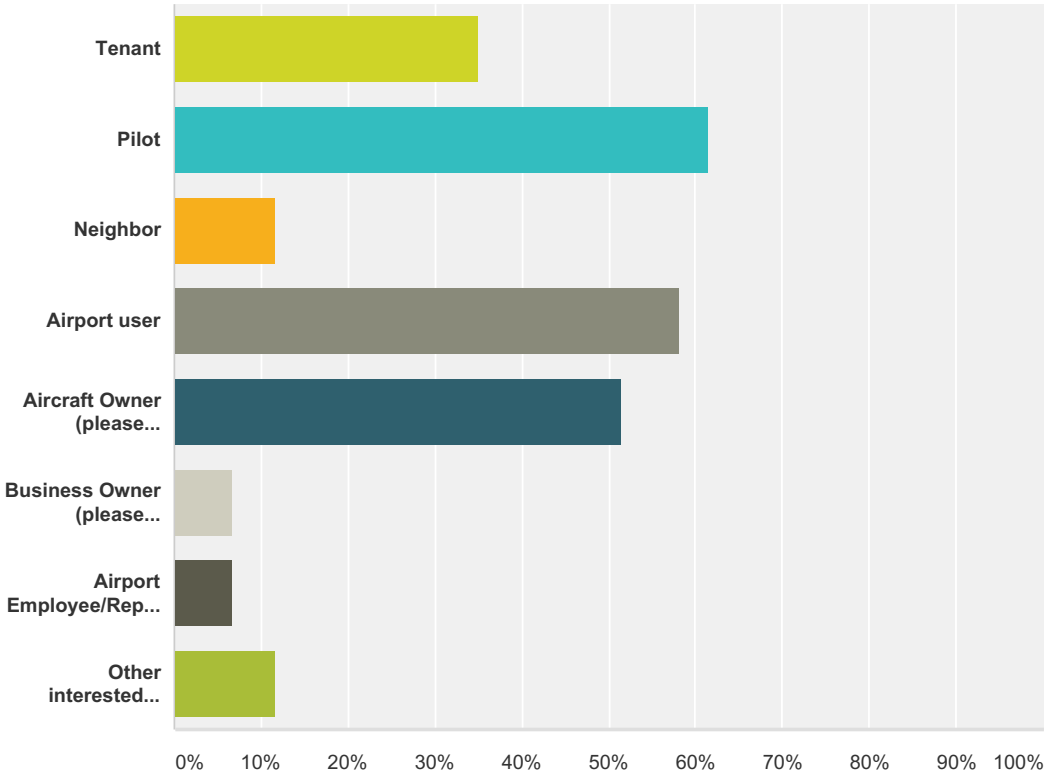
Q1 Please describe your relationship with the airport (check all that apply):

Answered: 60 Skipped: 1



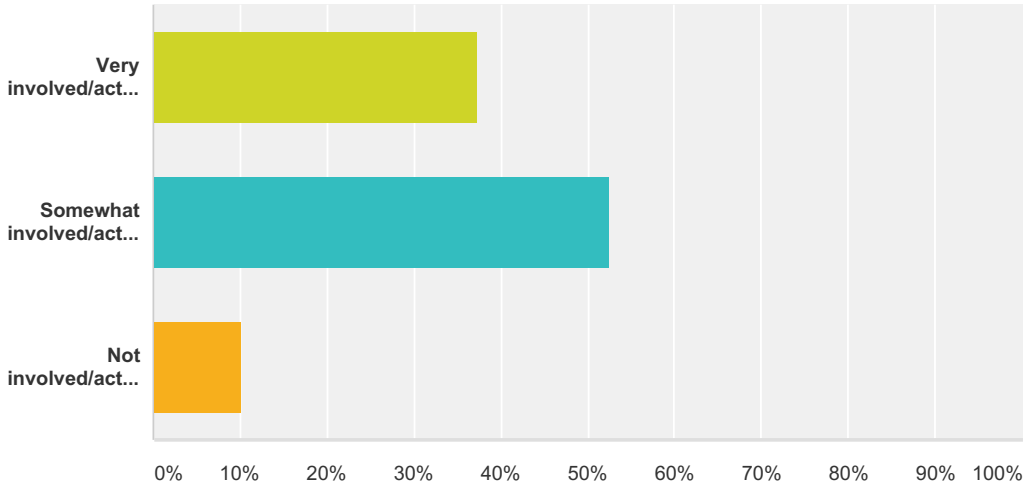
Answer Choices	Responses	
Tenant	**35.00%**	21
Pilot	**61.67%**	37
Neighbor	**11.67%**	7
Airport user	**58.33%**	35
Aircraft Owner (please indicate below if you base your aircraft at TAN and for how many years)	**51.67%**	31
Business Owner (please indicate below if your business is on TAN and for how many years)	**6.67%**	4
Airport Employee/Representative	**6.67%**	4
Other interested party (please describe below)	**11.67%**	7
Total Respondents: 60		

#	Additional Information	Date
1	Aeronca 82297 based and hangered at Taunton	9/29/2014 7:58 PM
2	Hanger owner six years and have aircraft based here	9/12/2014 1:21 PM
3	Hangar owner	9/3/2014 9:14 AM

4	8 years.	1/14/2014 4:10 PM
5	tan 40yrs	11/28/2013 3:00 PM
6	First flew in December 1956 with Everett King, my father Bill McGrath, and my younger brother Bill. I love the airport	11/14/2013 2:53 PM
7	Own hanger five years and tie down for many years	11/13/2013 6:57 AM
8	Business off field, 16 years	11/12/2013 10:54 AM
9	14 years at TAN	11/9/2013 12:55 PM
10	Based at Taunton 15 years	11/9/2013 12:01 AM
11	Supporter	11/8/2013 4:13 PM
12	20 yrs	11/8/2013 7:51 AM
13	Enjoy the airport, have done 'On Location' piece about airport for local cable access TV Show, and administrator of Facebook 'Group' called Friends of Taunton Municipal Airport to provide forum for 'Friends' of airport to share photos and stories regarding their enjoyment of the facility, and aviation in general. Peter G. Mozzone / Taunton	11/8/2013 6:40 AM
14	based at tan business not on field	11/7/2013 7:41 PM
15	Based aircraft at TAN for 20 years	11/5/2013 12:33 PM
16	aircraft based at TAN for 12 years	11/5/2013 9:32 AM
17	Based at KTAN 10 years	11/4/2013 9:47 PM
18	I have based my aircraft at TAN for the past year.	11/4/2013 3:03 PM
19	4 years at Taunton. Moved here from Myricks after 20 years as TAN has an instrument approach and a lighted runway	11/4/2013 12:29 PM
20	Concerned about the future of the airport. (Support)	11/4/2013 12:07 PM
21	recreational enjoyment, weekend watcher	11/4/2013 10:11 AM
22	User 30+ years; tenant 6 years	11/4/2013 8:18 AM
23	Based at KTAN for over 20 years	11/4/2013 7:23 AM
24	t hangers, last 8 years	11/3/2013 10:27 PM
25	4 aircraft owned at various times, 9 years	11/3/2013 10:10 PM
26	Enthusiast, pilot in training	11/3/2013 6:42 PM
27	I had an aircraft at TAN for many years and still fly in and out every week,	11/3/2013 6:40 PM
28	AAS	11/3/2013 6:12 PM
29	Business owner on Airport	11/3/2013 5:26 PM
30	c-152 flight training - 10 years	10/23/2013 1:40 PM

Q2 Please indicate your general level of involvement with the Airport.I consider myself to be:

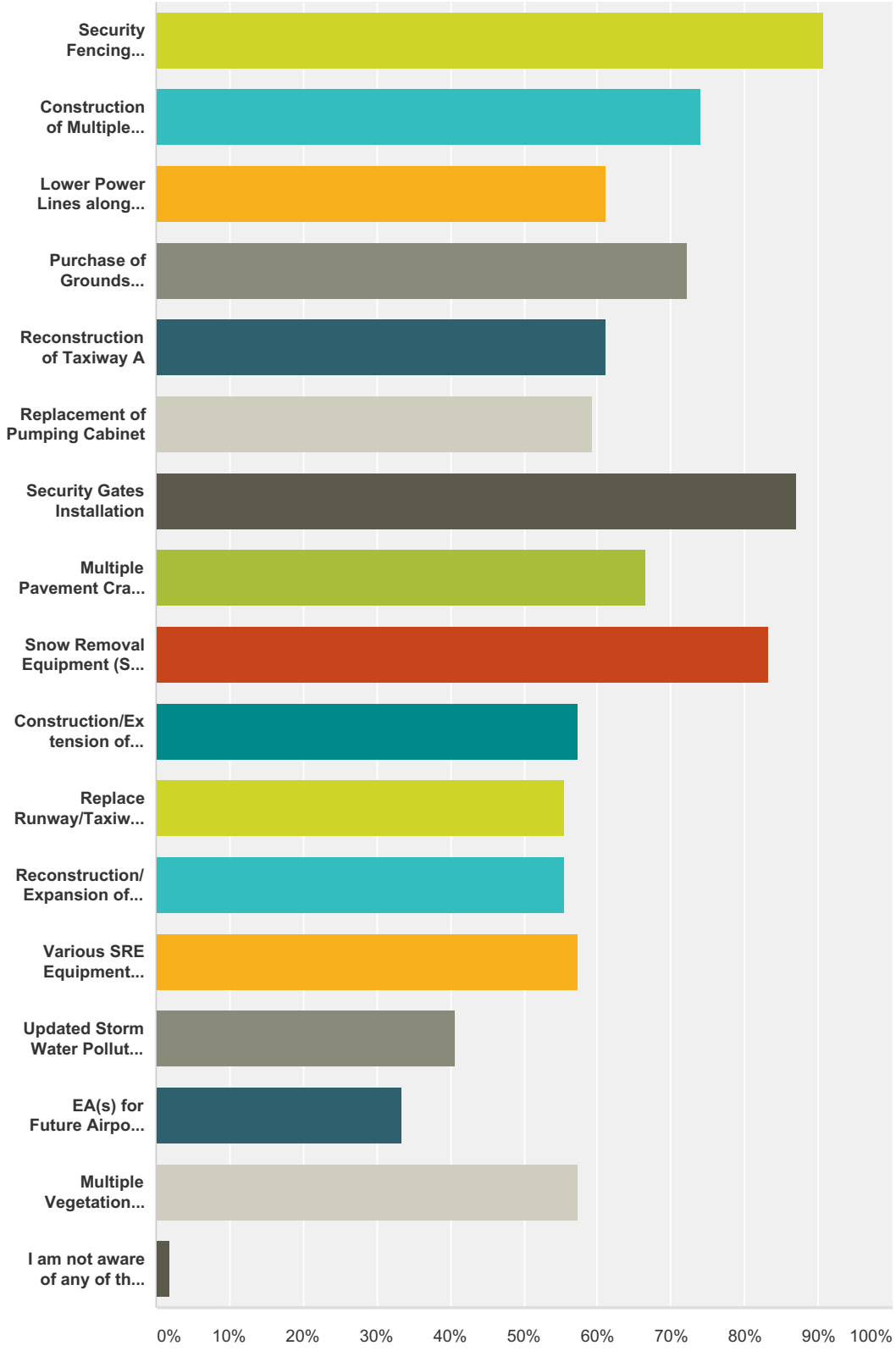
Answered: 59 Skipped: 2



Answer Choices	Responses	
Very involved/active with the Airport	**37.29%**	22
Somewhat involved/active with the Airport	**52.54%**	31
Not involved/active with the Airport.	**10.17%**	6
Total		**59**

Q3 Since 2002, TMAC has successfully sponsored many projects for the maintenance and enhancement of the Taunton Municipal Airport. Please indicate those completed projects of which you are aware:

Answered: 54 Skipped: 7

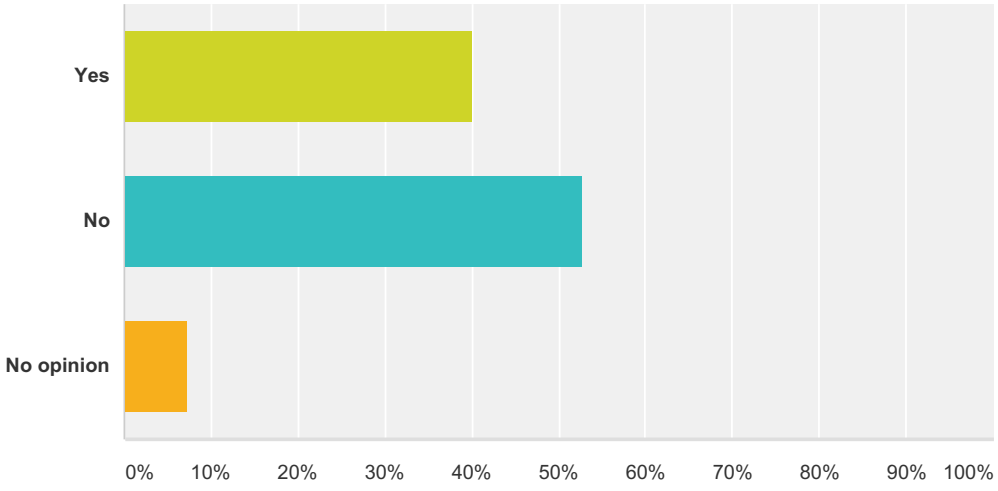


Answer Choices	Responses	
Security Fencing Installation (multiple phases)	**90.74%**	49
Construction of Multiple Hangars	**74.07%**	40

Lower Power Lines along Middleboro Ave.	**61.11%**	33
Purchase of Grounds Equipment	**72.22%**	39
Reconstruction of Taxiway A	**61.11%**	33
Replacement of Pumping Cabinet	**59.26%**	32
Security Gates Installation	**87.04%**	47
Multiple Pavement Crack Sealing Efforts	**66.67%**	36
Snow Removal Equipment (SRE) Building	**83.33%**	45
Construction/Extension of Apron Access Road	**57.41%**	31
Replace Runway/Taxiway Edge Lights	**55.56%**	30
Reconstruction/Expansion of Apron	**55.56%**	30
Various SRE Equipment Purchases	**57.41%**	31
Updated Storm Water Pollution Prevention Plan (SWPPP)	**40.74%**	22
EA(s) for Future Airport Development	**33.33%**	18
Multiple Vegetation Removal Efforts	**57.41%**	31
I am not aware of any of these projects	**1.85%**	1
Total Respondents: 54		

Q4 Do you believe that the Airport is operated efficiently by TMAC?

Answered: 55 Skipped: 6



Answer Choices	Responses	
Yes	**40.00%**	22
No	**52.73%**	29
No opinion	**7.27%**	4
Total		**55**

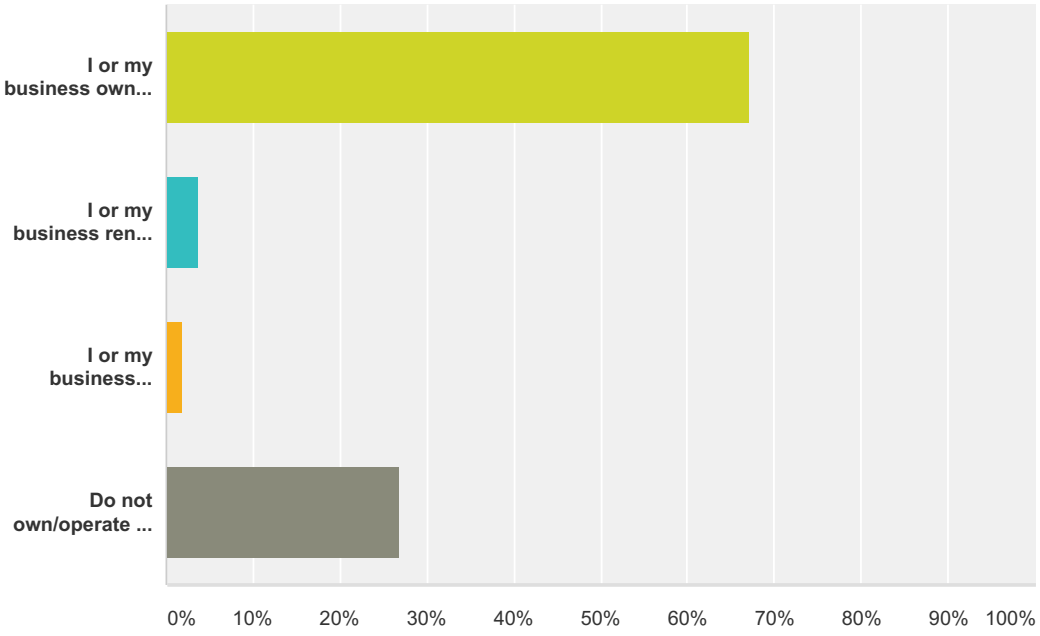
#	(Please explain)	Date
1	Lack of new business, empty parking lot on beautiful weekend days, no restaurant, old terminal building, no pilot lounge, wifi access...	11/9/2014 10:34 PM
2	Operations outside and within the AOA are difficult at best. Communication with Commissioners,...with their stand off attitude and autocratic approach to tenants, visitors, and new aircraft owners demonstrate to me that they apparently are not in the least concerned with the best interest of general aviation overall. As a relatively new tenant and based operator, I feel more attention is focused on making restrictive rules and less on creating a positive approach to building a viable, growing airport community.	9/29/2014 8:15 PM
3	In my opinion, the airport is poorly managed with benign neglect of non-paved runway, fuel pumping operation is very poorly operated and totally outdated system. Gate security system is a dysfunctional, impractical system for a small low volume GA airport. Abuse of airport equipment by maintenance personnel is inexcusable and unnecessary. Management practices do more to discourage airport use than promote airport useage. Why have a unicom that no one will respond to? A gate policy that actively discourages transient pilots to visit, no public restrooms if the flight school isn't there (which operate by appointment only). Overall, the airport, as managed, is more of a disgrace to GA than an asset.	9/28/2014 10:22 PM
4	Bill statements should be modernized to an email based system. Self fueling apparatus should be installed. Security gates should be left open during business hours. Once inside the gates, there should be no reason to have to re-swipe a card to leave, should be able to simply drive up and the gate opens automatically	9/12/2014 1:24 PM
5	Lack of clear leadership to retain and grow the usage of the airport.	9/3/2014 9:15 AM
6	Cutting back trees on either side of the runway would lessen the turbulence created by crosswinds on the leeward side.	6/11/2014 3:57 PM
7	management an comm always looking to make things better.	11/28/2013 3:02 PM

8	airport is financially viable and a progressive entity	11/25/2013 11:05 PM
9	in the ninties it was about to close, but management succeeded in having private indididuals invest in hangar development which is the lifeline of the airport. if this did not happen, the airport would not be here today.	11/25/2013 4:20 PM
10	Every time I go to the airport, It's a ghost town... Certainly, there should be some evidence of life and activity. Also, there aren't very many places to sit and watch the planes on a nice day.	11/14/2013 2:58 PM
11	Commission is not interested in promoting the airport	11/13/2013 6:58 AM
12	1.The hangers where not constructed by TMAC. 2.Much of the grounds equipment has never been used. It is left outside, unused and rusting. 3.Pumping cabinet is an expensive high maintenance mistake. 4.Security gates don't operate as they should. Card needed for exit is unsafe and inefficient. 5.Please see # 2 6.Unaware of any other airport removing permitted tanks on private property.	11/12/2013 9:54 PM
13	Fees climb, improper equipment purchases, existing equipment not used, time and money wasted on non sense, unfriendly environment, no effort at all to attract and keep users. Fees always increasing while aviation struggles to survive!	11/9/2013 12:07 AM
14	The Commission has hired a Manager that is not qualified to lead the airport. He has no knowledge of Aviation and is constantly confrontational. He is not motivated to bring new business to the airport and seems to do as little as possible. He is also hardly ever at work.	11/8/2013 7:53 AM
15	Lack of knowledge of modern day advancements in technology and efficiencies which could better support business growth and tenant / transient usage	11/5/2013 5:12 PM
16	We are loosing planes that have been at the airport for a long time and nothing is being done to attract new business	11/5/2013 12:36 PM
17	Current Commission does not have a good handle on finances ie no income statement or balance sheet on a month to month basis. No one seems to understand accrual accounting. No marketing plan for the airport, no incentive by personal on the field to grow the airport or bring in new business.	11/4/2013 9:51 PM
18	Some Commisioners seem to be there for their own personal gain and not for the improvement of the airport. They don't seem to be abl;e to liste tot he airport community and develope workable solutions and compromises that work for everyone. Locking the gates full time will be a real mess for all especially the businesses on site. The security plan needs to be modified. Unable to provide self serve gas is a detractor from expanding services and providing business class service at TAN. Pulling up to the pumps and waiting 15 to 20 minutes for the attendent is not right. More hangar space and with no conflict of interest from ther Commissioners doing the approval and the building.	11/4/2013 12:37 PM
19	It seems over the years that airport management is not listening to the airport users and needs to do a better job of day to day management.	11/4/2013 12:09 PM
20	Airport management / Commissioners has always had good intentions but limited experience in avaition matters. Mistakes were made in the past as a result of this inexperence. This may improve under the direction of a new and more diverse and pilot oriented Board of Commissioners but time will tell.	11/4/2013 10:20 AM
21	Operationally, generally yes. Optimally, no.	11/4/2013 8:20 AM
22	The commission needs to be less interested in building hangars and remove the contractors from the commission. we need to get more use of the tie downs and start lowering costs Self fueling would be a good start and would free up the contractor to do maintenance that is badly needed.	11/4/2013 7:31 AM
23	Management not present, fueling could be automated like many other airports, snow removal poorly done, non aviation interested management as proven by lack of pilot friendly support.	11/4/2013 7:10 AM
24	Limited fuel availability/Pump often unattended. Fencing is overgrown with vegetation. AOA is littered with FOD. Storm drains are not cleared. Roadways strewn with debris. No sewage/water to tenants. No re-entry code for transient aircraft. Skewed priorities, obdurate attitudes and no concept of customer service to users.	11/3/2013 10:23 PM
25	I think the airport management is wasteful poorly operated . The people involved are not aviation related and don't care about the airport users.	11/3/2013 6:46 PM
26	Always feels they're doing more to restrict than to invite.	11/3/2013 6:43 PM

27	Grass cutting ends with grass, dirt and stones on roads, taxi ways, and runways. Snow removal is very poor, not timely and results in mounds if snow which present hazards to safe operations. Gas pumps not open enough, should be self serve and should have better pricing to attract more business to the airport. Management doesn't understand flight operations. Unicom is never manned by airport personnel. There is no efficient method for visiting pilots or any person wishing to exit the airport gates to do so in a vehicle and no way to re-enter without major hassle, if at all. General negative attitude towards general aviation which keeps pilots from considering Taunton to be a good place to fly into.	11/3/2013 6:24 PM
28	The TMAC had nothing to do with hangar construction. The airport is not user friendly. The management of the airport is not qualified and was an airport hater.	11/3/2013 5:29 PM
29	No one else will do it they do fine	10/23/2013 1:41 PM

Q5 Please check the box that best describes your personal or business use of aircraft.

Answered: 52 Skipped: 9



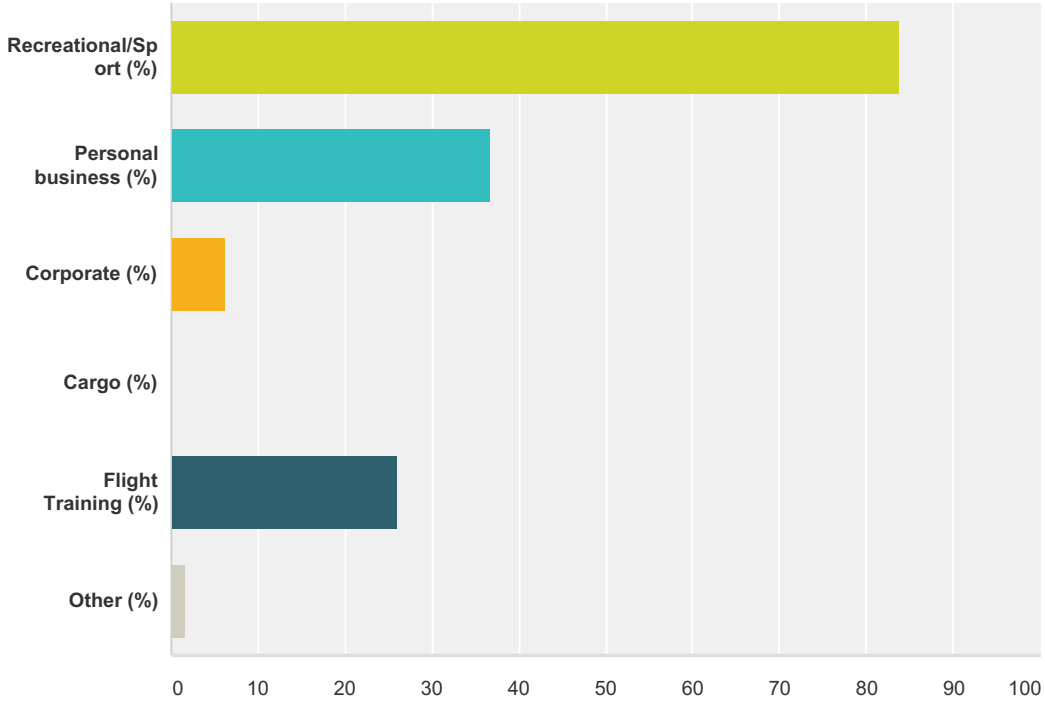
Answer Choices	Responses	
I or my business own an aircraft	**67.31%**	35
I or my business rent aircraft	**3.85%**	2
I or my business charter aircraft	**1.92%**	1
Do not own/operate an aircraft	**26.92%**	14
Total		**52**

#	Please list aircraft below	Date
1	RV-6	11/9/2014 10:35 PM
2	Aeronca Champ and Long E-Z	9/29/2014 8:15 PM
3	Aeronca Champ	9/12/2014 1:25 PM
4	RV-7	9/3/2014 9:15 AM
5	N128SC	6/11/2014 3:57 PM
6	Single engine	11/8/2013 7:54 AM
7	pleasure flying	11/7/2013 7:44 PM
8	N1452F & N4163Y	11/5/2013 12:37 PM
9	N84467 Piper Archer	11/5/2013 9:33 AM
10	RV 6A	11/4/2013 9:52 PM

11	C 172	11/4/2013 12:37 PM
12	Single engine	11/4/2013 12:09 PM
13	Cub I have owned several aircraft and hangars at KTAN	11/4/2013 7:33 AM
14	SEL	11/3/2013 10:24 PM
15	N54479 N820JK	11/3/2013 7:30 PM
16	Cessna	11/3/2013 6:47 PM
17	We own a Cub and operate a Chipmunk.	11/3/2013 6:25 PM
18	Piper J3	11/3/2013 5:30 PM
19	c-152	10/23/2013 1:41 PM

Q6 Please estimate the percentage breakdown of your current aircraft activity types. (percentages should add up to 100%)

Answered: 40 Skipped: 21



Answer Choices	Average Number	Total Number	Responses
Recreational/Sport (%)	84	3,109	37
Personal business (%)	37	626	17
Corporate (%)	6	25	4
Cargo (%)	0	0	3
Flight Training (%)	26	235	9
Other (%)	2	5	3
Total Respondents: 40			

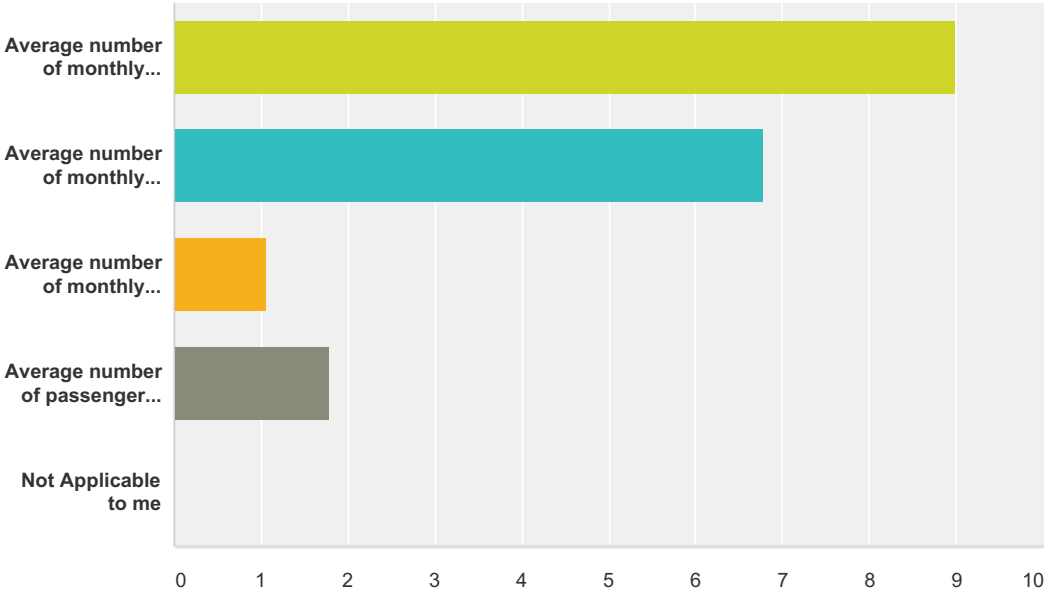
#	Recreational/Sport (%)	Date
1	100	11/9/2014 10:36 PM
2	100	9/29/2014 8:16 PM
3	50	9/28/2014 10:23 PM
4	100	9/12/2014 1:26 PM
5	80	9/3/2014 9:15 AM
6	10	6/11/2014 3:58 PM

7	100	11/28/2013 3:03 PM
8	100	11/25/2013 7:36 PM
9	100	11/13/2013 6:59 AM
10	20	11/12/2013 9:56 PM
11	80	11/12/2013 10:56 AM
12	100	11/10/2013 9:11 AM
13	75	11/9/2013 12:57 PM
14	100	11/9/2013 12:09 AM
15	100	11/8/2013 7:55 AM
16	100	11/7/2013 7:46 PM
17	100	11/6/2013 8:00 PM
18	99	11/6/2013 6:16 PM
19	100	11/5/2013 12:48 PM
20	100	11/5/2013 12:39 PM
21	100	11/5/2013 9:34 AM
22	100	11/4/2013 9:53 PM
23	10	11/4/2013 3:05 PM
24	50	11/4/2013 12:39 PM
25	100	11/4/2013 10:22 AM
26	90	11/4/2013 8:33 AM
27	90	11/4/2013 8:22 AM
28	100	11/4/2013 7:37 AM
29	100	11/4/2013 7:36 AM
30	100	11/3/2013 10:29 PM
31	90	11/3/2013 10:25 PM
32	50	11/3/2013 7:32 PM
33	75	11/3/2013 6:52 PM
34	100	11/3/2013 6:26 PM
35	90	11/3/2013 6:20 PM
36	100	11/3/2013 5:31 PM
37	50	10/23/2013 1:42 PM
#	**Personal business (%)**	**Date**
1	50	9/28/2014 10:23 PM
2	20	9/3/2014 9:15 AM
3	80	11/12/2013 9:56 PM
4	20	11/12/2013 10:56 AM
5	5	11/9/2013 12:57 PM
6	1	11/6/2013 6:16 PM

7	95	11/5/2013 5:14 PM
8	0	11/5/2013 12:48 PM
9	90	11/4/2013 3:05 PM
10	15	11/4/2013 12:39 PM
11	100	11/4/2013 12:10 PM
12	5	11/4/2013 8:22 AM
13	10	11/3/2013 10:25 PM
14	50	11/3/2013 7:32 PM
15	25	11/3/2013 6:52 PM
16	10	11/3/2013 6:20 PM
17	50	10/23/2013 1:42 PM
#	**Corporate (%)**	**Date**
1	0	11/5/2013 12:48 PM
2	25	11/4/2013 12:39 PM
3	0	11/3/2013 7:32 PM
4	0	11/3/2013 6:52 PM
#	**Cargo (%)**	**Date**
1	0	11/5/2013 12:48 PM
2	0	11/3/2013 7:32 PM
3	0	11/3/2013 6:52 PM
#	**Flight Training (%)**	**Date**
1	90	6/11/2014 3:58 PM
2	20	11/9/2013 12:57 PM
3	0	11/5/2013 12:48 PM
4	10	11/4/2013 12:39 PM
5	10	11/4/2013 8:33 AM
6	5	11/4/2013 8:22 AM
7	0	11/3/2013 7:32 PM
8	0	11/3/2013 6:52 PM
9	100	10/29/2013 8:16 PM
#	**Other (%)**	**Date**
1	5	11/5/2013 5:14 PM
2	0	11/5/2013 12:48 PM
3	0	11/3/2013 6:52 PM

Q7 Please estimate the following numbers that describe your current usage of Taunton Municipal Airport:

Answered: 40 Skipped: 21



Answer Choices	Average Number	Total Number	Responses
Average number of monthly flights:	9	324	36
Average number of monthly touch-and-go's:	7	217	32
Average number of monthly instrument approaches conducted:	1	34	32
Average number of passengers per flight:	2	68	38
Not Applicable to me	0	0	2
Total Respondents: 40			

#	Average number of monthly flights:	Date
1	10	11/9/2014 10:36 PM
2	10	9/29/2014 8:16 PM
3	10	9/12/2014 1:26 PM
4	10	9/3/2014 9:15 AM
5	1	6/11/2014 3:58 PM
6	6	11/28/2013 3:03 PM
7	4	11/25/2013 7:36 PM
8	6	11/13/2013 6:59 AM
9	8	11/12/2013 9:56 PM
10	2	11/12/2013 10:56 AM

11	5	11/10/2013 9:11 AM
12	20	11/9/2013 12:09 AM
13	7	11/8/2013 7:55 AM
14	5	11/7/2013 7:46 PM
15	10	11/6/2013 8:00 PM
16	15	11/6/2013 6:16 PM
17	30	11/5/2013 5:14 PM
18	5	11/5/2013 12:48 PM
19	5	11/5/2013 12:39 PM
20	4	11/5/2013 9:34 AM
21	6	11/4/2013 9:53 PM
22	4	11/4/2013 3:05 PM
23	8	11/4/2013 12:39 PM
24	12	11/4/2013 10:22 AM
25	6	11/4/2013 8:22 AM
26	12	11/4/2013 7:37 AM
27	15	11/4/2013 7:36 AM
28	3	11/3/2013 10:29 PM
29	12	11/3/2013 10:25 PM
30	1	11/3/2013 7:32 PM
31	8	11/3/2013 6:52 PM
32	10	11/3/2013 6:26 PM
33	20	11/3/2013 6:20 PM
34	20	11/3/2013 5:31 PM
35	2	10/29/2013 8:16 PM
36	12	10/23/2013 1:42 PM
#	**Average number of monthly touch-and-go's:**	**Date**
1	20	11/9/2014 10:36 PM
2	25	9/29/2014 8:16 PM
3	35	9/12/2014 1:26 PM
4	25	9/3/2014 9:15 AM
5	5	6/11/2014 3:58 PM
6	2	11/13/2013 6:59 AM
7	0	11/12/2013 9:56 PM
8	2	11/12/2013 10:56 AM
9	0	11/10/2013 9:11 AM
10	5	11/9/2013 12:09 AM
11	2	11/8/2013 7:55 AM

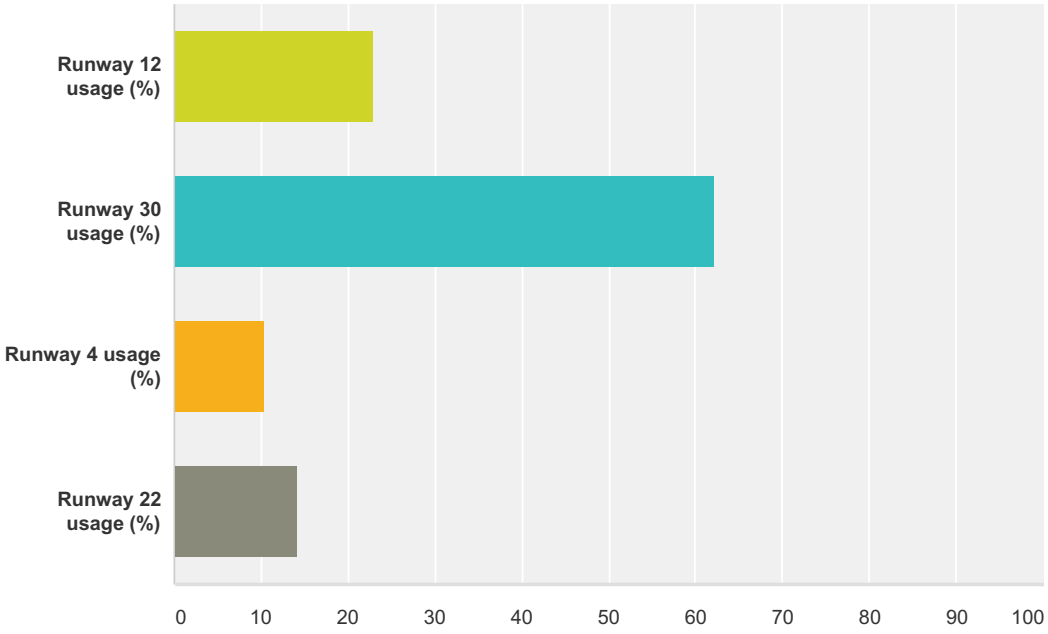
12	3	11/6/2013 8:00 PM
13	2	11/6/2013 6:16 PM
14	1	11/5/2013 12:48 PM
15	10	11/5/2013 12:39 PM
16	0	11/5/2013 9:34 AM
17	2	11/4/2013 9:53 PM
18	0	11/4/2013 3:05 PM
19	0	11/4/2013 12:39 PM
20	0	11/4/2013 10:22 AM
21	12	11/4/2013 8:22 AM
22	0	11/4/2013 7:37 AM
23	12	11/4/2013 7:36 AM
24	10	11/3/2013 10:29 PM
25	0	11/3/2013 10:25 PM
26	2	11/3/2013 7:32 PM
27	20	11/3/2013 6:52 PM
28	6	11/3/2013 6:26 PM
29	0	11/3/2013 6:20 PM
30	0	11/3/2013 5:31 PM
31	6	10/29/2013 8:16 PM
32	10	10/23/2013 1:42 PM
#	**Average number of monthly instrument approaches conducted:**	**Date**
1	0	11/9/2014 10:36 PM
2	0	9/29/2014 8:16 PM
3	0	9/28/2014 10:23 PM
4	0	9/12/2014 1:26 PM
5	3	9/3/2014 9:15 AM
6	2	6/11/2014 3:58 PM
7	0	11/13/2013 6:59 AM
8	4	11/12/2013 9:56 PM
9	2	11/12/2013 10:56 AM
10	0	11/10/2013 9:11 AM
11	0	11/9/2013 12:09 AM
12	0	11/8/2013 7:55 AM
13	3	11/5/2013 5:14 PM
14	0	11/5/2013 12:48 PM
15	0	11/5/2013 12:39 PM
16	1	11/5/2013 9:34 AM

17	2	11/4/2013 9:53 PM
18	4	11/4/2013 3:05 PM
19	4	11/4/2013 12:39 PM
20	0	11/4/2013 10:22 AM
21	0	11/4/2013 8:22 AM
22	0	11/4/2013 7:37 AM
23	0	11/4/2013 7:36 AM
24	0	11/3/2013 10:29 PM
25	1	11/3/2013 10:25 PM
26	0	11/3/2013 7:32 PM
27	4	11/3/2013 6:52 PM
28	0	11/3/2013 6:26 PM
29	3	11/3/2013 6:20 PM
30	1	11/3/2013 5:31 PM
31	0	10/29/2013 8:16 PM
32	0	10/23/2013 1:42 PM
#	**Average number of passengers per flight:**	**Date**
1	1	11/9/2014 10:36 PM
2	1	9/29/2014 8:16 PM
3	1	9/28/2014 10:23 PM
4	1	9/12/2014 1:26 PM
5	1	9/3/2014 9:15 AM
6	2	6/11/2014 3:58 PM
7	4	11/28/2013 3:03 PM
8	3	11/25/2013 7:36 PM
9	1	11/13/2013 6:59 AM
10	1	11/12/2013 9:56 PM
11	2	11/12/2013 10:56 AM
12	3	11/10/2013 9:11 AM
13	2	11/9/2013 12:57 PM
14	2	11/9/2013 12:09 AM
15	1	11/8/2013 7:55 AM
16	3	11/7/2013 7:46 PM
17	1	11/6/2013 8:00 PM
18	2	11/6/2013 6:16 PM
19	3	11/5/2013 5:14 PM
20	1	11/5/2013 12:48 PM
21	2	11/5/2013 12:39 PM

22	1	11/5/2013 9:34 AM
23	1	11/4/2013 9:53 PM
24	4	11/4/2013 3:05 PM
25	3	11/4/2013 12:39 PM
26	2	11/4/2013 10:22 AM
27	0	11/4/2013 8:22 AM
28	1	11/4/2013 7:37 AM
29	1	11/4/2013 7:36 AM
30	1	11/3/2013 10:29 PM
31	1	11/3/2013 10:25 PM
32	1	11/3/2013 7:32 PM
33	4	11/3/2013 6:52 PM
34	2	11/3/2013 6:26 PM
35	2	11/3/2013 6:20 PM
36	2	11/3/2013 5:31 PM
37	2	10/29/2013 8:16 PM
38	2	10/23/2013 1:42 PM
#	**Not Applicable to me**	**Date**
1	0	11/4/2013 12:10 PM
2	0	11/4/2013 8:33 AM

Q8 Please estimate your total percentage of annual runway use at Taunton Municipal Airport. (All percentages should add up to 100%.)

Answered: 38 Skipped: 23



Answer Choices	Average Number	Total Number	Responses
Runway 12 usage (%)	23	804	35
Runway 30 usage (%)	62	2,304	37
Runway 4 usage (%)	10	281	27
Runway 22 usage (%)	14	411	29
Total Respondents: 38			

#	Runway 12 usage (%)	Date
1	20	11/9/2014 10:38 PM
2	35	9/29/2014 8:17 PM
3	30	9/28/2014 10:29 PM
4	10	9/12/2014 1:26 PM
5	15	9/3/2014 9:15 AM
6	30	11/28/2013 3:05 PM
7	25	11/25/2013 7:36 PM
8	10	11/13/2013 6:59 AM
9	39	11/12/2013 9:57 PM

10	20	11/12/2013 10:57 AM
11	20	11/10/2013 9:12 AM
12	25	11/9/2013 12:09 AM
13	20	11/8/2013 7:55 AM
14	20	11/7/2013 7:46 PM
15	30	11/6/2013 8:04 PM
16	5	11/5/2013 5:15 PM
17	30	11/5/2013 12:49 PM
18	15	11/5/2013 12:40 PM
19	10	11/5/2013 9:35 AM
20	40	11/4/2013 9:53 PM
21	30	11/4/2013 3:08 PM
22	30	11/4/2013 12:40 PM
23	5	11/4/2013 10:27 AM
24	25	11/4/2013 8:33 AM
25	20	11/4/2013 8:23 AM
26	25	11/4/2013 7:43 AM
27	25	11/4/2013 7:37 AM
28	20	11/3/2013 10:30 PM
29	25	11/3/2013 10:27 PM
30	50	11/3/2013 7:32 PM
31	10	11/3/2013 6:54 PM
32	45	11/3/2013 6:28 PM
33	10	11/3/2013 6:21 PM
34	30	11/3/2013 5:33 PM
35	5	10/23/2013 1:48 PM
#	**Runway 30 usage (%)**	**Date**
1	65	11/9/2014 10:38 PM
2	35	9/29/2014 8:17 PM
3	30	9/28/2014 10:29 PM
4	50	9/12/2014 1:26 PM
5	75	9/3/2014 9:15 AM
6	100	6/11/2014 3:58 PM
7	70	11/28/2013 3:05 PM
8	75	11/25/2013 7:36 PM
9	70	11/13/2013 6:59 AM
10	59	11/12/2013 9:57 PM
11	80	11/12/2013 10:57 AM

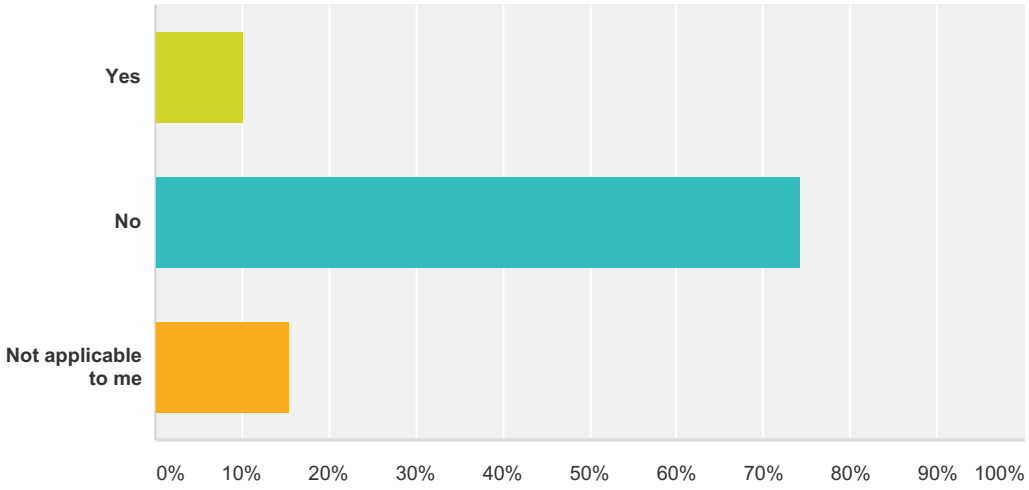
12	80	11/10/2013 9:12 AM
13	50	11/9/2013 12:09 AM
14	50	11/8/2013 7:55 AM
15	80	11/7/2013 7:46 PM
16	50	11/6/2013 8:04 PM
17	90	11/5/2013 5:15 PM
18	60	11/5/2013 12:49 PM
19	50	11/5/2013 12:40 PM
20	90	11/5/2013 9:35 AM
21	40	11/4/2013 9:53 PM
22	70	11/4/2013 3:08 PM
23	50	11/4/2013 12:40 PM
24	70	11/4/2013 10:27 AM
25	75	11/4/2013 8:33 AM
26	40	11/4/2013 8:23 AM
27	40	11/4/2013 7:43 AM
28	75	11/4/2013 7:37 AM
29	60	11/3/2013 10:30 PM
30	55	11/3/2013 10:27 PM
31	50	11/3/2013 7:32 PM
32	80	11/3/2013 6:54 PM
33	45	11/3/2013 6:28 PM
34	90	11/3/2013 6:21 PM
35	50	11/3/2013 5:33 PM
36	100	10/29/2013 8:17 PM
37	5	10/23/2013 1:48 PM
#	**Runway 4 usage (%)**	**Date**
1	5	11/9/2014 10:38 PM
2	15	9/29/2014 8:17 PM
3	20	9/28/2014 10:29 PM
4	10	9/12/2014 1:26 PM
5	10	11/13/2013 6:59 AM
6	1	11/12/2013 9:57 PM
7	0	11/12/2013 10:57 AM
8	0	11/10/2013 9:12 AM
9	5	11/9/2013 12:09 AM
10	15	11/8/2013 7:55 AM
11	10	11/6/2013 8:04 PM

12	40	11/6/2013 6:18 PM
13	0	11/5/2013 12:49 PM
14	10	11/5/2013 12:40 PM
15	10	11/4/2013 9:53 PM
16	0	11/4/2013 3:08 PM
17	10	11/4/2013 12:40 PM
18	5	11/4/2013 10:27 AM
19	20	11/4/2013 8:23 AM
20	15	11/4/2013 7:43 AM
21	5	11/3/2013 10:30 PM
22	5	11/3/2013 10:27 PM
23	0	11/3/2013 7:32 PM
24	5	11/3/2013 6:54 PM
25	5	11/3/2013 6:28 PM
26	10	11/3/2013 5:33 PM
27	50	10/23/2013 1:48 PM
#	**Runway 22 usage (%)**	**Date**
1	10	11/9/2014 10:38 PM
2	15	9/29/2014 8:17 PM
3	20	9/28/2014 10:29 PM
4	30	9/12/2014 1:26 PM
5	10	9/3/2014 9:15 AM
6	10	11/13/2013 6:59 AM
7	1	11/12/2013 9:57 PM
8	0	11/12/2013 10:57 AM
9	0	11/10/2013 9:12 AM
10	20	11/9/2013 12:09 AM
11	15	11/8/2013 7:55 AM
12	10	11/6/2013 8:04 PM
13	60	11/6/2013 6:18 PM
14	5	11/5/2013 5:15 PM
15	10	11/5/2013 12:49 PM
16	25	11/5/2013 12:40 PM
17	10	11/4/2013 9:53 PM
18	0	11/4/2013 3:08 PM
19	10	11/4/2013 12:40 PM
20	20	11/4/2013 10:27 AM
21	20	11/4/2013 8:23 AM

22	20	11/4/2013 7:43 AM
23	15	11/3/2013 10:30 PM
24	15	11/3/2013 10:27 PM
25	0	11/3/2013 7:32 PM
26	5	11/3/2013 6:54 PM
27	5	11/3/2013 6:28 PM
28	10	11/3/2013 5:33 PM
29	40	10/23/2013 1:48 PM

Q9 Do you currently have to make aircraft performance concessions in order to operate at Taunton Municipal Airport?

Answered: 39 Skipped: 22

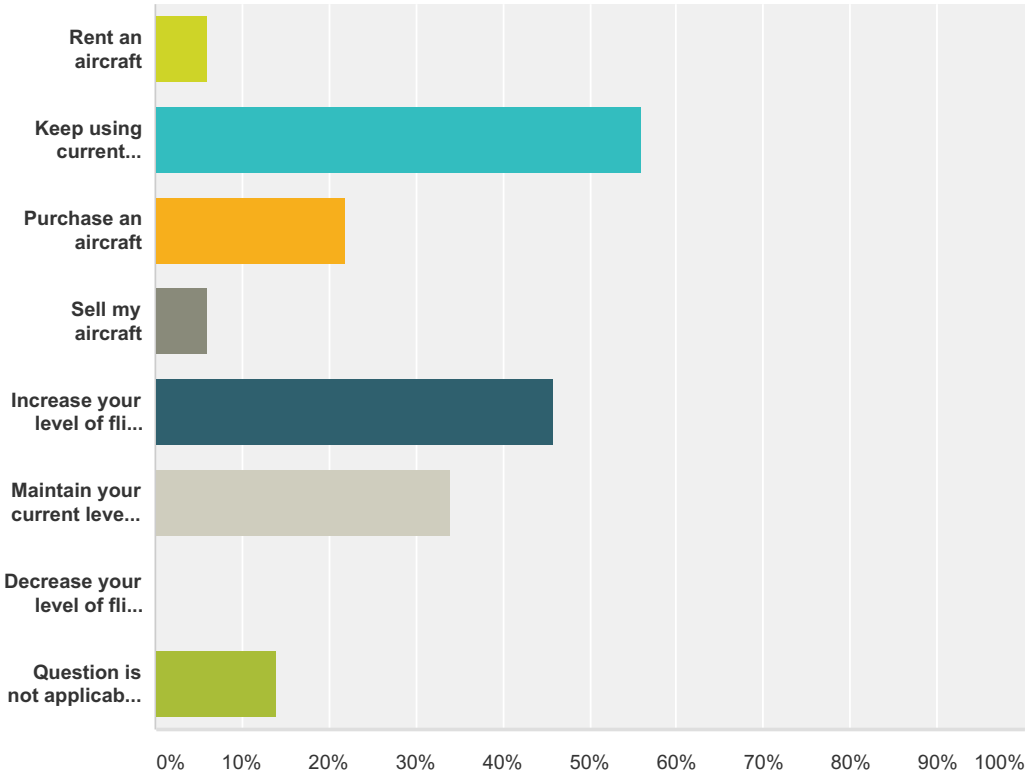


Answer Choices	Responses	
Yes	**10.26%**	4
No	**74.36%**	29
Not applicable to me	**15.38%**	6
Total		**39**

#	If "Yes", please describe:	Date
1	have never had problem with runway length or crosswind	11/28/2013 3:05 PM
2	22/4 is too rough	11/13/2013 6:59 AM
3	cannot takeoff on 22 or 4 because of loose stones	11/6/2013 8:04 PM
4	Do to the condition of 4/22 4/22 needs more care and improvement	11/4/2013 7:43 AM
5	I fly many vintage tail wheel type aircraft and make frequesnt use of the Gravel runway due to wind conditions	11/3/2013 5:33 PM

Q10 Over the next five years, do you think that you will:

Answered: 50 Skipped: 11



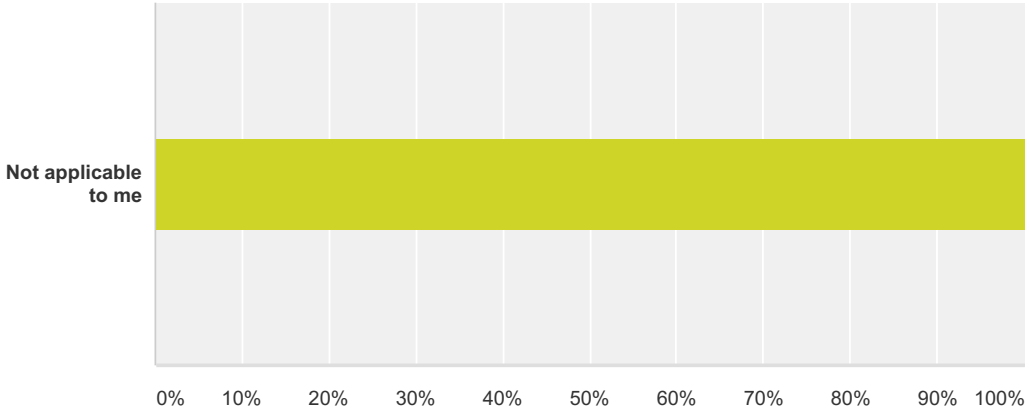
Answer Choices	Responses	
Rent an aircraft	**6.00%**	3
Keep using current aircraft	**56.00%**	28
Purchase an aircraft	**22.00%**	11
Sell my aircraft	**6.00%**	3
Increase your level of flight activity	**46.00%**	23
Maintain your current level of flight activity	**34.00%**	17
Decrease your level of flight activity	**0.00%**	0
Question is not applicable to me	**14.00%**	7
Total Respondents: 50		

#	If “purchase an aircraft", what type(s)?	Date
1	Bonanza A36	9/3/2014 9:15 AM
2	Cessna 177 Cardinal	6/11/2014 4:00 PM
3	Champ	11/13/2013 7:00 AM

4	4 seat high performance	11/4/2013 9:55 PM
5	BE58 Twin engine beech baron 58	11/4/2013 3:10 PM
6	LSA	11/4/2013 8:26 AM
7	LSA	11/3/2013 10:32 PM
8	Super cub (tailwheel)	11/3/2013 7:00 PM
9	C182	11/3/2013 6:45 PM
10	Baron B58	10/23/2013 1:49 PM

Q11 If given the choice, what runway length would you like to see at Taunton Municipal Airport and why?

Answered: 16 Skipped: 45



Answer Choices	Responses	
Not applicable to me	**100.00%**	16
Total		**16**

#	Other (please specify)	Date
1	Maintain current lengths	9/29/2014 8:27 PM
2	Keep existing Turf Runway	9/29/2014 2:16 PM
3	Prefer to see a functional, reasonably well maintained and properly marked X runway (4/22) than a longer runway. A longer (12/30) runway doesn't replace the functionality of a decent x wind runway.	9/28/2014 10:32 PM
4	Would like 2 see 2 paved runways before I saw a longer runway at TAN	6/11/2014 4:00 PM
5	5000+ Ft.	12/9/2013 4:51 PM
6	3500 more then long enough	11/28/2013 3:06 PM
7	3500	11/25/2013 7:38 PM
8	runway lengths are at max now	11/25/2013 4:21 PM
9	4,500 to enable light jets more safety.	11/12/2013 9:58 PM
10	3500	11/10/2013 9:14 AM
11	No change at all!	11/9/2013 12:12 AM
12	The runway lenth is fine as long as the cross wind runway remains useable	11/8/2013 7:59 AM
13	5000 feet, to better allow more corporate aircraft into the airport.	11/8/2013 7:00 AM
14	as long as possible	11/6/2013 6:21 PM
15	5000 if possible. potential purchase of bigger aircraft.	11/5/2013 5:16 PM
16	current length is fine	11/5/2013 9:38 AM
17	Love to 4K on long runway and get some jets in	11/4/2013 9:55 PM
18	5000 +	11/4/2013 5:47 PM

19	If 30-12 was lengthed and TAN had Jet fuel, the airport could attract larger aircraft, which means more fuel sales, more exposure for the Maintenance shops on site, potentail for more Aircraft support Businesses at TAN	11/4/2013 12:44 PM
20	4,000 would allow a larger mix of aircraft to use the airport especially if the Casino comes to the City.	11/4/2013 12:12 PM
21	3500 for runway 30-12 2500 for runway 4-22	11/4/2013 10:33 AM
22	The lengths are good but 4/22 needs the upgrade	11/4/2013 7:50 AM
23	Current lengths adequate if 4/22 is available for crosswind and tail wheel activity.	11/3/2013 10:32 PM
24	Happy with current length	11/3/2013 7:35 PM
25	5000	11/3/2013 7:25 PM
26	Fine as is	11/3/2013 6:30 PM
27	Same length	11/3/2013 6:29 PM
28	Currently suitable	11/3/2013 5:36 PM
29	5,000 ft for iinsurance purposes	10/23/2013 1:49 PM

Q12 What are the other airports that you primarily utilized over the last 12 months? Please list them and estimate your number of annual trips.

Answered: 40 Skipped: 21

Answer Choices	Responses	
Airport #1 (and # of annual trips)	**100.00%**	40
Airport #2 (and # of annual trips)	**95.00%**	38
Airport #3 (and # of annual trips)	**85.00%**	34
Airport #4 (and # of annual trips)	**62.50%**	25
Airport #5 (and # of annual trips)	**47.50%**	19

#	Airport #1 (and # of annual trips)	Date
1	Plymouth 50	11/9/2014 10:40 PM
2	KSFZ 18 trips	9/29/2014 8:27 PM
3	BVY	9/29/2014 2:16 PM
4	Quonset	9/28/2014 10:32 PM
5	PYM 10	9/12/2014 1:28 PM
6	KPNN	9/3/2014 9:15 AM
7	ewb 100 flights	6/11/2014 4:00 PM
8	pym	11/28/2013 3:06 PM
9	mvy 20	11/25/2013 7:38 PM
10	Plymouth	11/14/2013 2:59 PM
11	PYM 8	11/13/2013 7:00 AM
12	mvy	11/10/2013 9:14 AM
13	Plymouth	11/9/2013 12:12 AM
14	28M 50	11/8/2013 7:59 AM
15	ply 30	11/7/2013 7:48 PM
16	PYM	11/6/2013 8:06 PM
17	kpym	11/6/2013 6:21 PM
18	kpym 30	11/5/2013 5:16 PM
19	Plymouth	11/5/2013 12:51 PM
20	Myricks 2	11/5/2013 12:43 PM
21	KWST - 5	11/5/2013 9:38 AM
22	4B0 24	11/4/2013 9:55 PM
23	Mvy 3	11/4/2013 5:47 PM
24	MVY 40	11/4/2013 3:10 PM

25	ACK 6	11/4/2013 12:44 PM
26	Marthas Vinyard, 100 trips	11/4/2013 10:33 AM
27	KUUU plane lives here	11/4/2013 8:36 AM
28	1B9	11/4/2013 8:26 AM
29	KPYM 20	11/4/2013 7:50 AM
30	28M 50	11/4/2013 7:38 AM
31	Cranland 20	11/3/2013 10:32 PM
32	ply 5	11/3/2013 10:31 PM
33	EWB 20	11/3/2013 7:35 PM
34	Katana	11/3/2013 7:25 PM
35	PYM 50	11/3/2013 7:00 PM
36	PYM 15	11/3/2013 6:30 PM
37	nashua nh 50	11/3/2013 6:29 PM
38	Cranland 28M	11/3/2013 5:36 PM
39	New Bedford Regional	10/29/2013 8:19 PM
40	white planes 20 trips	10/23/2013 1:49 PM
#	**Airport #2 (and # of annual trips)**	**Date**
1	Windham ct 25	11/9/2014 10:40 PM
2	IB9 6 trips	9/29/2014 8:27 PM
3	Plymouth	9/28/2014 10:32 PM
4	SFZ 6	9/12/2014 1:28 PM
5	B19	9/3/2014 9:15 AM
6	pvd 20 trips	6/11/2014 4:00 PM
7	mvy	11/28/2013 3:06 PM
8	ply 18	11/25/2013 7:38 PM
9	Boston	11/14/2013 2:59 PM
10	SFZ 6	11/13/2013 7:00 AM
11	ash	11/10/2013 9:14 AM
12	Mansfield	11/9/2013 12:12 AM
13	Kpmy 30	11/8/2013 7:59 AM
14	mvy 30	11/7/2013 7:48 PM
15	PVC	11/6/2013 8:06 PM
16	kmvy	11/6/2013 6:21 PM
17	kewb 25	11/5/2013 5:16 PM
18	Martha's Vineyard	11/5/2013 12:51 PM
19	Greenville ME 2	11/5/2013 12:43 PM
20	KPYM - 12	11/5/2013 9:38 AM

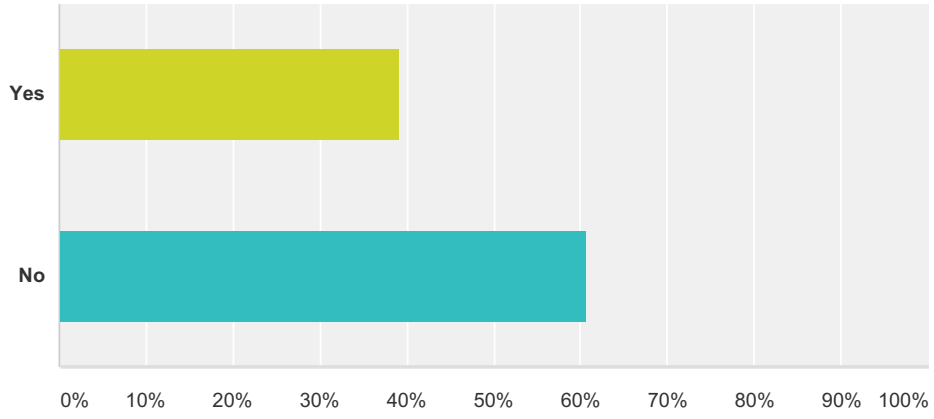
21	KRED 6	11/4/2013 9:55 PM
22	Mansfield 4	11/4/2013 5:47 PM
23	OWD 2	11/4/2013 3:10 PM
24	MVY 7	11/4/2013 12:44 PM
25	Southbridge 50 trips	11/4/2013 10:33 AM
26	KPYM 50 trips	11/4/2013 8:36 AM
27	KEWB	11/4/2013 8:26 AM
28	KEWB 12	11/4/2013 7:50 AM
29	PYM 25	11/4/2013 7:38 AM
30	Plymouth 15	11/3/2013 10:32 PM
31	cranland 5	11/3/2013 10:31 PM
32	Norwood 4	11/3/2013 7:35 PM
33	Mvy.	11/3/2013 7:25 PM
34	MVY 20	11/3/2013 7:00 PM
35	MVY 20	11/3/2013 6:30 PM
36	southbridge ma 50	11/3/2013 6:29 PM
37	Plymouth KPYM	11/3/2013 5:36 PM
38	burlington - 10 trips	10/23/2013 1:49 PM
#	**Airport #3 (and # of annual trips)**	**Date**
1	KPYM 12 trips	9/29/2014 8:27 PM
2	Westerly	9/28/2014 10:32 PM
3	FIT 4	9/12/2014 1:28 PM
4	8B0	9/3/2014 9:15 AM
5	pym 10 trips	6/11/2014 4:00 PM
6	3b0	11/28/2013 3:06 PM
7	ash 15	11/25/2013 7:38 PM
8	3bo	11/10/2013 9:14 AM
9	New Bedford	11/9/2013 12:12 AM
10	KMVY10	11/8/2013 7:59 AM
11	ash 15	11/7/2013 7:48 PM
12	EWB	11/6/2013 8:06 PM
13	kewb	11/6/2013 6:21 PM
14	New Bedford	11/5/2013 12:51 PM
15	Plymouth 5	11/5/2013 12:43 PM
16	KBID - 6	11/5/2013 9:38 AM
17	KBID 6	11/4/2013 9:55 PM
18	Chatham 1	11/4/2013 5:47 PM
19	IZG 2	11/4/2013 3:10 PM

20	North Hampton 4	11/4/2013 12:44 PM
21	Fitchburg 25 trips	11/4/2013 10:33 AM
22	KWST 20 trips	11/4/2013 8:36 AM
23	KPYM	11/4/2013 8:26 AM
24	KSFZ 10	11/4/2013 7:50 AM
25	MVY 10	11/4/2013 7:38 AM
26	Mansfield 15	11/3/2013 10:32 PM
27	mansfield 2	11/3/2013 10:31 PM
28	Plymouth 5	11/3/2013 7:35 PM
29	Southbridge	11/3/2013 7:25 PM
30	3B0 10	11/3/2013 7:00 PM
31	PVC 5	11/3/2013 6:30 PM
32	marthas vineyard 50	11/3/2013 6:29 PM
33	Marthas Vineyard KMVY	11/3/2013 5:36 PM
34	Bangor - 10 trips	10/23/2013 1:49 PM
#	**Airport #4 (and # of annual trips)**	**Date**
1	KEWB 4 trips	9/29/2014 8:27 PM
2	Norwood	9/28/2014 10:32 PM
3	N40	9/3/2014 9:15 AM
4	uuu 10 trips	6/11/2014 4:00 PM
5	ash	11/28/2013 3:06 PM
6	3b0 10	11/25/2013 7:38 PM
7	pyn	11/10/2013 9:14 AM
8	Myricks	11/9/2013 12:12 AM
9	Southbridge 8	11/8/2013 7:59 AM
10	3b0 10	11/7/2013 7:48 PM
11	MVY	11/6/2013 8:06 PM
12	kack	11/6/2013 6:21 PM
13	KMPV - 2	11/5/2013 9:38 AM
14	Katama 1	11/4/2013 5:47 PM
15	Bar Harbor Maine 5	11/4/2013 12:44 PM
16	Sanford Maine - 10 trips	11/4/2013 10:33 AM
17	KEWB 20 trips	11/4/2013 8:36 AM
18	KMVY	11/4/2013 8:26 AM
19	1B9 12	11/4/2013 7:50 AM
20	Vineyard Haven 10	11/3/2013 10:32 PM
21	MVY 10	11/3/2013 7:35 PM
22	Chatham	11/3/2013 7:25 PM

23	28M 75	11/3/2013 7:00 PM
24	plymouth ma 40	11/3/2013 6:29 PM
25	Minuteman	11/3/2013 5:36 PM
#	**Airport #5 (and # of annual trips)**	**Date**
1	KLEB	9/3/2014 9:15 AM
2	ack 5 trips	6/11/2014 4:00 PM
3	een	11/28/2013 3:06 PM
4	sfm 5	11/25/2013 7:38 PM
5	een	11/10/2013 9:14 AM
6	Minuteman 4	11/8/2013 7:59 AM
7	een 3	11/7/2013 7:48 PM
8	1B9	11/6/2013 8:06 PM
9	westerly	11/6/2013 6:21 PM
10	P- Town 5	11/4/2013 12:44 PM
11	Misc. Airports - 10 trips	11/4/2013 10:33 AM
12	KBID 4 trips	11/4/2013 8:36 AM
13	6B6	11/4/2013 8:26 AM
14	KMVY 8	11/4/2013 7:50 AM
15	Nantucket 10	11/3/2013 10:32 PM
16	ACK 8	11/3/2013 7:35 PM
17	1b0 10	11/3/2013 7:00 PM
18	sandford me 10	11/3/2013 6:29 PM
19	Southbridge	11/3/2013 5:36 PM

Q13 Do you know of any suppliers, clients, or businesses in your local community currently using aviation, who might be users of Taunton Municipal Airport?

Answered: 51 Skipped: 10

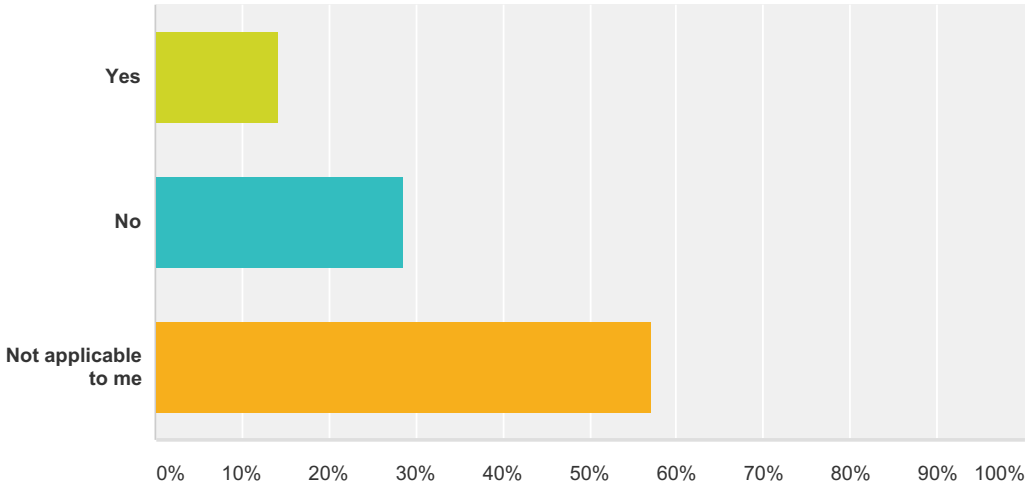


Answer Choices	Responses	
Yes	**39.22%**	20
No	**60.78%**	31
Total		**51**

#	If "Yes", would you provide that information below:	Date
1	American Aero Services	9/29/2014 8:33 PM
2	Based upon the current management practices, I would not recommend KTAN to anyone involved in aviation including transient pilots.	9/28/2014 10:34 PM
3	Jim Godovich Mike Dupont Carl	9/12/2014 1:29 PM
4	Nexair avionics is currently looking for an additional location.	9/3/2014 9:15 AM
5	auto action	11/28/2013 3:08 PM
6	Auto auction	11/10/2013 9:15 AM
7	Ocean Spray Co.	11/5/2013 12:44 PM
8	Several small business owners	11/4/2013 12:12 PM
9	Taunton Auto Auctions	11/4/2013 10:35 AM
10	American aero k k aircraft	11/3/2013 10:32 PM
11	Johnson and Johnson and industrial park. Ocean spray	11/3/2013 7:27 PM
12	I know many but due to the poor management I would suggest they stay away	11/3/2013 7:03 PM
13	All my clients come to me using the airport, We are n aircraft maintenance shop	11/3/2013 5:37 PM
14	my dad	10/23/2013 1:49 PM

Q14 Does your company, parent company, or clientele use the Taunton Municipal Airport?

Answered: 49 Skipped: 12

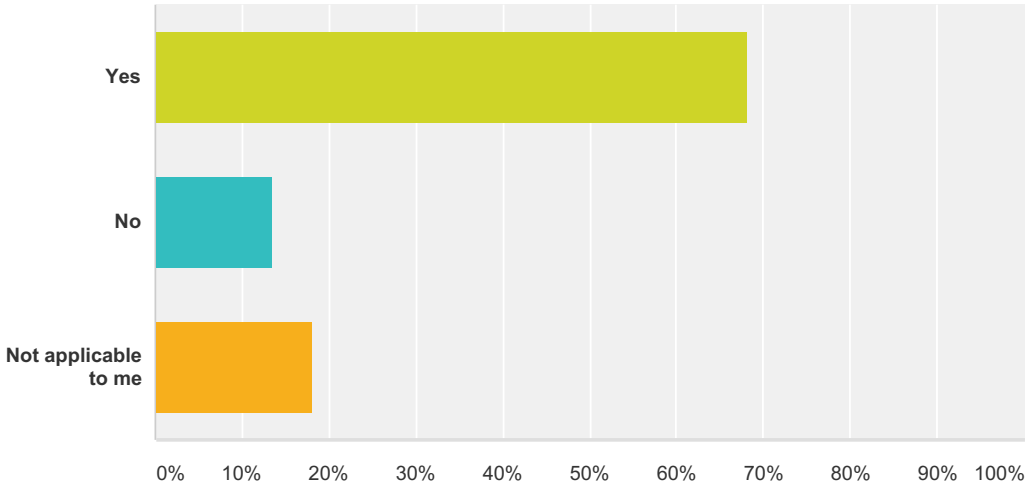


Answer Choices	Responses	
Yes	**14.29%**	7
No	**28.57%**	14
Not applicable to me	**57.14%**	28
Total		**49**

#	If "Yes", where is it headquartered?	Date
1	Hopkinton,Ma	11/12/2013 9:59 PM
2	Stamford CT	11/4/2013 12:45 PM
3	Taunton Airport	11/3/2013 5:37 PM
4	Taunton	10/23/2013 1:49 PM

Q15 Is the size and location of the Taunton Municipal Airport adequate for your existing/future business needs?

Answered: 22 Skipped: 39

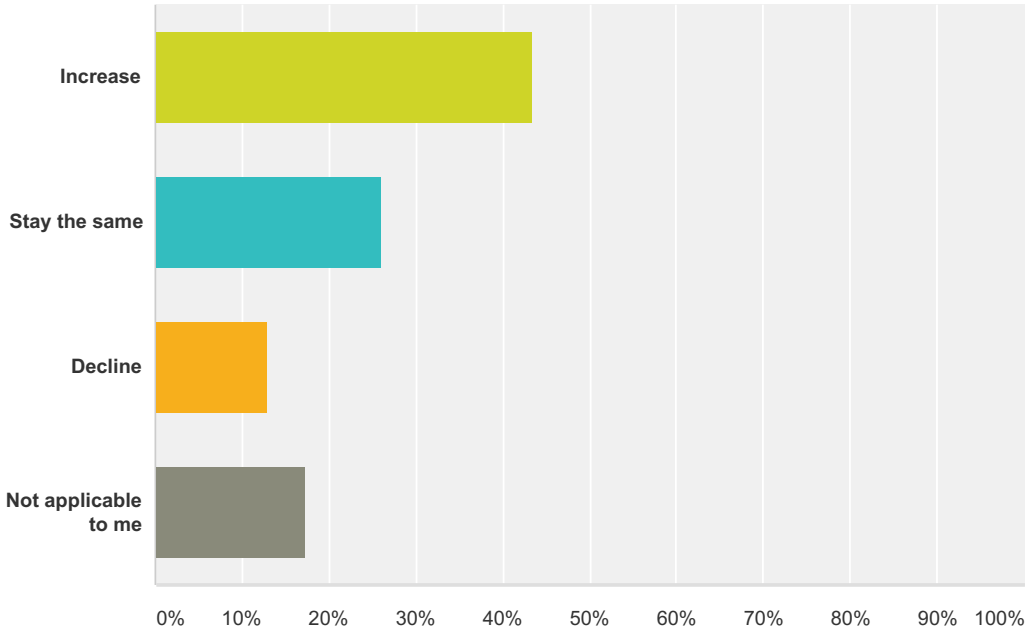


Answer Choices	Responses	
Yes	**68.18%**	15
No	**13.64%**	3
Not applicable to me	**18.18%**	4
Total		**22**

#	If "No", please explain:	Date
1	Size and location are irrevalant under current management practices.	9/28/2014 10:35 PM
2	Size is adequate but needs better growth oriented management to retain and also to grow the aircraft numbers based here	9/3/2014 9:16 AM
3	Runways are not long enough to accommodate the necessary demand.	11/8/2013 7:01 AM
4	Longer runway would be more attractive and safer for the business jets and turbo props	11/4/2013 12:48 PM
5	Better terminal. Better services	11/3/2013 7:28 PM

Q16 How do you project your business-related use of the Taunton Municipal Airport to change during the next 5 years?

Answered: 23 Skipped: 38

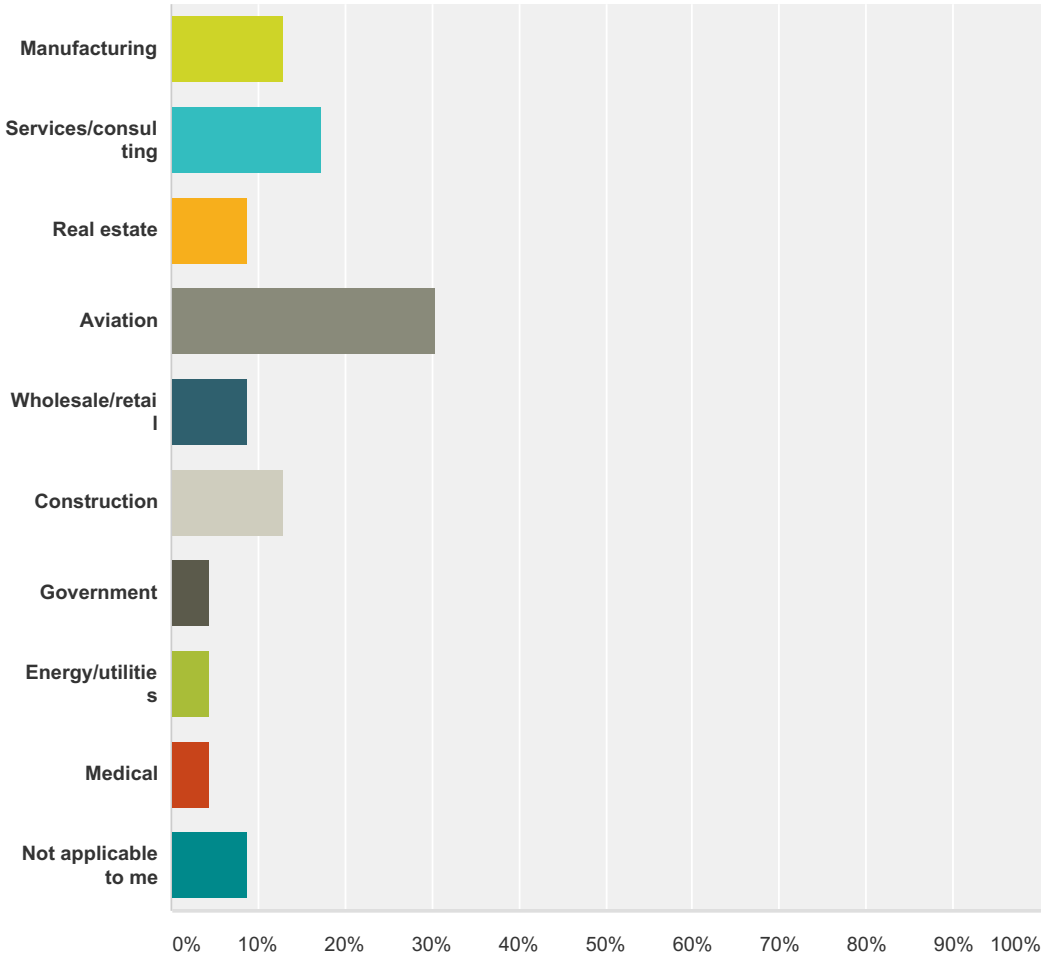


Answer Choices	Responses	
Increase	**43.48%**	10
Stay the same	**26.09%**	6
Decline	**13.04%**	3
Not applicable to me	**17.39%**	4
Total		**23**

#	Additional related comments:	Date
1	I am involved withthe Power generation industry. With the changing electric producing market the outlook for the next 6 years shows a large invrease in new plant installations in South East MA. The business outlook and actvity only looks to increase during these next 6 years.	11/4/2013 12:48 PM
2	Definitely see declining business if attitudes don't change to be more supportive.	11/3/2013 6:34 PM
3	If the TMAC does not improve their fuel service and their ability to bring in new users business will decline	11/3/2013 5:38 PM
4	looking to expand operations	10/23/2013 1:50 PM

Q17 Which industry best describes your business?

Answered: 23 Skipped: 38



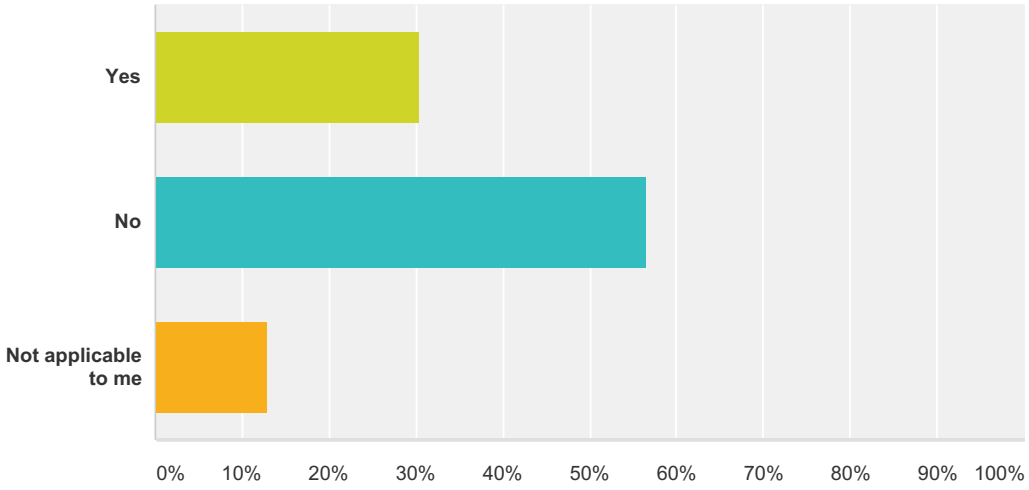
Answer Choices	Responses	
Manufacturing	**13.04%**	3
Services/consulting	**17.39%**	4
Real estate	**8.70%**	2
Aviation	**30.43%**	7
Wholesale/retail	**8.70%**	2
Construction	**13.04%**	3
Government	**4.35%**	1
Energy/utilities	**4.35%**	1
Medical	**4.35%**	1

Not applicable to me	**8.70%**	2
Total Respondents: 23		

#	Other (please specify)	Date
	There are no responses.	

Q18 Does Taunton Municipal Airport have a direct impact on your current business operations?

Answered: 23 Skipped: 38

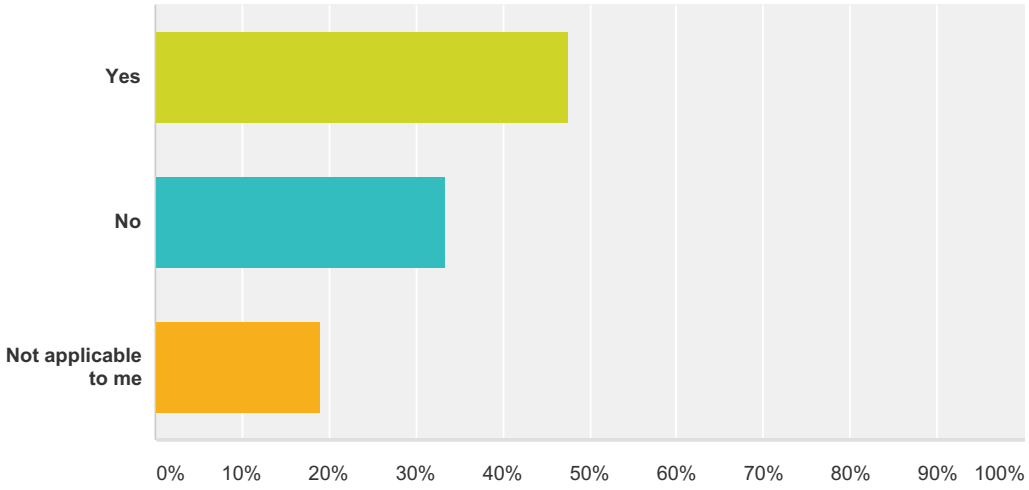


Answer Choices	Responses	
Yes	**30.43%**	7
No	**56.52%**	13
Not applicable to me	**13.04%**	3
Total		**23**

#	If "Yes", please describe how:	Date
1	I wouldnt' use KTAN to a level that would allow it to have a direct impact on my business operations.	9/28/2014 10:39 PM
2	My business depends on the use of the airport	11/3/2013 5:39 PM
3	use the airport to fly to sales calls - monitor manufacturing facilities	10/23/2013 1:51 PM

Q19 Is Taunton Municipal Airport important to your future business growth and opportunities?

Answered: 21 Skipped: 40

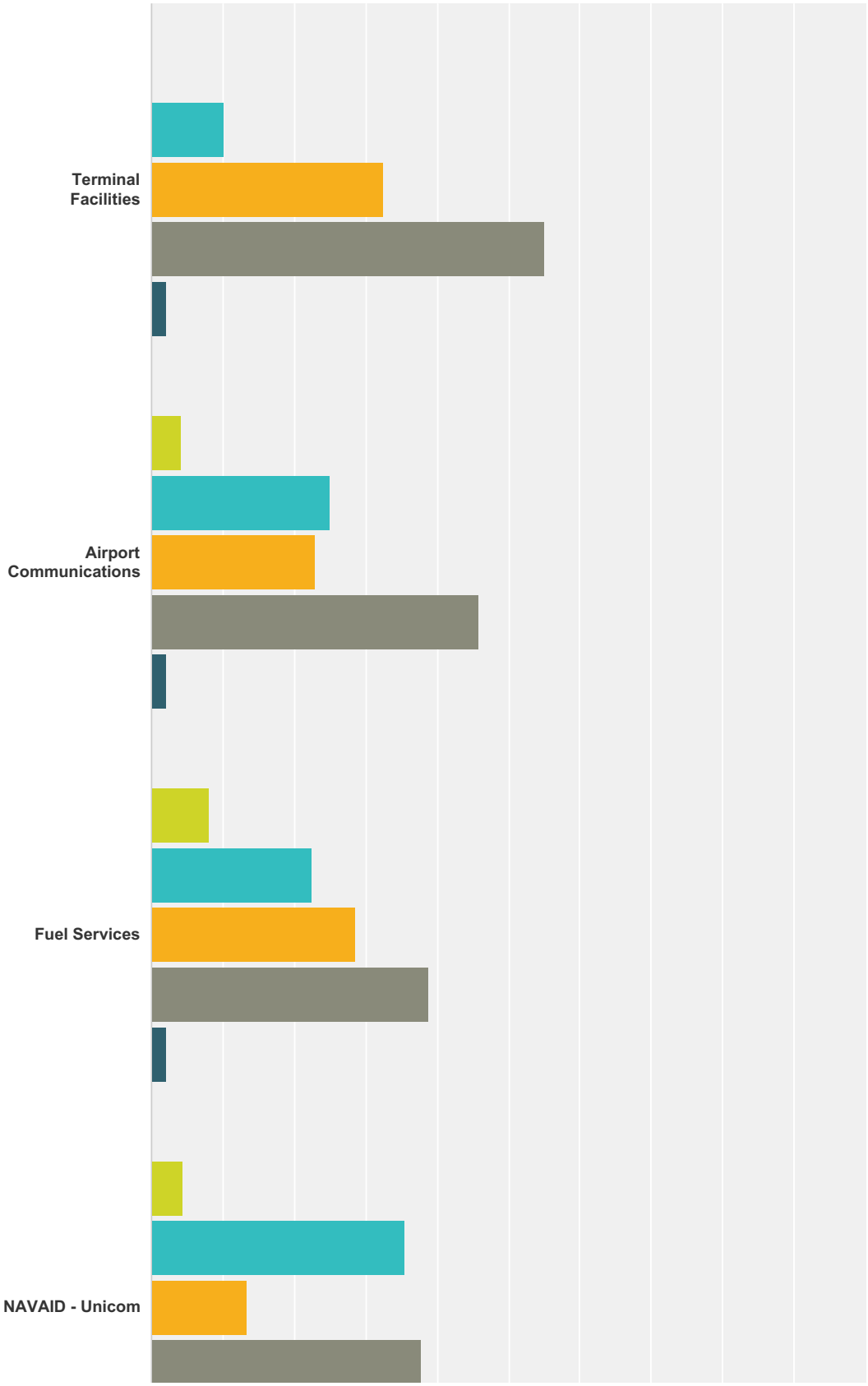


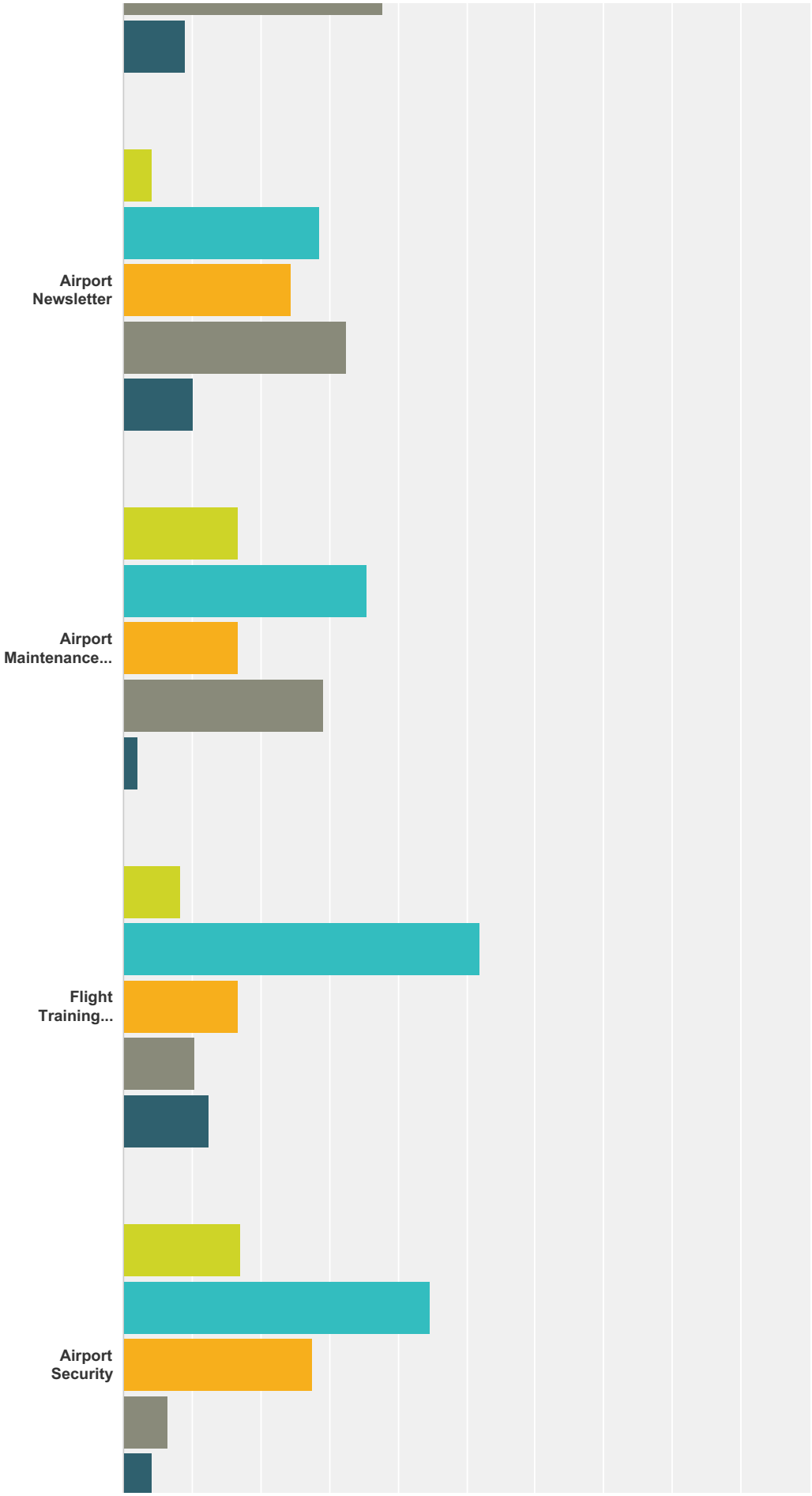
Answer Choices	Responses	
Yes	**47.62%**	10
No	**33.33%**	7
Not applicable to me	**19.05%**	4
Total		**21**

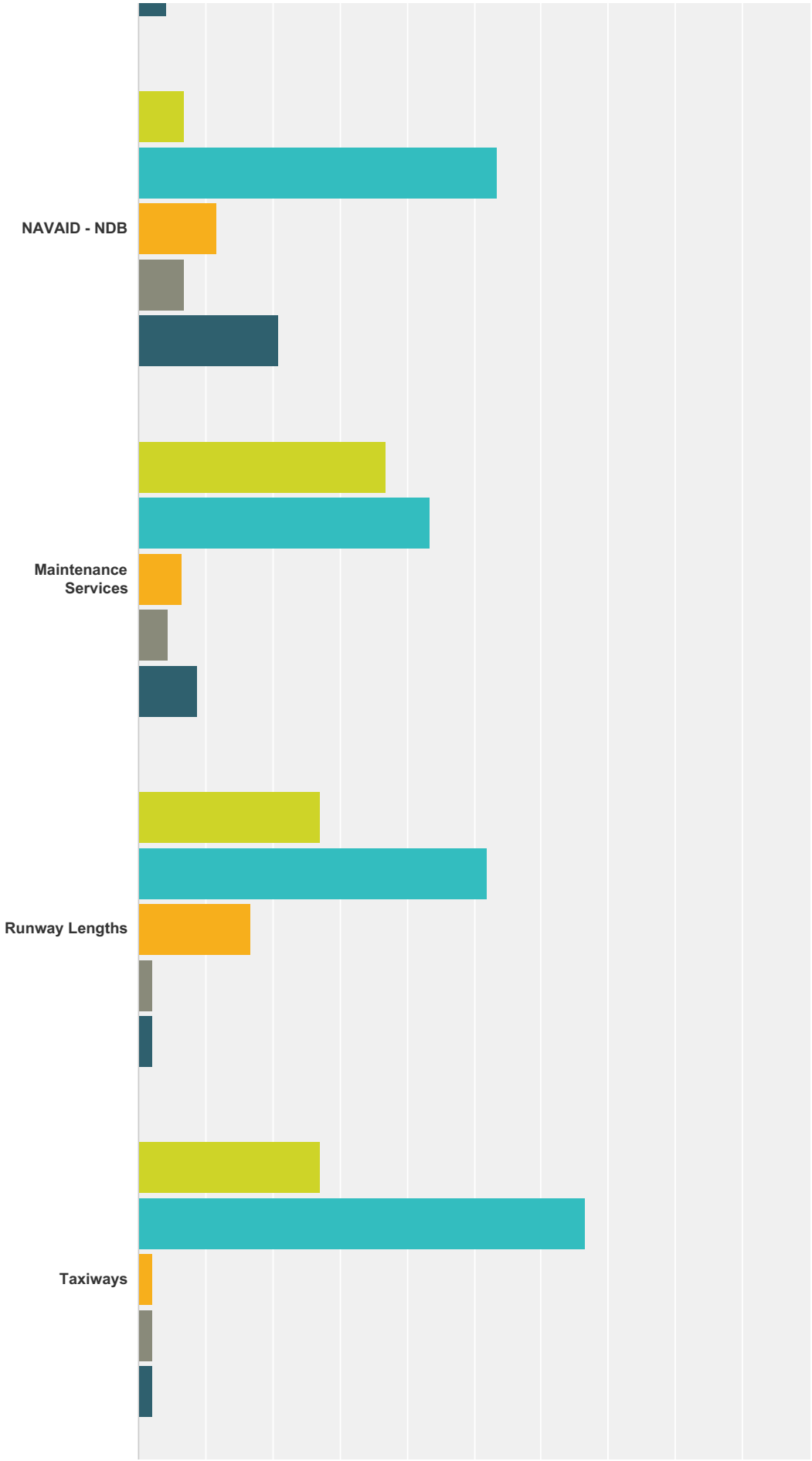
#	If "Yes", please describe how:	Date
1	There are alternatives that are far more user friendly and will receive more of my business	9/28/2014 10:39 PM
2	Yes if it's competitive with surrounding airports for ease of operation.	9/3/2014 9:16 AM
3	attract potential new clients if amenities and operations are improved	11/5/2013 5:18 PM
4	It would be good to have TAN availabe as an airport to accept small business jets and turbo props as the busness outlook is very good for Southeastern MA. TAn shoould place itsself in a position to be a part of this growth.	11/4/2013 12:50 PM
5	We operate on maintenance on the field. Need to attract more users.	11/3/2013 6:35 PM
6	If the TMAC doea not start marketing this airport to airport users I will probably have to move to a moe hospitable airport .	11/3/2013 5:39 PM
7	see above	10/23/2013 1:51 PM

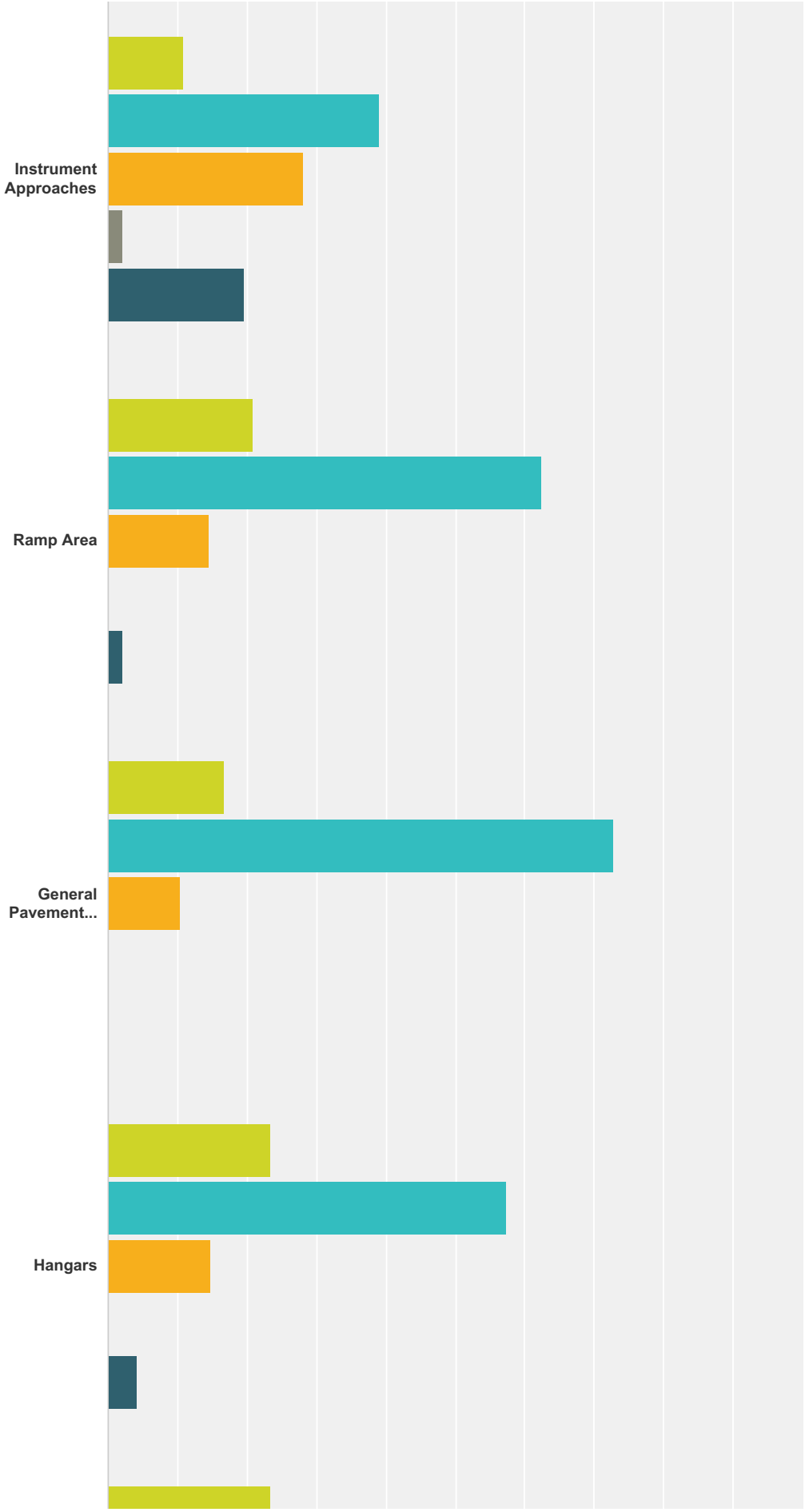
Q20 Please rate the following facilities and services for Taunton Municipal Airport.

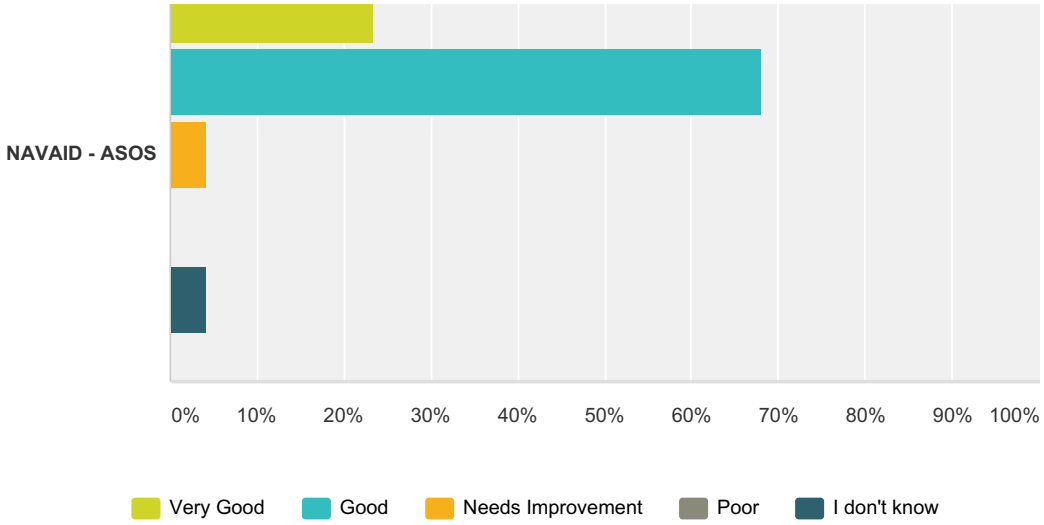
Answered: 49 Skipped: 12




Airport Newsletter
Airport Maintenance...
Flight Training...
Airport Security


NAVAID - NDB
Maintenance Services
Runway Lengths
Taxiways


Instrument Approaches
Ramp Area
General Pavement...
Hangars



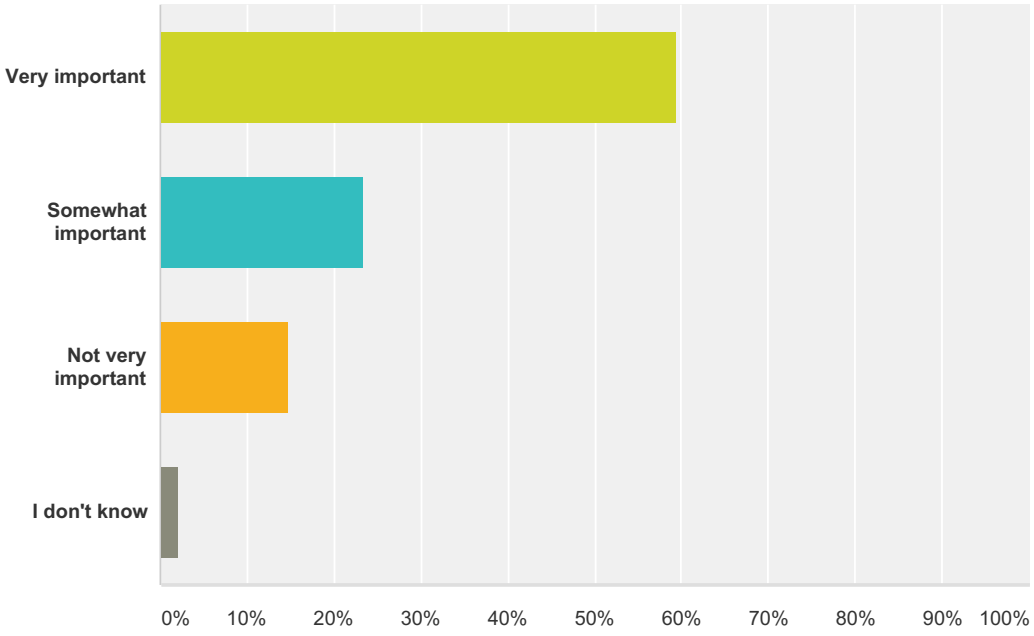
	Very Good	Good	Needs Improvement	Poor	I don't know	Total
Terminal Facilities	**0.00%** 0	**10.20%** 5	**32.65%** 16	**55.10%** 27	**2.04%** 1	49
Airport Communications	**4.17%** 2	**25.00%** 12	**22.92%** 11	**45.83%** 22	**2.08%** 1	48
Fuel Services	**8.16%** 4	**22.45%** 11	**28.57%** 14	**38.78%** 19	**2.04%** 1	49
NAVAID - Unicom	**4.44%** 2	**35.56%** 16	**13.33%** 6	**37.78%** 17	**8.89%** 4	45
Airport Newsletter	**4.08%** 2	**28.57%** 14	**24.49%** 12	**32.65%** 16	**10.20%** 5	49
Airport Maintenance Operations	**16.67%** 8	**35.42%** 17	**16.67%** 8	**29.17%** 14	**2.08%** 1	48
Flight Training Services	**8.33%** 4	**52.08%** 25	**16.67%** 8	**10.42%** 5	**12.50%** 6	48
Airport Security	**17.02%** 8	**44.68%** 21	**27.66%** 13	**6.38%** 3	**4.26%** 2	47
NAVAID - NDB	**6.98%** 3	**53.49%** 23	**11.63%** 5	**6.98%** 3	**20.93%** 9	43
Maintenance Services	**36.96%** 17	**43.48%** 20	**6.52%** 3	**4.35%** 2	**8.70%** 4	46
Runway Lengths	**27.08%** 13	**52.08%** 25	**16.67%** 8	**2.08%** 1	**2.08%** 1	48
Taxiways	**27.08%** 13	**66.67%** 32	**2.08%** 1	**2.08%** 1	**2.08%** 1	48
Instrument Approaches	**10.87%** 5	**39.13%** 18	**28.26%** 13	**2.17%** 1	**19.57%** 9	46
Ramp Area	**20.83%** 10	**62.50%** 30	**14.58%** 7	**0.00%** 0	**2.08%** 1	48
General Pavement Condition	**16.67%** 8	**72.92%** 35	**10.42%** 5	**0.00%** 0	**0.00%** 0	48

Hangars	**23.40%** 11	**57.45%** 27	**14.89%** 7	**0.00%** 0	**4.26%** 2	47
NAVAID - ASOS	**23.40%** 11	**68.09%** 32	**4.26%** 2	**0.00%** 0	**4.26%** 2	47

#	Please provide additional related comments:	Date
1	Great airport....tremendous opportunitys....poorly managed	9/29/2014 8:36 PM
2	Airport security is over the top for a low volume small GA airport without scheduled commercial services or military use (CAP doesn't count). With a few more permanent aircraft departures, there will be plenty of space in existing hangers.	9/28/2014 10:46 PM
3	Self service fuel would bring MUCH more fuel sales and usage of the airport Less payroll expenses along with increased fuel sales will payback the investment of self service pumps quickly.	9/3/2014 9:17 AM
4	Would like to see an RNAV approach to runway 12 as well as paving runway 4 22	6/11/2014 4:02 PM
5	airport management always to help you	11/28/2013 3:11 PM
6	Newsletter should be emailed to users. Radio is not used by airport employees. No one answers airborne aircraft asking for basic information including fuel availability or favored runway. Fuel service is not reliable. Lack of Jet A. Terminal bathrooms are a disgrace and not ADA. Ramp area is often littered with sand, gravel, rocks and fod.	11/12/2013 10:09 PM
7	There is never an answer on the UNICOM and fueling is an effort. The airport needs some management imput to get it in a presentable condition. Telephone poles lyiing on the ground with brush growing around them is just an example of poor ground maintenance.	11/8/2013 8:03 AM
8	NEED TO GET FUEL LATER THEN THE HOURS YOU HAVE OTHER PILOTS LANDING NEED A WAY TO GET BACK TO THEIR AIRCRAFT CALLING THE PAGER NUMBER IS USELESS GOD WILL COME FIRST	11/6/2013 8:14 PM
9	need an RCO to direct connect with Air traffic control to get clearances issued on the ground. Terminal building is in major need of tear down and rebuild. Basic bathroom and meeting area is a must. Very little flight training offered because facilities to promote an aviation opportunity do not match the facilities available.	11/5/2013 5:22 PM
10	A fuel truck would be a great addition	11/4/2013 3:15 PM
11	TAN should have an FBO full time. Why note use the backbone of any airport, the Flight school as the FBO. Any airport that has a very good operating Flight school, and also runs the FBO, that airport does very well. Flight school attracts more people, more planes, sells more fuel, needs more maintenance, rents more tie downs. The Flight school should be the anchor of the airport. The Commisioners should work hard to keep the flight scool open and work with them and help them succeeed.	11/4/2013 12:54 PM
12	Biggest problem is fuel accessibility outside normal hours - self serve fuel solves this problem	11/4/2013 10:39 AM
13	Unicom unmanned Airport Newsletter one-way	11/4/2013 8:28 AM
14	The Unicom or lack of will cause someone to get killed some day,	11/3/2013 7:06 PM
15	There is little if any communication with the airport users as to upcoming topics. There is no answer from UNICOM. The airport management is very rarely at the airport. Snow removal is slow and poorly done and day after touch up non existant.	11/3/2013 5:43 PM
16	blah blah blah	10/23/2013 1:52 PM

Q21 How would you describe the importance of Taunton Municipal Airport's turf runway (RW 4-22)?

Answered: 47 Skipped: 14



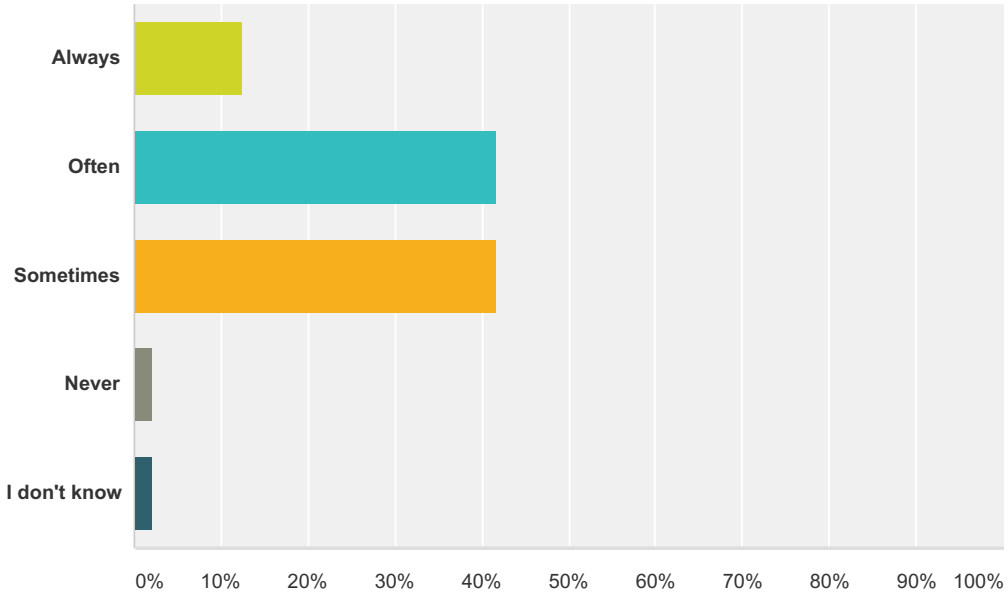
Answer Choices	Responses	
Very important	**59.57%**	28
Somewhat important	**23.40%**	11
Not very important	**14.89%**	7
I don't know	**2.13%**	1
Total		**47**

#	Please provide additional comments about its importance, frequency of use, etc.:	Date
1	I use it weekly, I have a taildragger aircraft Can't emphasize enough the safety features of the advantage of a cross wind runway	9/29/2014 8:38 PM
2	RW 4-22 is very important anytime there is a significant X wind component. Too bad it isn't maintained so that it could be used to its potential.	9/28/2014 10:53 PM
3	I absolutely need 4/22 to land my Aeronca Champ when wind conditions prevent landing on 12/30 This runway is essential to the safe operation of any tail wheel aircraft including mine.	9/12/2014 1:34 PM
4	Having a usable crosswind runway makes taunton safer.This runway is many pilot's "ace up the sleeve" when returning to unfavorable winds from a cross country. The runway should be repaired and improved. This runway not only makes the airport safer but is also important to growing and maintaining the number of aircraft based here.	9/3/2014 9:17 AM
5	Paving the runway would add much more importance, runway can get muddy and unusable in wet weather.	6/11/2014 4:03 PM
6	I do not use it	11/28/2013 3:15 PM
7	runway is not going to receive funding and will become aan airport and city liability	11/25/2013 4:51 PM

8	Buying a taildragger and will need to use this extensively	11/13/2013 7:03 AM
9	Excellent safety runway, perfectly aligned for our prevailing winds! Excellent reliever runway for those occasions when 12/30 become unusable during maintenance operations or a gear up landing or other mishap. The gravel runway is perfect just like all gravel runways. It has excellent drainage all year. Is virtually maintenance free other than needing a roll a few times a year to re bed the medium stones. No need to waste money trying to turn it into a golf coarse. It has served extremely well since being built and is still serving well. Unlike grass it is useable all year long what a shame it will be to make it into pretty grass that is only good for the summer. Talk about a waste of money! Just roll it once a month or 4 times a year and it remains a great all year long excellent runway! No need to increase user fees to fix this runway which is already nearly perfect!	11/9/2013 12:30 AM
10	Taunton is a small airplane airport. We also have many antique and tail wheel aircraft. The runway is particularly important when crosswinds make it more of a challange to use 30-12.	11/8/2013 8:06 AM
11	YOU HAVE THE WRONG RUNWAY NUMBER, THE OLD RUNWAY IS NEEDED IN A EVENT OF A HEAVY CROSSWIND FOR LANDING WHICH HAPPENS MORE THEN YOU THINK.	11/6/2013 8:23 PM
12	very important on strong crosswind days which occur during fall and winter months. winds tend to be right down middle of grass runway	11/5/2013 5:24 PM
13	I fly a conventional gear airplane and with many days of SW and NE strong winds these runways are critically important and by the way the turf runways are 4-22, not 12-30	11/5/2013 12:50 PM
14	GOOD TO HAVE FOR UNEXPECTED WIND CONDITIONS	11/5/2013 9:42 AM
15	If you want a runway for everyone in a strong cross wind and a runway for the tail dragger crowed you need turf runway. By the way its not 12--30, who did this survey not a pilot!!	11/4/2013 9:59 PM
16	04-22	11/4/2013 5:49 PM
17	Tail wheel airplanes need it for landing in high crosswind conditions and it also serves as an emergency landing area when taking off on 30	11/4/2013 12:57 PM
18	First of all the turf runway not 12-30, it is 4-22. (now I'm having doubts about this entire survey) Reason for its importance is crosswinds on 30-12 a high percentage of the time and our growth likelihood will be light sport catagory aircraft. Given this fact the preservation of runway 4-22 is of highest priority.	11/4/2013 10:54 AM
19	RW 12 -30 are not turf runways. If you want to know about RW 4 and 22, then they are important because they give you more options.	11/4/2013 8:40 AM
20	Major factor in my choice of KTAN is the existence of RW 04/22. Essential for safe landings/take-offs in high cross-wind conditions.	11/4/2013 8:31 AM
21	4 / 22 is very important and should be much better maintained I do not know of a turf 12 / 30	11/4/2013 7:58 AM
22	Essential for tail wheel operations, especially vintage/classic aircraft. Essential for crosswind conditions on runway 30/12.	11/3/2013 10:37 PM
23	The conditions are very Poor	11/3/2013 7:07 PM
24	For tail wheel aircraft it is important especially when winds favor that runway.	11/3/2013 6:40 PM
25	The turf runway is used consistantly. It is especially useful to the lighter aircraft when landing in a cross wind become difficult. My business is located near the turf runway an I see lots of use.	11/3/2013 5:47 PM
26	I just use it every once in a whle for fun and training	10/23/2013 1:52 PM

Q22 How often does Taunton Municipal Airport meet your needs and expectations?

Answered: 48 Skipped: 13



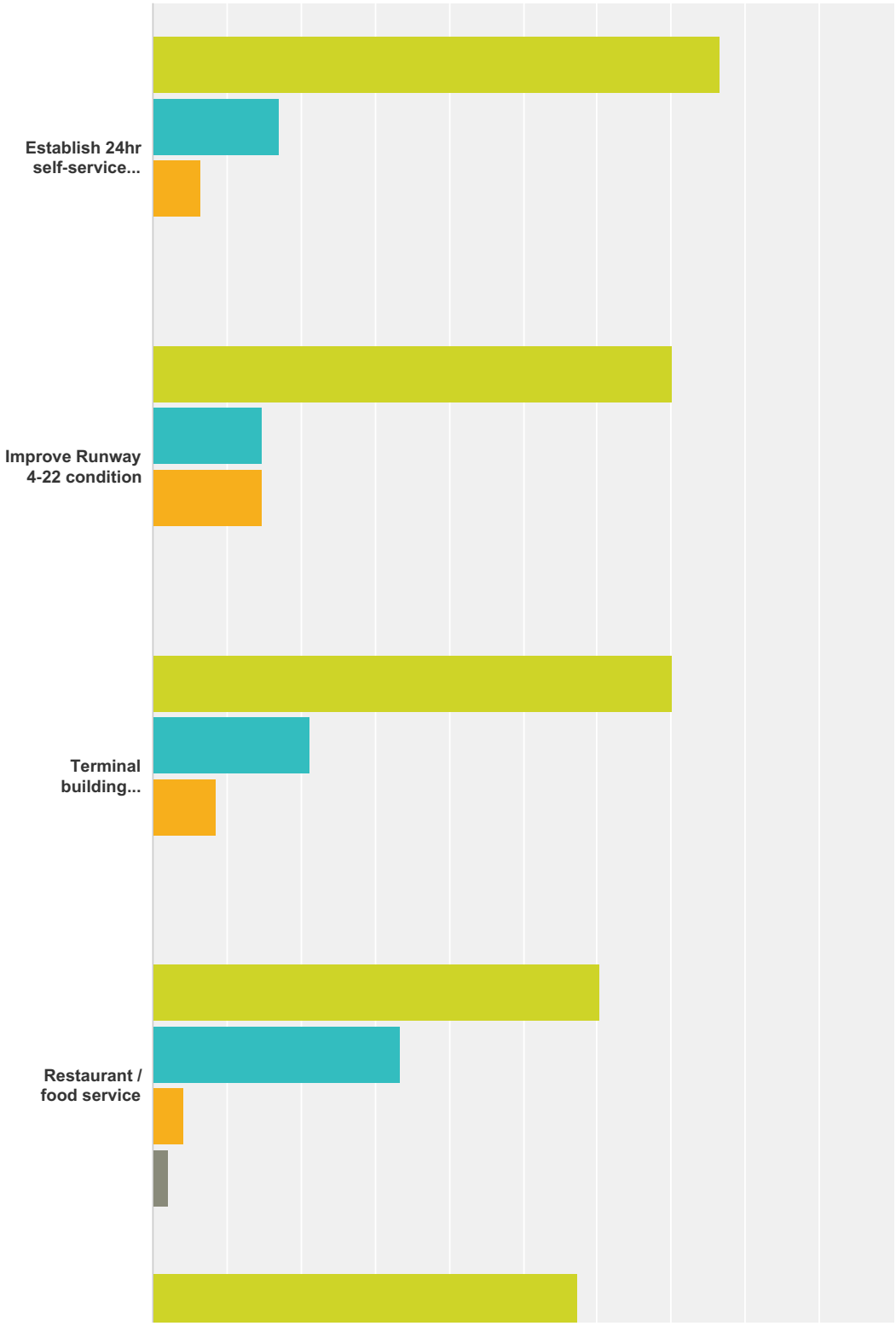
Answer Choices	Responses	
Always	**12.50%**	6
Often	**41.67%**	20
Sometimes	**41.67%**	20
Never	**2.08%**	1
I don't know	**2.08%**	1
Total		**48**

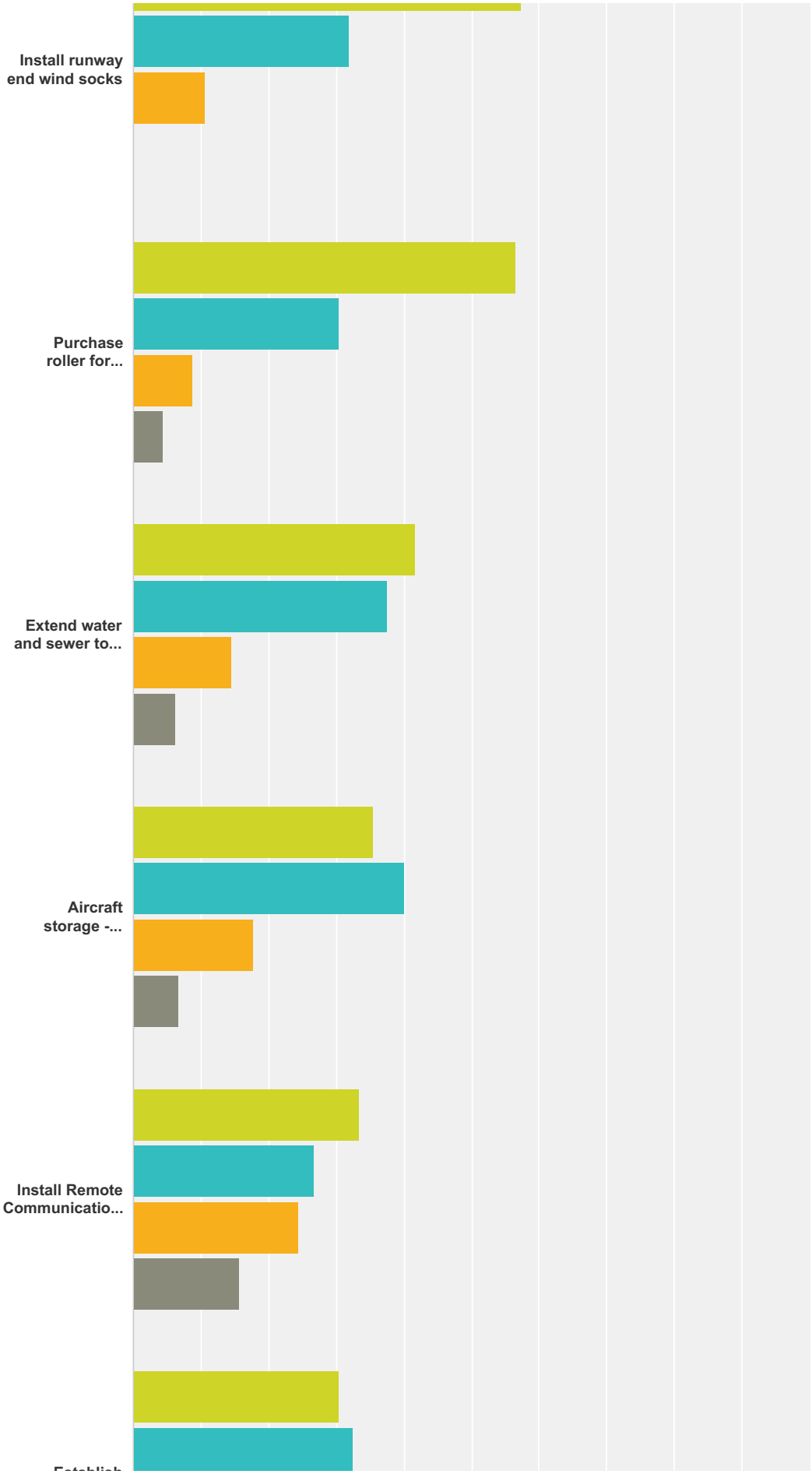
#	Please provide additional comments below for greater clarification:	Date
1	With limited inconsistent fueling hours, an over the top security system and notoriously poor management and airport maintenance, the airport isn't meeting my needs and certainly not my expectations. Fuel at Plymouth or Mansfield if needed. Need to use a bathroom? Go on the fence!	9/28/2014 10:53 PM
2	Self fueling is the answer to securing timely refueling for my aircraft and especially for transients. I have seem numerous transients leave after being frustrated waiting for fuel and none being provided due to fuel person working elsewhere on the field.being	9/12/2014 1:34 PM
3	Overall great airport, just needs better leadership to get the whole airport working together and attract new users.	9/3/2014 9:17 AM
4	It has been a friendly airport to be at and management always willing to help you	11/28/2013 3:15 PM
5	Great airport, great employees, sometimes lots of our money wasted chasing projects that are not needed. Aviation is struggling, for most users this is a hobby not a business. Taunton airport does not have many of the amenities other airports have. Tauntons fees need to fit the users and the airports offerings. Business users must be made to share our public airport not have free reign to push other users aside. We are all lucky to have businesses here and we need them but the airport does not survive by hobby users or by business users alone all must share the available space and offerings together. Lots of smart and skilled people at the airport time to work together for the greater cause.	11/9/2013 12:30 AM

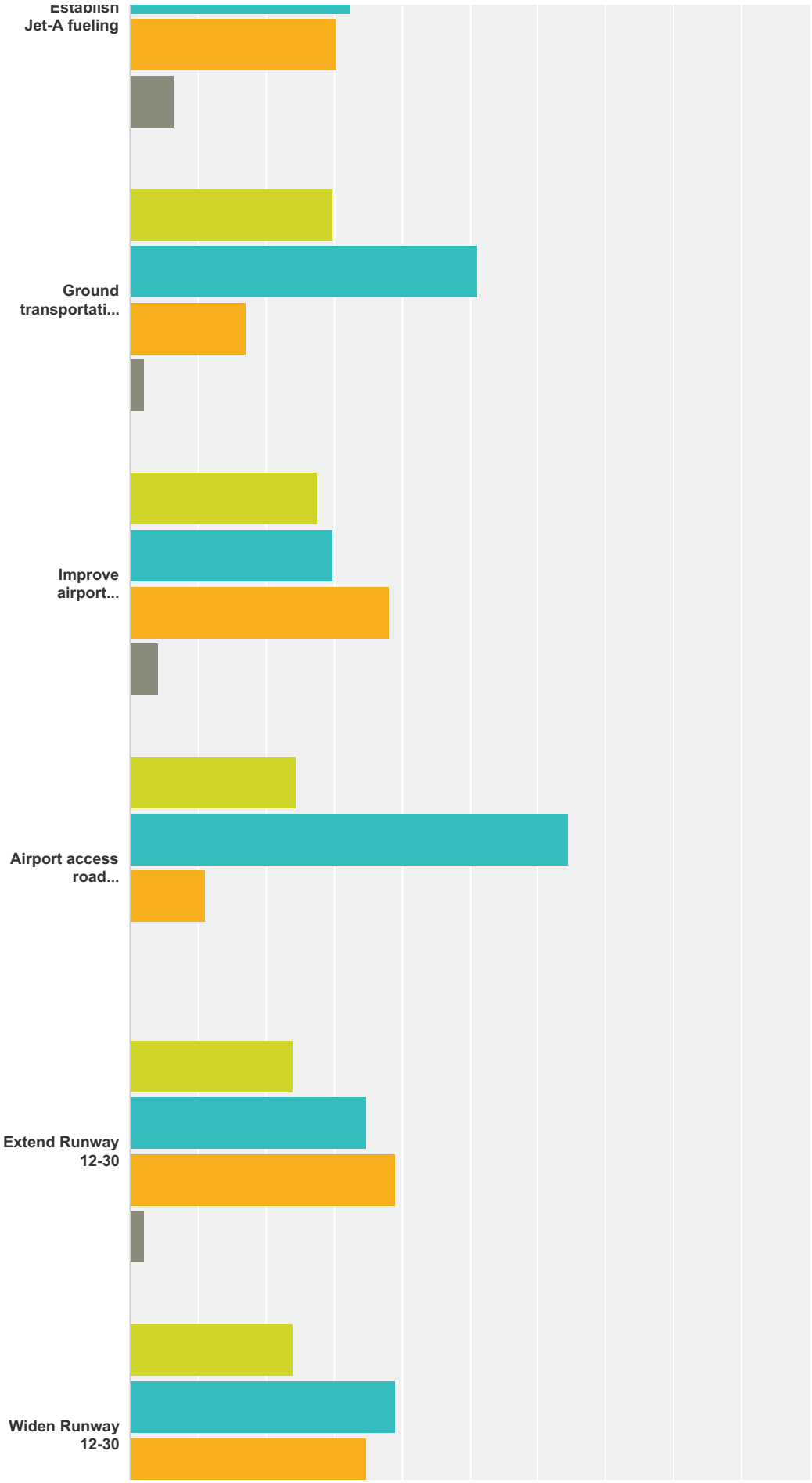
6	If there is a snowstorm the airport generally isn't safe until the snow melts. There is hardly ever any effort to nock down snowbanks or relocate high snow to other areas not used by aircraft.	11/8/2013 8:06 AM
7	WE NEED 24/7 SELF FUEL . WE NEED THE AIRPORT COMMISSION TO LISTEN TO THE USERS AND LET THEM TALK ABOUT CONCERNS THEY HAVE AT MEETINGS. WE NEED TO HAVE THE PUBLIC AT AIRPORT DAYS THE EAA DOES IT AND HAS INSURANCE	11/6/2013 8:23 PM
8	Very slow on willingness to change or advance to modern technology and pilot needs	11/5/2013 5:24 PM
9	I WOULD LIKE TO SEE 24 HOURS FUEL, DELIVERED BY CREDIT CARD ACTIVATED SELF-SERVE PUMP	11/5/2013 9:42 AM
10	Lack of jet fuel, no FBO, NO self serve fuel, potentail full time gate locking, all things that I feel are major detractors from TAN.	11/4/2013 12:57 PM
11	A Lot of workarounds that seem standard at even smaller, busier airports.	11/3/2013 6:48 PM
12	Gate access and fueling availability are an issue.	11/3/2013 6:40 PM
13	Getting fuel is an effort. First to find the fueler, then listen to all the complaining and then the length of time it takes to complete the transaction. UNICOM is never answered. The fuel pumps are rarely open until the published closing time which is 5PM. Getting fuel after 5PM in the Summer hours would be very benificial to many.	11/3/2013 5:47 PM

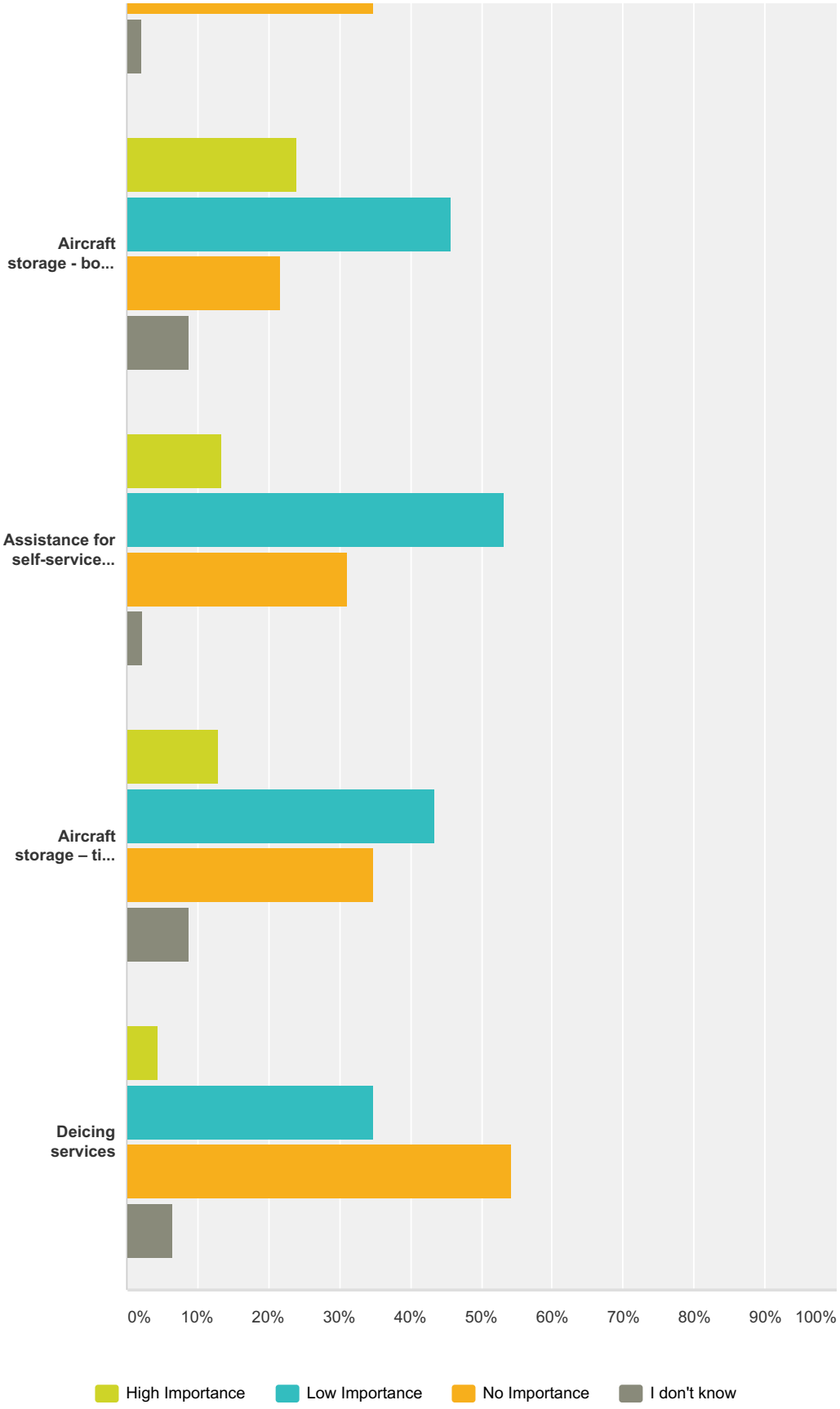
Q23 How would you rate the importance of the following proposed facility improvements for Taunton Municipal Airport? (Check all that apply at the appropriate level of importance)

Answered: 48 Skipped: 13




Install runway end wind socks
Purchase roller for...
Extend water and sewer to...
Aircraft storage -...
Install Remote Communicatio...


Establish Jet-A fueling
Ground transportati...
Improve airport...
Airport access road...
Extend Runway 12-30
Widen Runway 12-30



	High Importance	Low Importance	No Importance	I don't know	Total

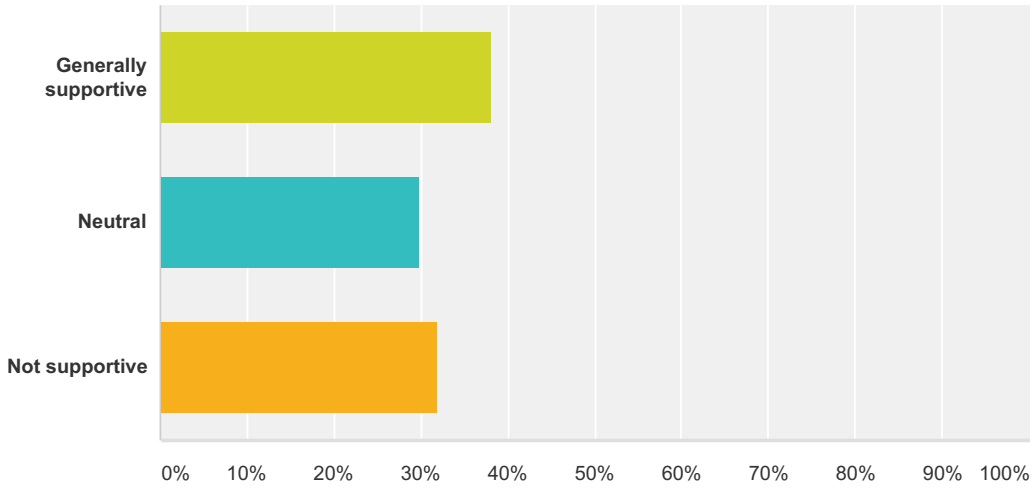
Establish 24hr self-service fueling (100LL)	**76.60%** 36	**17.02%** 8	**6.38%** 3	**0.00%** 0	47
Improve Runway 4-22 condition	**70.21%** 33	**14.89%** 7	**14.89%** 7	**0.00%** 0	47
Terminal building improvements	**70.21%** 33	**21.28%** 10	**8.51%** 4	**0.00%** 0	47
Restaurant / food service	**60.42%** 29	**33.33%** 16	**4.17%** 2	**2.08%** 1	48
Install runway end wind socks	**57.45%** 27	**31.91%** 15	**10.64%** 5	**0.00%** 0	47
Purchase roller for Runway 4-22	**56.52%** 26	**30.43%** 14	**8.70%** 4	**4.35%** 2	46
Extend water and sewer to airport terminal area	**41.67%** 20	**37.50%** 18	**14.58%** 7	**6.25%** 3	48
Aircraft storage - t-hangars	**35.56%** 16	**40.00%** 18	**17.78%** 8	**6.67%** 3	45
Install Remote Communications Outlet (RCO)	**33.33%** 15	**26.67%** 12	**24.44%** 11	**15.56%** 7	45
Establish Jet-A fueling	**30.43%** 14	**32.61%** 15	**30.43%** 14	**6.52%** 3	46
Ground transportation (rental cars, taxi service, etc.)	**29.79%** 14	**51.06%** 24	**17.02%** 8	**2.13%** 1	47
Improve airport security (fencing, lights, CCTV, etc.)	**27.66%** 13	**29.79%** 14	**38.30%** 18	**4.26%** 2	47
Airport access road improvements	**24.44%** 11	**64.44%** 29	**11.11%** 5	**0.00%** 0	45
Extend Runway 12-30	**23.91%** 11	**34.78%** 16	**39.13%** 18	**2.17%** 1	46
Widen Runway 12-30	**23.91%** 11	**39.13%** 18	**34.78%** 16	**2.17%** 1	46
Aircraft storage - box style hangars	**23.91%** 11	**45.65%** 21	**21.74%** 10	**8.70%** 4	46
Assistance for self-service fueling operation	**13.33%** 6	**53.33%** 24	**31.11%** 14	**2.22%** 1	45
Aircraft storage – tie downs	**13.04%** 6	**43.48%** 20	**34.78%** 16	**8.70%** 4	46
Deicing services	**4.35%** 2	**34.78%** 16	**54.35%** 25	**6.52%** 3	46

#	Please provide additional comments related to the improvements above and/or comments regarding other improvements you would want at TAN.	Date
1	Chicken or Egg? Most of the above items are eggs. Taunton needs to focus on bringing airport usage back up somewhere closer to past numbers. With maxed usage of the airport the facilities improvements will follow. Taunton needs new growth oriented leadership.	9/3/2014 9:19 AM
2	Would like to see security improvements include gate access for renters via airport ID or gate code.	6/11/2014 4:05 PM
3	airport always keep clean and grass cut	11/28/2013 3:19 PM
4	need more t hangars to meet current demand and sustain cash flow for daily operations	11/25/2013 4:54 PM

5	Twice I have been trapped on field in my vehicle because my badge did not work properly to open the gate to exit. The gates were open to get on field so I did not realize there was an issue with my badge. Both times I called the number for page and callback and got nothing. I had to contact a local friend who is a pilot to come over and open the gate for me. Better monitoring of the UNICOM would be a benefit. Many airports monitor the unicom and provide true benefit for a pilot coming into the pattern or in the pattern, with good information to aid in these dangerous operation areas. KTAN provides the bare minimum. I have personally seen an airplane on final on what was supposed to be a closed runway. The position that the airport took was that it was the pilots responsibility to have contacted a briefer to get the NOTAM that the runway was closed. All well and good, and may be true, but that does not help the immediate and dangerous situation. Luckily there was no equipment on the runway at the time. As a pilot this was a very frustrating sight.	11/12/2013 12:43 PM
6	Open hangers are needed like other airports have. These offer the shelter needed at a $150 price point typically this is shelter for a plane and at a reasonable rate. Great option and incentive for users to come and stay. We need a big roller for grass and gravel surfaces. We already paid tons of airport money to some engineering group to spec and purchase that baby roller. Airport users should get a refund and get a proper roller. Leave the gates open. Promote new business at airport. Encourage users to return or come to Taunton Lower costs at Taunton Freeze land lease rates until aviation stabilizes. GA is down and dying no need to try and finish it off! Promote airport involvement maybe give out fuel vouchers to all volunteers on airport volunteer days like tree clearing party's or such. Lots of users with lots of wants. Most would be happy to work for a few hours improving tree lines or such give fuel at cost coupons for volunteers? Lots of opportunities to improve relations and conditions just need to make an effort.	11/9/2013 12:48 AM
7	WE NEED TO IMPROVE RUNWAY 4-22 SO YOU CAN USE IT FOR TAKEOFF WHEN ITS A BAD CROSSWIND. RIGHT NOW YOU MAY PICK UP A STONE IN THE PROP ON A TRIKE GEAR AIRCRAFT AND THATS A REAL EXPENSIVE OOPS !!	11/6/2013 8:29 PM
8	lets get with the times and provided the needed facilities and convenience factors so that the airport stays viable and people are willing to invest their money and efforts	11/5/2013 5:26 PM
9	Work with the Flight School to keep it open and expand it. Establish an FBO at TAN. Have the Flight School run the FBO. Expand the school and more planes, people and busines with follow.	11/4/2013 1:01 PM
10	Closing Airport security gates at the moment will cause extreme hardship on the business users of the Airport. The only reasonable solution is a inner fence and gates to protect the AOA but still leave the business comunity of the Airport with unrestricted access for their customers and other entities having business at their facility. (See Plymouth Airport for an example of the proposal). This construction would be a capital improvement and should be made a part of the Airport Master Plan.	11/4/2013 11:06 AM
11	Gate Code should be provided on the inside of the fence so that returning pilots can gain access to the ramp and their plane. Should not have to wait for someone to call them back!	11/4/2013 8:43 AM
12	Delineate ground/air side functions. Current fencing/gate entries do not perform this essential function.	11/4/2013 8:33 AM
13	Major improvements are needed to 4 / 22	11/4/2013 8:04 AM
14	Better snow removal plan. Way too often it's never touched til the storm is over, then the clean up is far from professional, let alone safe for aircraft. Anything that can draw more visibility, interest, growth. Restaurants and even a playground would be a great way to expose people to the idea of aviation in their life.	11/3/2013 6:52 PM
15	Anything that would create a fun airport for people to fly in, get reasonable fuel, eat, etc would bring more business.	11/3/2013 6:44 PM
16	Market the existing tie downs and get them filled. Provide user incentives to attract more business like special fuel price for tenants, Lower tie down prices to attract new customers	11/3/2013 5:50 PM

Q24 A primary goal of Taunton Municipal Airport has been to remain financially self-sufficient. If you are a user and/or tenant of the Airport, would you be supportive of airport fee/rate increases in order to fund projects listed above that may not be eligible for federal or state financial support?

Answered: 47 Skipped: 14



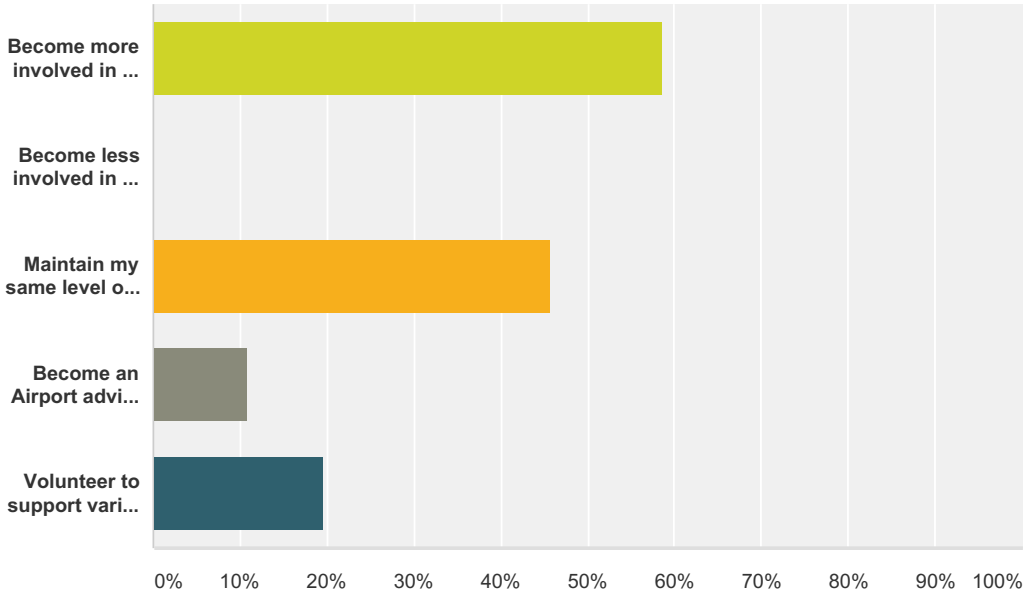
Answer Choices	Responses	
Generally supportive	**38.30%**	18
Neutral	**29.79%**	14
Not supportive	**31.91%**	15
Total		**47**

#	Additional related comments:	Date
1	Not under current management	9/28/2014 10:57 PM
2	I would not support additional fees until the airport is marketed and promoted correctly and is operating at its max capacity.	9/3/2014 9:19 AM
3	The Airport needs to increase fees to provide the type of services that users require.	12/9/2013 4:57 PM
4	I know the airport can not run in the red and survive	11/28/2013 3:22 PM

5	Fees have already crept way too much during bad times. Also tons of money wasted on wrong equipment, poorly utilized existing equipment, no fee increases at all until waste stops. Paying engineering groups to select wrong equipment, new fuel pumps that have been poor from install. Don't go looking for more when already wasting existing money. Don't repair things that are not broken. Maintain what we have Freeze fees, promote business and users to generate more money. No effort is made in any way to attract users. Users are leaving and taking their money with them and Taunton wants to raise costs! Stupid idea. Lots of revenue generating tie downs sitting empty out there! Promote the airport and bring back the users. Don't kill the users we have left! No more fee increases, promote aviation, promote our airport, don't keep reaching in our pockets there's only so many of us left. Make Taunton attractive again and the money will come all by itself.	11/9/2013 12:58 AM
6	I would not support it with the current management team in effect. If the Commission were to hire a manager or allow a business to become a FBO/Manager where they had a stake in the game I would be more willing to accept a rate increase. We need a manager that can bring all users together for the good of the airport instead of pitching certain groups against each other.	11/8/2013 8:10 AM
7	need rate increase to improve airport	11/7/2013 7:54 PM
8	RUN THE AIRPORT RIGHT ANT THEIR WILL BE MORE USAGE AND FEES WONT NEED TO INCREASE	11/6/2013 8:31 PM
9	Not supportive until such time as detailed financial reports are made available so that we may see exactly where the airport stands financially and is run more in the form of a business instead of a club with a commission holding all the reins	11/5/2013 12:55 PM
10	I would pay a fee for self serve fuel it should be returned when it pays out.	11/4/2013 10:02 PM
11	Note I checked generally supportive. First of all the overall efficiencies of all Airport Operations should be examined prior to consideration of fee increases for Airport Users in this environmant	11/4/2013 11:14 AM
12	First, we need definitive (audited) income statements, cash flow statements, balance sheet (inventory/assets) , i.e., in accordance with Generally Accepted Accounting Principles (GAAP).	11/4/2013 8:36 AM
13	The airport commission needs to attract more planes and people to the airport Increasing prices will only drive people from the airport	11/4/2013 8:09 AM
14	Cut costs!	11/3/2013 10:39 PM
15	Where the tenants/users have a strong voice of where their monies are going.	11/3/2013 6:53 PM
16	If run efficiently the airport would attract more users and additional fees wouldn't be necessary.	11/3/2013 6:46 PM
17	I am not in favor of raising fees to support management or management spending but I would support improving the user experience.	11/3/2013 5:53 PM

Q25 Over the next five years, do you think that you will:

Answered: 46 Skipped: 15



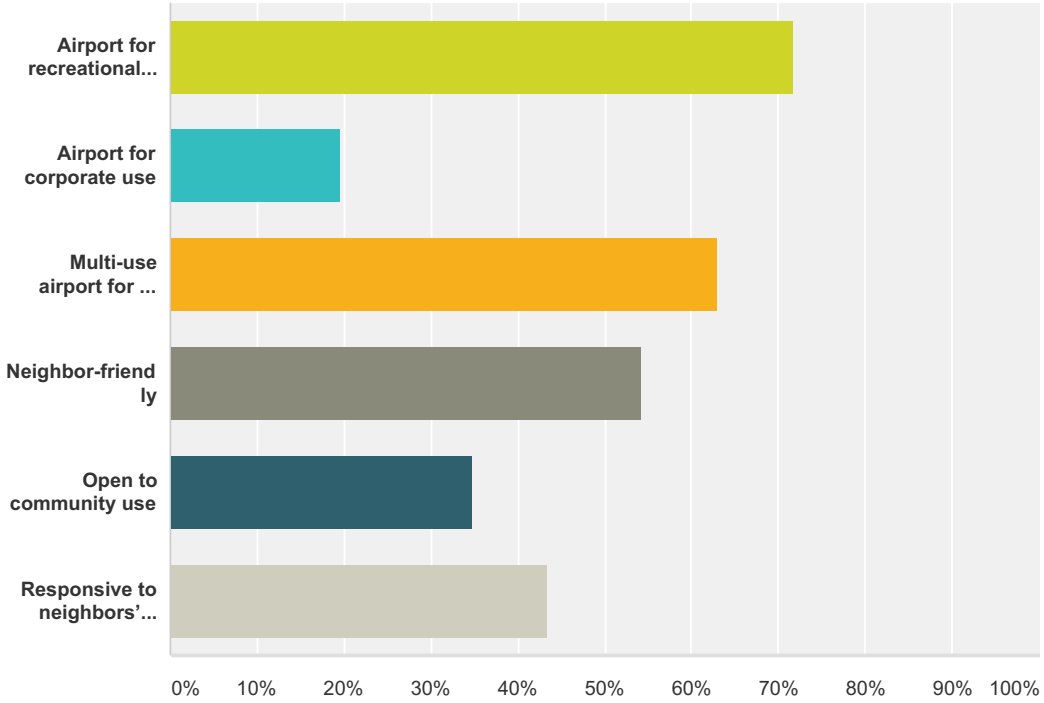
Answer Choices	Responses	
Become more involved in the operation of the Airport	**58.70%**	27
Become less involved in the operation of the Airport	**0.00%**	0
Maintain my same level of involvement	**45.65%**	21
Become an Airport adviser with respect to individual input efforts	**10.87%**	5
Volunteer to support various work/detail efforts at the Airport	**19.57%**	9
Total Respondents: 46		

#	If you are interested in becoming more involved in the Airport, please provide contact information below:	Date
1	[redacted]	9/29/2014 8:40 PM
2	Probably stop using airport for any purpose including transient fueling, any instruction, and maintenance.	9/28/2014 10:57 PM
3	[redacted]	9/3/2014 9:19 AM
4	more people should become involved in the airport to make even better then is now	11/28/2013 3:22 PM
5	If the Commission becomes more proactive to users instead of their own pet projects I could become very involved. If the Chairman continues to not allow public imput at Commission meetings then the likelyhood of me wanting to help out is much less.	11/8/2013 8:10 AM
6	WHEN THE TIME COMES	11/6/2013 8:31 PM
7	[redacted]	11/5/2013 1:10 PM
8	[redacted]	11/4/2013 3:20 PM
9	[redacted]	11/4/2013 11:14 AM

10	The present chairman seems NOT to want input from the users	11/4/2013 8:09 AM
11	If the airport becomes interested in promoting aviation and aviation use I would get more involved but if it continues to be used by the TMAC for its own interests I will support another airport.	11/3/2013 5:53 PM

Q26 How do you see the Airport being perceived within the local community? (check all that apply)

Answered: 46 Skipped: 15



Answer Choices	Responses	
Airport for recreational pilots	**71.74%**	33
Airport for corporate use	**19.57%**	9
Multi-use airport for all general aviation users	**63.04%**	29
Neighbor-friendly	**54.35%**	25
Open to community use	**34.78%**	16
Responsive to neighbors' concerns and issues	**43.48%**	20
Total Respondents: 46		

#	Additional related comments:	Date
1	To grow the airport it is essential that we provide services that corporate users demand.	12/9/2013 5:07 PM
2	THE AIRPORT HAS NOT BEEN NEIGHBOR FRIENDLY YOU HAVE LOCKED THEM OUT AND DONT HAVE A AIRPORT DAY	11/6/2013 8:41 PM
3	The airport should be and can be all of these. To remain a local airport it must be all of these.	11/4/2013 2:22 PM
4	Current airport management has done a very good job in this regard. No changes needed here.	11/4/2013 11:24 AM
5	Current "open to community use" in serious jeopardy if current security plan is implemented.	11/4/2013 8:42 AM
6	Hidden.	11/3/2013 6:55 PM

7	Current management is not capable of an knowledgable response to community concerns.	11/3/2013 6:52 PM

Q27 If you would be willing to provide a testimonial about your use of the Airport, please include your contact information below:

Answered: 10 Skipped: 51

#	Responses	Date
1	Not in support of the airport as currently managed, operated and maintained	9/28/2014 10:58 PM
2	[redacted]	9/3/2014 9:24 AM
3	[redacted]	6/11/2014 4:07 PM
4	[redacted]	11/5/2013 9:46 AM
5	Taunton Airport should be freindly, clean, safe palce for the community to use and visit. Better services will only attract more business. More business is good for TAN and the Busniness owners on site. I enjoy flying out of TAN and I learned to fly there 40 years ago. I would like to see the airport succeed, incease its services, and be a focal point for the City. The airport has made some good improvments and more seem to be in the planning phase. The Airport Commisioners need to be part of the solution and develope procedures and plans that work for the entire airport community. I am sure with the right Commisioners the airport will be an outstanding place for aviation and the City of Taunton. [redacted]	11/4/2013 2:22 PM
6	[redacted]	11/4/2013 11:24 AM
7	[redacted]	11/4/2013 8:11 AM
8	[redacted]	11/3/2013 7:15 PM
9	[redacted]	11/3/2013 7:13 PM
10	[redacted]	11/3/2013 6:52 PM

Q28 Please share any additional comments you may have concerning Taunton Municipal Airport, its services, its facilities, and its future.

Answered: 18 Skipped: 43

#	Responses	Date
1	Need to provide more updates as to what is going on to the local media. Fence has created a perceived separation and I don't believe the public feels welcome.	11/28/2014 6:11 AM
2	Taunton needs new energetic growth oriented leadership to realize the potential of the great infrastructure that is already in place, additional improvements will follow.	9/3/2014 9:24 AM
3	There seems to be a great divide among users of the airport now. This is not a good thing if we are trying to provide services that are much needed to grow the airport. Everyone needs to put aside their differences, roll up their sleeves and work together to find solutions. Complaining without offering viable options is counterproductive. If you truly want to see the airport succeed then come together and collaborate so we can succeed. There is an old proverb out there that says “If you are not part of the solution, then your are part of the problem.”	12/9/2013 5:07 PM
4	the airport has been friendly and has a good relationship with people around the airport	11/28/2013 3:25 PM
5	The airport must strive to create t-hangars for increased revenue in the future. Since 1999 over 42 t hangar units have been constructed and that is the lifeblood of saving the airport.	11/25/2013 11:14 PM
6	As a hanger owner, owner of two aircraft and long time user of the airport, I would like to make you aware of my feelings toward the present and future condition of the facility and it's management. Over the past several years I have witnessed the overall decline in aviation activity at the airport and am in fear of further erosion at our airport community. There are obvious and systemic reasons for the decline which must be corrected immediately lest we continue down this path of diminishing activity. There are many airport management issues such as a neglected and often un-manned re-fueling station, gate and fence code confusion, unqualified staff and airport management, and the reprehensible situation of having commission board members being in positions to vote on various issues regarding hanger construction among other things. Another glaring example of a poor management attitude is the way airport users and business owners are treated at commission meetings. The head of the commission will often refuse to recognize a meeting attendee who wishes to make a comment on issues under discussion. This goes against any reasonable meeting decor, not to mention this behavior further alienates the management from the people who work at or use the airport facility. This attitude should be unacceptable by all measures of standard meeting practices. The Taunton Airport users, not to mention any transient clientele, do not deserve this unfriendly and confrontational attitude and if it continues, we will be seeing housing tracts instead of runways! I strongly urge the Airport Commission to rethink it's management methods and turn in a different direction so we can save this valuable asset. Thank you.	11/13/2013 7:07 AM
7	Taunton needs an Aviation Educated Manager who the Commission can trust to run the airport. The Commission and the MAnager need to be active in Gneral Aviation and understand the needs of the users. With that they also have to market the airport however they can to bring in more based aircraft.	11/8/2013 8:12 AM
8	airport is user friendly has been well managed over the past 20 years	11/7/2013 7:58 PM
9	WE NEED FOR THE PUBLIC TO BECOME MORE INVOLVED AND HOPEFULLY GAIN SOME PILOTS AND AVIATION LOVERS. THE AIRPORT HAS SHUT THEM OUT. PLUS THE FACT ABOUT AFTER HOURS FUEL AND CANT GET BACK TO AIRCRAFT FOR TRANSIANT PILOTS IS CAUSING PILOTS AND FRIENDS TO GO ELSEWHERE .IF THE MASTER PLAN IS FOR THE DEATH OF THE AIRPORT WE ARE RIGHT ON PLAN !	11/6/2013 8:41 PM
10	want to see it grow. need to have a commission willing to see it grow and not be passively reactive. Many opportunites for advancement were missed due to lack of interest or small minded group thinking	11/5/2013 5:29 PM
11	Hope to see the airport improve and grow	11/4/2013 10:03 PM

12	Have an FBO run the airport. The very successful airports have an established FBO with a active flight school. These two things are the face of the airport and attract new people into aviation which brings in business and increases the airports income. Self serve fuel is critical to creating a more professional and business like enviorment and making it easy to fuel 24 hours a day. Amending the security plan to allow the businesses on site to function normally. Guests and vendors must have easy access to the on site Businesses. Create an airport enviorment which works for all.	11/4/2013 2:22 PM
13	I've said enough already.	11/4/2013 11:24 AM
14	Key current issue is continued access without undue hurdles (e.g., current unwieldy plans for gate access wil restrict public access to ground side operations). Also failure by TMAC to adequately plan/promote facility as a regional rather than purely local asset limits revenue potential, i.e., many current tenants reside up to 60 miles from KTAN (i.e., one hour's drive circumscribes potential users, NOT just "local" area.	11/4/2013 8:42 AM
15	I hope the city will make many changes in the management and make the airport more aviation friendly.	11/3/2013 7:15 PM
16	Fantastic facility that is poorly leverage, managed, and could produce so much more energy and revenue with proper management.	11/3/2013 6:55 PM
17	I visit many other airports in New England and it is always great to share a sense of community with other pilots. It is enjoyable to fly onto friendly airports that seem to welcome visitors and who want to attract them. Taunton was like this in the past and it would be great to create that environment again.	11/3/2013 6:52 PM
18	The airport need a more dynamic Manager that has an interest and knowledge in aviation. Without that interest user experience will continue to negative. The current manager is a npo show and is only interested in a pay check and not in the responsibility of running and improving the airport.	11/3/2013 5:56 PM

APPENDIX G:

TAN AMPU MEETINGS

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2014 TAN AMPU Project Advisory Committee

TMAC	City of Taunton	State/Local Agencies	Airport Tenants	Airport Neighbors
Mr. Fred Terra TMAC, Chair 231 South Walker Street Taunton, MA 02780 terrafred@gmail.com	**Honorable Tom Hoye** Mayor, City of Taunton Taunton City Hall 141 Oak Street Taunton, MA 02780 508-821-1000 thoye@taunton-ma.gov	**Ms. Lisa Lesperance** FAA NE Region Airports Division 12 NE Executive Park Burlington, MA 01803 (781) 238-7616 lisa.lesperance@faa.gov	**Mr. Michael Dupont** American Aero Services P.O. Box 483 East Taunton, MA 02718 (508) 824-5681 mike@americanaero.net	**Mr. Don Stevens** TAN Neighbor 799 Middleboro Ave. East Taunton, MA 02718 508-824-1861
Mr. Robert Adams TMAC , Vice Chair 7 Poole Street Taunton, MA 027S0 Adamsconstruct@aol.com	**Andrew J. Marshall** City Council Chair Airport Needs Committee 80 Joshua Lane Taunton, MA 508-821-3903 ajmarshall@tmlp.net ajmarshall@taunton-ma.gov	**Mr. Clifford Vacirca** FAA Project Mgr. 12 NE Executive Park Burlington, MA 01803 (781) 238-7627 cliff.vacirca@faa.gov	**Mr. Karl Abers** K & K Aircraft, Inc. P.O. Box 612 Taunton, MA 02718 (508) 884-8909 kkabers@yahoo.com	**Ms. Sue King** TAN Neighbor 403 Middleboro Ave E. Taunton, Ma 02718 (508) 824-7815 sueking2450@comcast.net
Mr. William Manganiello TMAC wamlaw@wamlaw.net	**David W. Pottier** Councilor Airport Needs Committee 42 Power Street Taunton, MA 508-822-0965 dwp320@aol.com dpottier@taunton-ma.gov	**Ms. Denise Garcia** MassDOT Aeronautics Division Manager of AviationPlanning 10 Park Plaza, Rm 6620 (617) 412-3688 denise.garcia@mac.state.ma.us	**Mr. James Gotovich** Superior Aero Service P.O. Box I II Taunton, MA 02718 (508) 821-5755 superaero@comcast.net	**Mr. Charles R. Menard, Sr.** Fmr. TMAC 10 Deer Park Village Taunton, MA 02780 cmenardsr@yahoo.com CMenard@MBTA.com
Mr. Jim Madigan TMAC jfmadigan@verizon.net	**Estele C. Borges** Councilor Airport Needs Committee 115 Scadding Street Taunton, MA 508-345-5340 Eborges@comcast.net eborges@taunton-ma.gov	**Ms. Jacqueline L. Schmidt** SRPEDD 88 Broadway Taunton, MA 02780 508-824-1367 ext. 234 jschmidt@srpedd.org	**Mr. Joseph Ricci** Pilgrim Aviation 2 Westcoat Drive East Taunton, MA 02718 508-823-7776 pilgrimaviation@gmail.com	
Mr. Burton Schriber TMAC schriberb@aol.com	**John M. McCaul** Councilor 2 Commonwealth Ave. Taunton, MA 508-823-5393 johnmccaul27@gmail.com jmccaul@taunton-ma.gov		**Mr. Ken Rosenberg** F & P. Associates, Inc. 155 Winthrop Street Taunton, MA 02780 (508) 823-0796 kardvm@verizon.net	
Mr. Charles Malo TMAC mforh@aol.com	**Sherry Costa Hanlon** Councilor 9 Madison Street Taunton, MA 508-884-2992 councilor-shanlon@tmlp.net shanlon@taunton-ma.gov		**Mr. Richard A Griffith** Metal Hanger Group 10 Sheridan Street Taunton, MA 02780 508-951-7197 Sox771@gmail.com	

Mr. Jan Borboruzian TMAC jboboruzian@yahoo.com	**Deborah Carr** Councilor 175 Partridge Circle Taunton, MA 508-823-0387 councilor-dcarr@tmlp.net dcarr@taunton-ma.gov		**Mr. Ron Nation** Raven Storage LLC (508) 612-9790 r.nation@comcast.net	
Mr. Edward Walsh Taunton Police Dept. 23 Summer Street Taunton, MA 02780 (508) 824-7522 chief@tauntonpd.com	**Jeanne M Quinn** Councilor 25 Roberts Street Taunton, MA 508-837-0345 councilorquinn@gmail.com		**Mr. Richard Crowell** Wood Hanger Group 7 Bridge Street Lakeville, MA 02346 (508) 947-3248	
Mr. Timothy J. Bradshaw Taunton Fire Dept. Central Fire Station 50 School St Taunton, MA 02780 508-821-1452 tbradshaw@tauntonfd.com	**Gerald A. Croteau** Councilor 670 Tremont Street Taunton, MA 508-824-5780 lolycroteau@comcast.net gcroteau@taunton-ma.gov		**Mr. Kenneth Gibson** AAI LLC 7 Westcoat Drive - Hangar 21 East Taunton, MA 02718 ph. 617.334.6586 gibsonair@gmail.com ken@flyaai.net	
Mr. Richard E. Ferreira Taunton Emergency Management Agency 88 Ingell Street, Taunton ,MA 02780 508-821-1026 rferreira@taunton-ma.gov	**Mr. Kevin Scanlon** Director, Planning & Conservation City Hall Annex 15 Summer St. Taunton, MA 02780 508-821-1051 kscanlon@taunton-ma.gov		**Mr. Mel Hensch** Ocean State Flying Club (508) 328-4735 hensch7@cox.net	
Mr. Daniel Raposa Airport Manager Caswell Street East Taunton, MA 02718 508-821-2973 airportdjr@aol.com	**Ms. Michele Restino** Conservation Commission City Hall Annex 15 Summer St. Taunton, MA 02780 508-821-1095 mrestino@taunton-ma.gov		**Mr. Ron Mahan** Tailwind Hangar Assn Crosswind T Hangar Assn 55 Boyle Road Brockton, MA 02302 Cell #(508) 586-4076 Skyvertising@aol.com	
Mr. Joseph Lawlor Asst. Airport Manager 12 Kenneth Road Easton, MA 02356 508-821-2973 jlawlor12@aol.com	**Mr. Kevin J. Shea** Office Econ. Development 45 School Street Taunton, MA 02780 508-821-1030 kshea@taunton-ma.gov		**Mr. Jim Bodkin** Brockton Flying Club 2 Holly Circle East Freetown, MA 02717 617-875-4295 PAPERTIGER@CONSULTANT.COM	**Mr. Jeffrey C. Fallon** Hangar 5 195 Highland Street Berlin, Ma 01503-1110 508-245-1800 jefffallon@verizon.net

MEETING NOTES

project:	**TAN AIRPORT MASTER PLAN UPDATE (AMPU)**
meeting date:	THURSDAY, MARCH 20, 2014 – 7:00 P.M. (EDT)
meeting no:	1
location:	CITY OF TAUNTON COUNCIL CHAMBERS, TAUNTON, MA
subject:	PROJECT ADVISORY COMMITTEE (PAC) MEETING

ATTENDEES:

name	affiliation
Mike Dupont	AMERICAN AERO
Jerry Field	WOOD HANGARS
Charles Pickett	WOOD HANGARS
Susan King	AIRPORT NEIGHBOR
Jim Madigan	TAUNTON MUNICIPAL AIRPORT COMMISSION (TMAC)
Ted Jula	NO AFFILIATION
Burton Schriber	TAUNTON MUNICIPAL AIRPORT COMMISSION (TMAC)
Jan Borboruzian	TAUNTON MUNICIPAL AIRPORT COMMISSION (TMAC)
Richard Griffith	TAA
Bob Adams	TAUNTON MUNICIPAL AIRPORT COMMISSION (TMAC)
Dan Raposa	TAN MANAGER
Bill Manganiello	TAUNTON MUNICIPAL AIRPORT COMMISSION (TMAC)
Fred Terra	TAUNTON MUNICIPAL AIRPORT COMMISSION (TMAC)
Edward Walsh	TAUNTON POLICE DEPARTMENT (TPD)
Charles Malo	TAUNTON MUNICIPAL AIRPORT COMMISSION (TMAC)
Joe Ricci	PILGRIM AVIATION
Damian Frattasio	AMERICAN AERO
Doug Cooper	AIRCRAFT OWNER
Tim Bradshaw	TAUNTON FIRE DEPARTMENT (TFD)
Bill Napolitano	SOUTHEASTERN REGIONAL PLANNING AND ECONOMIC DEVELOPMENT DISTRICT (SRPEDD)
Frank Bush	AIRPORT SOLUTIONS GROUP (ASG)
James Miklas	AIRPORT SOLUTIONS GROUP (ASG)

There were a total of 44 people invited to attend the meeting. Sign-in sheet is attached.

MEETING PURPOSE / AGENDA:

This was the first meeting of the Project Advisory Committee (PAC) for the Taunton Municipal Airport (TAN) Airport Master Plan Update (AMPU). The primary purpose of this meeting was to serve as a project "kickoff" for the master planning effort. Additionally, as detailed in the agenda (see attached presentation for meeting agenda), the meeting focused on the following questions and elements:

1. Introductions
2. WHY are we undertaking the TAN Master Plan Update?
3. WHAT is involved in conducting a Master Plan Update?

4. HOW is the process going to be successfully completed?
5. Other Issues / Miscellaneous
6. Schedule
7. Project Discussion
8. Questions & Comments

PROJECT INTRODUCTIONS:

Prior to introductions of those attending the meeting, Fred Terra (TMAC Chairman) thanked the members of the PAC for their participation in this process and then provided an opening statement. Mr. Terra expressed his enthusiasm for starting this master planning effort and emphasized the importance of this effort for the future of the Airport. He stated that most of the projects identified in the 2002 AMPU have been successfully completed and that this new master plan will establish the future of the Airport. He also noted that while TAN has been able to remain financially self-sufficient, rising costs have had a dramatic impact on the Airport's financial condition – so this AMPU will be important for mapping out how TAN can remain financially viable over the long term. Mr. Terra then introduced Jim Miklas (ASG), the project manager for the TAN AMPU, who would also give a presentation and lead discussions during the meeting.

POINTS OF DISCUSSION:

Mr. Miklas gave a presentation (see attached) to facilitate group discussion. General points of discussion are encompassed in the following general categories and notes:

General Project Approach

- Mr. Miklas emphasized to the PAC that the AMPU process should result in a plan that reflects the long-term vision and direction of the Taunton Municipal Airport. In order to achieve this, Mr. Miklas noted that it was critical that the PAC be active participants in the planning process. A primary role of the PAC members will be to serve as project advisors to ensure the TAN Master Plan addresses the key issues facing the Airport today and into the future. There will be a total of three (3) PAC meetings (including this meeting) as well as two public meetings. It is also important that PAC members serve as liaisons to their particular agency, group, constituency, etc.
- Mr. Miklas defined an airport master plan as "a comprehensive study that describes the short-, medium-, and long-term development plans to meet future aviation demand." He also emphasized that one of its principle purposes was to "provide the framework to guide (and protect for potential) future airport development that will cost-effectively satisfy current and future aviation demand, while considering potential environmental and community factors."
- Mr. Miklas noted the reasons for conducting an airport master plan, including:
    - To establish a development plan to meet the future aviation needs of the Airport, the City and the region; and

  - To fulfill federal requirements for applying for and accepting airport funding from the FAA.
- In reviewing some of TAN's existing planning documentation, Mr. Miklas acknowledged the economic impact findings of the 2011 Massachusetts Statewide Airport Economic Impact Study for TAN. Specifically, that study identified TAN's economic benefit (both direct and indirect) for the City and surrounding area to be 23 full time jobs with a total payroll of $705K that generated a total economic output of $2.2M in 2010. Mr. Miklas emphasized that these were some of the underlying economic reasons for continuing to develop and maintain TAN to meet the long-term needs of the area.
- Mr. Miklas provided an overview of TAN's physical facilities including current airside and landside facilities, several FAA design standards, and airspace structures.
- As in the presentation, Mr. Miklas introduced the preliminary general objectives of the Master Plan. He noted that while these objectives were appropriate for this project, it was also very important that the PAC identify any additional specific goals and objectives that they would like to see addressed in this study.
- Mr. Miklas provided an overview of the Master Planning process and noted that the consultant team was currently collecting relevant data as part of the inventory process. He also stated that while the team is striving to collect the most recent data available, it is possible that better data may exist elsewhere for certain elements. Mr. Miklas asked the PAC that when reviewing project documentation that they think about if better data exists and then to provide that to the project team, if possible.
- Mr. Miklas noted that the planning effort must result in 20-year forecasts that are reasonable and defensible. Additionally, forecasting is particularly important in that the forecasts themselves must be formally approved by the FAA during the course of the AMPU. He then presented DRAFT forecasts that are in process of being finalized for submittal to FAA for review. Mr. Miklas also stated that the second element of the AMPU that must be approved by the FAA is the Airport Layout Plan (ALP), which should occur towards the end of the project.
- Mr. Miklas said that the public coordination element of this AMPU is critical to its success. This plan belongs to the airport/community and it must reflect their goals. Through the course of the project, there will be two more PAC meetings, in addition to three airport committee briefings, two public information meetings, and a city council briefing. He also noted that the timing of the public meetings could be established based on the needs of the PAC (e.g. the meetings could occur at two different times during the planning process).
- The PAC reviewed potential project goals as they have been identified through outside agencies and other planning studies. These included the following:
  - TAN 2002 AMPU Mission Statement - "The Taunton Municipal Airport Commission envisions the Taunton Airport to be a center of General Aviation activity well into the twenty first century, serving aviation enthusiasts in the Southeast region of

Massachusetts. Focus will be on the private pilot, owner, and aviation enthusiast, by providing quality services and educational activities and events. Our goal is to make Taunton Airport a community-based aviation center, and a good neighbor, while enhancing all facets of the General Aviation experience."

  - 2010 Massachusetts Statewide Airport System Plan (MSASP) Goals – 1. Enhance Safety and Security; 2. Preserve/Protect Investment in Airports; 3. Accommodate Existing and Projected Aviation Demand; and 4. Support Economic Growth of the Community

- Mr. Miklas reviewed a listing of potential airport issues that could be considered within the AMPU planning process. Most of these were originally identified at a TAN Tenant Meeting in April 2013.

Points of Discussion / Questions

- A question was asked about if media was invited to this PAC meeting. Mr. Miklas stated that no media representatives were invited for this since it was the intent of this meeting to be a working project meeting. There will be two public meetings and a City Council briefing later in the project that will be available for media coverage.
- There was discussion as to how the 2011 economic impact numbers for TAN were generated.
- It was noted that the 2010 Massachusetts Statewide Airport System Plan (MSASP) and 2011 Massachusetts Statewide Airport Economic Impact Study were both available online at www.massdot.state.ma.us/Aeronautics/
- A question was asked if it was appropriate in this study to discuss the potential of a casino being constructed in the Taunton area. Mr. Miklas stated that this is exactly the study where that possibility should be discussed. He noted that a casino could have an impact on the overall fleet mix being seen at TAN, with more corporate aircraft (e.g. turbine/jet) possibly utilizing the Airport given appropriate facilities and services. That could be specifically addressed in the Facility Requirements chapter of the AMPU.
- There was a follow-up question related to the runway length turbine/jet aircraft would require, and specifically, what runway length could TAN fit on its existing property. Mr. Miklas noted that runway length requirements are variable and are function of a wide variety of factors, including aircraft type, flight stage length, aircraft payload, time of year, etc. He also stated that a runway length analysis will be conducted as part of the Facility Requirements and Alternatives chapters.
- It was suggested that a SWOT analysis be conducted as part of the AMPU.
- Related to identifying potential project goals (in addition to those included in the presentation), the following ideas were proposed:
  - The Airport should remain financially self-sufficient.

  - In order to remain viable, the Airport should be developed to match the changing dynamics of the general aviation industry. This should include planning to accommodate potential corporate aviation activities.
  - Promote the use of general aviation at the Airport in the local community and the region (i.e. expand the number of users/pilots).
  - Ensure that the Airport remain relevant to the City as an economic generator and a transportation resource.
  - The Airport should be operated as a business and it should make financially prudent decisions.
  - The Airport should strive to be good neighbors to the surrounding community.
- In response to a comment, Mr. Miklas noted that it was not the role of the AMPU to review/analyze how the Airport is being administered and/or how budgets were established and finances expended. The AMPU is a strategic document that analyzes finances with respect to funding potential projects that come out of the planning effort.
- Mr. Miklas reviewed the listing of potential AMPU project issues (see presentation) that included those identified during the 2013 TAN Tenant Meeting. The PAC indicated that these generally still reflected the thoughts of the airport/pilot community at TAN. Additionally, he noted the importance of reviewing hangar requirements and the need to analyze the future length and width requirements for Runway 12-30.
- A question was raised with respect to options for rehabilitating/reconditioning Runway 4-22 (TAN's crosswind turf runway). Before formal discussion, Mr. Miklas noted the following:
  - First, FAA and MassDOT Aeronautics were unfortunately unable to attend PAC Meeting 1 (although it is anticipated that they will attend future meetings). Therefore, any comments relaying previous discussions with FAA/MassDOT about the runway have a caveat in that they only reflect the Airport/consultant' view of those prior conversations.
  - Mr. Miklas provided an overview of federal (FAA) and state (MassDOT Aeronautics) funding (e.g. entitlement and discretionary) for airport improvements, such as would be required for Runway 4-22. He generally described the funding prioritization process that the FAA employs in determining which projects receive discretionary funding. This prioritization process is important for TAN since discretionary funding is limited. He noted that the two highest priorities are given to projects that are focused on maintenance and safety improvements. (NOTE: It should be clarified that use of the term "maintenance" during the course of the presentation referred to the long-term care of airport pavements that ultimately requires rehabilitation or reconstruction. This does not refer to routine pavement maintenance such as crack sealing, seal coating, etc. – none of which is eligible for FAA funding.) There are certainly other priorities as well, such as capacity enhancements,

environmental compliance, etc.; however, safety and pavement rehabilitation/ reconstruction projects will typically receive the majority of the available discretionary funding.

  - Mr. Miklas noted that in that prioritization process (which is actually a very structured point system) that turf runways generally rank very low. The financial need for higher priority projects typically far exceeds the financial resources of the FAA region. This means that from a practical standpoint, securing funding for Runway 4-22 appears to be very unlikely any time in the future. It is important to note that this does not mean that maintaining the turf runway and its approaches to ensure that it is operated in a safe condition is not important to the FAA – it only means that the current funding prioritization system employed by the FAA makes it highly unlikely that the Airport will receive federal funding to support that work.
  - There was a comment regarding funding prioritization and the safety implications associated with the trees in the approach surfaces to Runway 4-22. Mr. Miklas noted that even though the FAA may not be able to provide funding for those turf runway projects, it does not mean that the FAA will not enforce their safety requirements, including airspace implications. (Note that as part of receiving federal funding for other projects, the Airport is required to commit to specific "grant assurances" that include ascribing to FAA safety criteria.) This means that for the runway to remain open in its current configuration (i.e. length, threshold locations, etc.), the Airport will still need to clear those existing obstructions at its own expense. If those penetrations are not removed, the FAA will have to displace the thresholds, which will result in a shorter runway. (It should also be noted that if the vegetation continues to grow unabated, the thresholds will continue to be relocated, resulting in a progressively shorter runway.)

- With respect to Runway 4-22, it was asked if the runway was scheduled to close. Mr. Miklas noted that the runway was not scheduled to close, and that the FAA was not advocating for its closure. However, from a practical standpoint, based on the issues described above, ultimate closure due to a lack of funding (for meeting design/airspace standards) was possible.
- There was a comment that for the benefit of TAN's future, having two runways will be critical. Mr. Miklas said that will be analyzed/discussed in the AMPU. He also noted that other single-runway airports have received additional FAA funding for paving wider-than-standard runways in an effort to help compensate for the lack of a crosswind runway.
- Another comment was made that the turf crosswind runway was also critical for safety when considering flight school operations.
- There was discussion regarding potential local options for addressing Runway 4-22 issues, including runway rolling, easement acquisition, obstruction removal, funding, etc.

- There was some general discussion regarding TAN's current role (Community/Business Airports) in the MSASP and what the next "higher" role was defined as (Corporate/Business Airports). It was noted that Plymouth Municipal Airport was identified in the MSASP as a Corporate/Business Airport.

The meeting adjourned at approximately 8:20 PM EDT.

These meeting notes have been respectfully compiled by James Miklas (ASG). Please forward any comments/corrections to Mr. Miklas at jmiklas@airportsolutionsgroup.com

Meeting: TAN AMPU 2014 - *PAC Meeting 1* Location: Taunton City Hall Date: March 20, 2014 7:00PM

SIGN IN SHEET

	NAME	REPRESENTING	PHONE	EMAIL
1	Mike Dupont	American Aero	508-824-5681	mike@americanaero.net
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7	Ted Jula	Self	617-852-1333	tedjula@yahoo.com
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11	Bob ADAMS	TMAC.	508 822 1742	ADAMSbrook@Aol.com
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15	[illegible]	[illegible]	[illegible]	[illegible]
16	CHARLES MALO	TMAC	508-238-7591	MTFORT@AOL.COM
17	Joe Ricci	Pilgrim Aviation	508-510-0572	northeastbuilders1@netzero.net
18	DAMIAN FRATTASIO	AMERICAN AERO	5082947614	DAMIAN.FRATTASIO@GMAIL.com
19	DOUG COOPER	AIRCRAFT OWNER	401 835 0460	POINTRIP@AOL.COM
20	Tim Bradshaw	TFD	508-821-1452	tbradshaw@tauntonfd.com

Meeting: TAN AMPU 2014 - *PAC Meeting 1* Location: Taunton City Hall Date: March 20, 2014 7:00PM

SIGN IN SHEET

	NAME	REPRESENTING	PHONE	EMAIL
1	Bill Napolitano	SRPEDD	508 824-1367	bnap@srpedd.org
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Taunton Municipal Airport

Airport Master Plan Update

Project Advisory Committee
March 20, 2014

ASG

Taunton Municipal Airport

Opening Remarks

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Agenda

a. *Introductions*
b. ***WHY** are we undertaking the TAN Master Plan Update?*
c. ***WHAT** is involved in conducting a Master Plan Update?*
d. ***HOW** is the process going to be successfully completed?*
e. *Other Issues / Miscellaneous*
f. *Schedule*
g. *Project Discussion*
h. *Questions & Comments*

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Introductions

Project Advisory Committee (PAC) Membership Invitees

City of Taunton	Mayor's Office	**State Agencies**	MassDOT Aeronautics
	City Council	**Federal Agencies**	FAA
	Conservation Commission	**Other Agencies**	SRPEDD
	Economic Development	**Airport Neighbors**	
	Emergency Management	**Airport Tenants**	
	Fire Department	**Airport Businesses**	
	Planning & Conservation	**Airport**	Airport Commission
	Police Department		Management

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Introductions

Purpose & Role of the PAC

Serve as project advisors to ensure the TAN Master Plan Update addresses the key issues facing the Airport today and into the future.

- Attend 3 project meetings (including today)
- Serve as a liaison to constituents/interest group
- Provide technical input from perspective of constituency
- Review and comment on project work products

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

WHY are we undertaking the TAN Master Plan?

Master Plan Purpose & Functions

Purpose:

A comprehensive study that describes the short-, medium-, and long-term development plans to meet future aviation demand.

Primary Functions:

- Sponsor's strategy for the development (20 year) of the airport as required by the FAA for future project funding. It should be updated every 7-10 years. *(TAN AMPU Published 2002)*
- Provide the framework to guide *(and protect for potential)* future airport development that will cost-effectively satisfy current and future aviation demand, while considering potential environmental and community factors.

ASG Taunton Municipal Airport Airport Master Plan

WHY are we undertaking the TAN Master Plan?

Key Planning Interfaces

ASG Taunton Municipal Airport Airport Master Plan

WHY are we undertaking the TAN Master Plan?

Key Planning Interfaces

(2011 MA Airport Economic Impact Study)

TOTAL AIRPORT IMPACTS	
Jobs	23
Payroll	$705,000
Output	$2.2 million

TOTAL STATEWIDE IMPACTS	
Jobs	124,369
Payroll	$4.9 billion
Output	$11.9 billion

ASG Taunton Municipal Airport Airport Master Plan

WHY are we undertaking the TAN Master Plan?

TAN Mission Statement

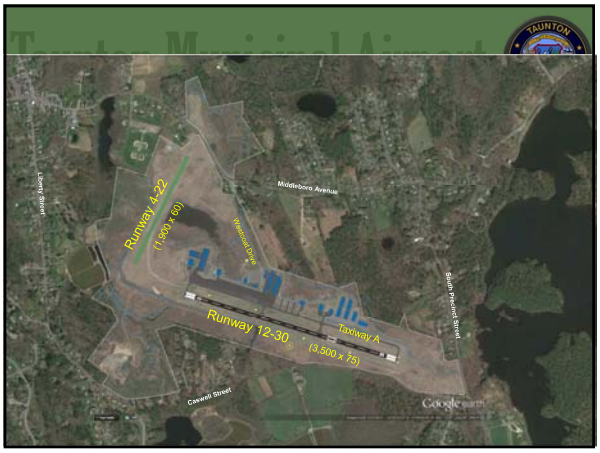
"The Taunton Municipal Airport Commission envisions the Taunton Airport to be a center of General Aviation activity well into the twenty first century, serving aviation enthusiasts in the Southeast region of Massachusetts. Focus will be on the private pilot, owner, and aviation enthusiast, by providing quality services and educational activities and events. Our goal is to make Taunton Airport a community-based aviation center, and a good neighbor, while enhancing all facets of the General Aviation experience." (2002 TAN AMPU)

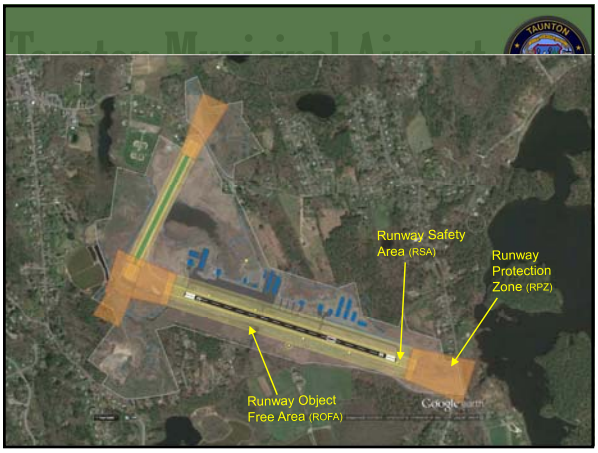
ASG Taunton Municipal Airport Airport Master Plan

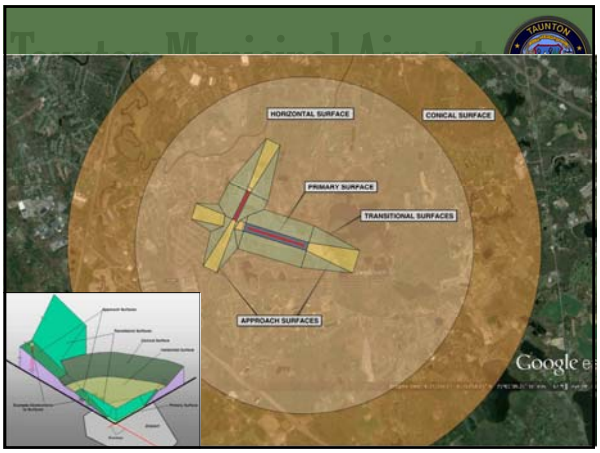
WHY are we undertaking the TAN Master Plan?

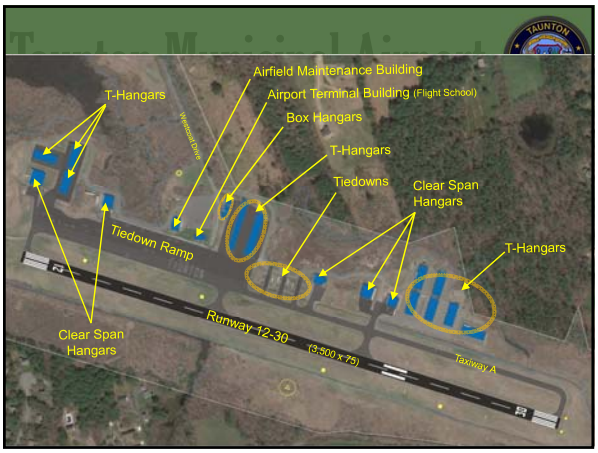
Airport Overview

ASG Taunton Municipal Airport Airport Master Plan









WHAT is involved in conducting a Master Plan?

Master Plan Objectives

- **Document the issues** that are considered/addressed at the time of the plan
- **Justify the proposed development** through the technical, economic, and environmental investigation of concepts and alternatives.
- **Graphic presentation** of development and anticipated land uses in the vicinity of the airport.
- **Realistic implementation schedule**, particularly the short-term capital improvement program (CIP).
- **Propose an achievable financial plan** to support the implementation schedule.

ASG Taunton Municipal Airport Airport Master Plan

WHAT is involved in conducting a Master Plan?

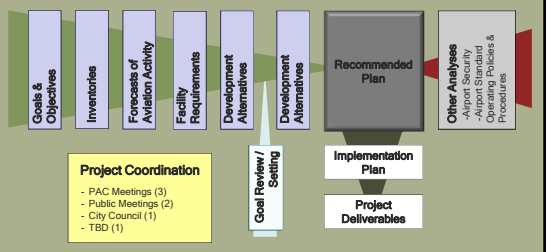
Master Plan Objectives

- **Provide sufficient project definition and detail** for subsequent environmental evaluations that may be required
- **Present a plan that adequately addresses the issues** and satisfies local, state, and Federal regulations.
- **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.
- **Set the stage** and establish the framework for a continuing planning process.

ASG Taunton Municipal Airport Airport Master Plan

WHAT is involved in conducting a Master Plan?

Master Plan Process



ASG Taunton Municipal Airport Airport Master Plan

WHAT is involved in conducting a Master Plan?

Goals & Objectives

Typical Tasks:

- Project Definition and Scope
- Organizational Kick-off Meeting / Goals and Objectives
- Public Coordination Structure and Objectives

Inventory

Typical Data Collection:

- Existing Planning Data /Facilities Inventory / Socioeconomic Data
- Commercial Service Terminal Building Assessment
- Existing Land Use and Zoning
- Airspace and NAVAIDS Inventory
- Existing Finances

ASG Taunton Municipal Airport Airport Master Plan

WHAT is involved in conducting a Master Plan?

Forecasts of Aviation Activity

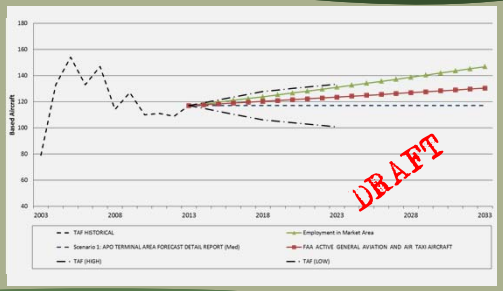
Typical Forecast Elements:

- 20-year forecast
- Based aircraft by mix
- Local and itinerant operations by aircraft type and mix
- Passenger enplanements
- Military / instrument / flight training activities
- Peak-hour operations
- *Last TAN Forecasts approved 2010*

***Must be approved by the FAA**

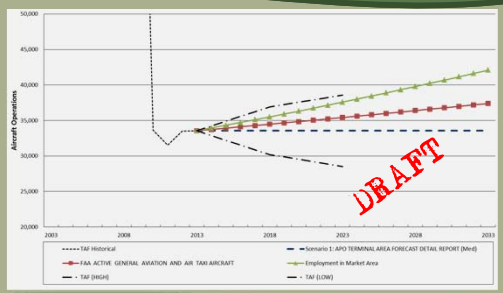
ASG Taunton Municipal Airport Airport Master Plan

WHAT is involved in conducting a Master Plan?



ASG Taunton Municipal Airport Airport Master Plan

WHAT is involved in conducting a Master Plan?



ASG Taunton Municipal Airport Airport Master Plan

WHAT is involved in conducting a Master Plan?

Demand/Capacity & Facility Requirements

Typical Tasks:

- Airfield Demand/Capacity Analysis
- Aircraft Operational Requirements
- Design Standards Review/Evaluation
- Airside Facilities Requirements Determination
- Landside Facilities Requirements Determination

Alternatives & Recommended Plans

Typical Tasks:

- Goals review / setting
- Prepare development alternatives
- Recommended Development Plan and Program

ASG Taunton Municipal Airport Airport Master Plan

WHAT is involved in conducting a Master Plan?

Implementation Plan

Typical Tasks:

- Cost estimates
- Implementation Schedule
- Capital Improvement Plan (CIP)
- Financial plan

Project Deliverables

Products:

- Airport Layout Plan (ALP)
  - ***Must be approved by the FAA**
- Project Report
- Supplemental Reports

ASG Taunton Municipal Airport Airport Master Plan

HOW is the process going to be successfully completed?

Public Process Involvement

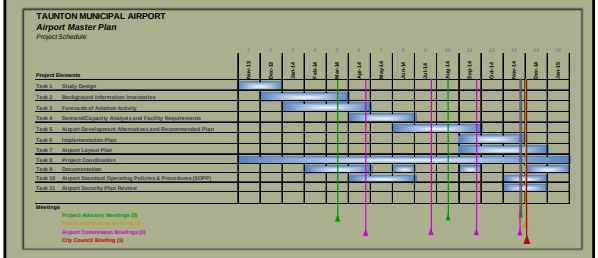
Effective Communication and Stakeholder Participations is the Key Ingredient for any Successful Airport Master Planning Effort

TAN Master Plan Communications Plan:

- Project Advisory Committee (PAC)
- Public Meetings/Workshops
- Airport Committee Briefings
- City Council Briefing
- Website (posting project data)
- Online Survey

ASG Taunton Municipal Airport Airport Master Plan

Project Schedule



Project Discussion

PAC Discussion Point 1 - Project Goals

TAN Mission Statement

2010 Massachusetts Statewide Airport System Plan (MSASP) Goals

- **Meet Standards** - Meet applicable FAA design standards
- **Environmental Compliance** - Compliance with all federal, state, and local environmental regulatory requirements
- **Economic Benefit** - Economic impact and economic benefits of incremental investment in the system
- **System Preservation** - Facilities and services sufficient to maintain the airports and address the current and future needs of the aviation community
- **Public Outreach** - Promotes and supports aviation educational programs and community outreach
- **Transportation Integration** - Integration with other modes of transportation

PAC Discussion Point 2 - Project Issues

2013 TAN Tenants Meeting

1. Self-Service Fueling (100LL)
1. Improvements to Runway 4-22
3. Airport Water and Sewer
4. Terminal Building
5. Security Gate Access
6. Improved Airport Security
7. Remote Communications Outlet
8. Runway End Wind Socks
8. Access Road Improvements
8. Roller for Turf Runway
8. Jet Fuel

Other Potential Issues

- Additional Aircraft Hangars
- Improvements to Runway 12-30
  - Length
  - Width
  - Instrument approaches
- FAA Design Standards
- Other Services (e.g. Jet-A)
- Obstruction Removal
- Financial sustainability
- Maximizing economic benefits

PAC Discussion Point 2 - Project Issues

2010 Massachusetts Statewide Airport System Plan (MSASP) Airport Roles

- **Community/Business Airports** serve a primary role in local economies, focused on supporting a variety of general aviation activities such as business, emergency service, recreational, and personal flying. They accommodate smaller general aviation aircraft including some multi-engine, but mostly single-engine aircraft.
- **Corporate/Business Airports** serve a primary role in regional economic activities, connecting to state and national economies. They accommodate a full range of regional and local business activities, as well as most types of general aviation aircraft including corporate jet and multi-engine activity.

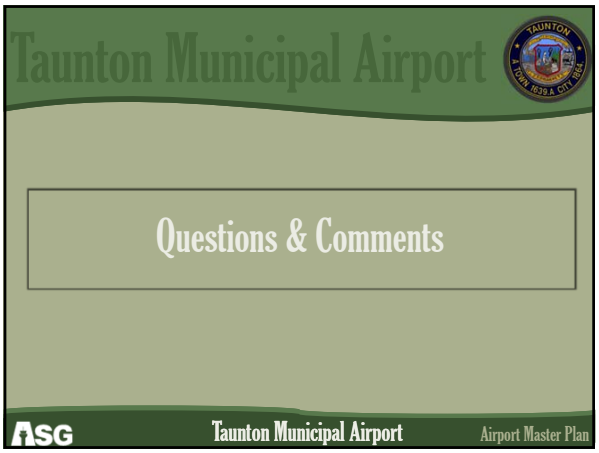
PAC Discussion Point 2 - Project Issues

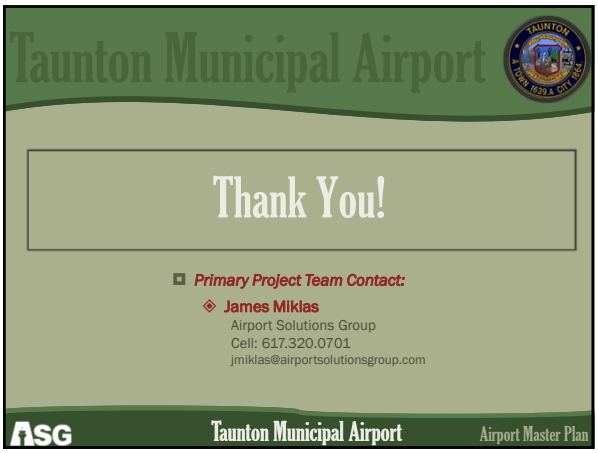
Other Data Sources?

- Local / Regional Planning Studies (forecasting)
- Local Zoning / Land Use
- GIS

Synergy with Other Planning Efforts?

- City Comprehensive Plan
- Regional & State Plans
- Corridor Studies
- Transportation Plans
- Economic Development


Taunton Municipal Airport
Questions & Comments
ASG
Taunton Municipal Airport
Airport Master Plan


Taunton Municipal Airport
Thank You!
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ASG
Taunton Municipal Airport
Airport Master Plan

MEETING NOTES

project:	**TAN AIRPORT MASTER PLAN UPDATE (AMPU)**
meeting date:	THURSDAY, SEPTEMBER 3, 2014 – 7:00 P.M. (EDT)
meeting no:	2
location:	TAUNTON MUNICIPAL AIRPORT, TAUNTON, MA
subject:	PROJECT ADVISORY COMMITTEE (PAC) MEETING

PAC ATTENDEES:

There were a total of 44 people invited to attend the meeting. There were many attendees that were not identified members of the PAC. The sign-in sheet is attached.

MEETING PURPOSE / AGENDA:

This was the second meeting of the Project Advisory Committee (PAC) for the Taunton Municipal Airport (TAN) Airport Master Plan Update (AMPU). The primary purpose of this meeting was to inform the PAC on the current status of the project, discuss key issues that have been identified and to solicit feedback regarding the development of alternatives. Additionally, as detailed in the agenda (see attached presentation for meeting agenda), the meeting focused on the following questions and elements:

1. Introduction
2. Where are we in the Master Plan process?
3. Runway 4-22
4. Alternatives Development
5. Next Steps
6. Questions & Comments

INTRODUCTIONS:

Fred Terra (TMAC Chairman) thanked the members of the PAC for their attendance and participation in this meeting and welcomed those not part of the PAC that were in attendance. Mr. Terra then introduced Jim Miklas (ASG), the project manager for the TAN AMPU, who would also give a presentation and lead discussions during the meeting.

Mr. Miklas reminded the PAC of the following points discussed in PAC Meeting 1:

- The role of the PAC and its members is to serve as project advisors to ensure the TAN Master Plan Update addresses the key issues facing the Airport today and into the future.
- An airport master plan is a comprehensive study that describes the short-, medium-, and long-term development plans at an airport to meet future aviation demand. It provides the framework to guide (and protect for potential) future airport development that will cost-effectively satisfy current & future aviation demand, while considering environmental and community factors.
- TAN is a financially self-sustaining entity (i.e. it receives no support from the City of Taunton) and the AMPU must ultimately reflect that. Future development plans must be realistic and demonstrate financial self-sustainability.

Mr. Miklas then emphasized that the primary purpose of PAC Meeting 2 was to be an open forum to share ideas. He also asked that everyone in attendance sign the attendance sheet and noted that there were feedback forms available for those attending to provide written comments during or after the meeting.

POINTS OF DISCUSSION:

Mr. Miklas gave a presentation (see attached) to facilitate group discussion. General points of discussion are encompassed in the following general categories. (Note that discussions related to these general categories occurred at different points of the meeting; therefore, the following may not accurately reflect the chronological order in which they occurred):

General Project Status

- Mr. Miklas provided an overview on the progress of the AMPU. He noted that draft chapters had been completed for the Inventory and Forecast tasks, and that the Facility Requirements chapter was nearing completion. He said that these would all ultimately be posted on the airport website soon.

AMPU Forecasts

- Mr. Miklas reminded the PAC that the AMPU Forecasts had to be formally approved by the FAA. The FAA review was currently in process at the time of the meeting. (Note that the FAA has subsequently approved the proposed forecasts.)
- Mr. Miklas provided an overview of the proposed forecast methodologies and resultant forecast range (see attached presentation). He also discussed some of the trends in general aviation that have been identified and investigated by the FAA. These include the continuing gradual decline in single-engine piston aircraft; the continuing significant decline in multi-engine piston aircraft; and the aggressive growth in turbine/jet aircraft. These trends are projected by the FAA to continue into the foreseeable future and are in part driven to varying degrees by the following considerations, among others:
    - The aging and progressive retirement of the single-engine piston aircraft fleet, coupled with the increased cost of replacement aircraft;
    - The increased cost of operating and maintaining an aircraft (including increasing costs for fuel, insurance, maintenance, storage, etc.);
    - Anticipated future challenges associated with obtaining 100LL (Avgas), the costs associated with it, and the development of a potential replacement fuel;
    - Increasing demand for corporate/business aviation
- Mr. Miklas also reviewed a potential forecast scenario based on an assumption that the Project First Light Resort & Casino is constructed.
- There were questions raised as to the source and validity of both the existing aircraft operations data and based aircraft data. (Based on the existing aircraft operations data,

TAN would average about 97 aircraft takeoffs or landings per day.) Mr. Miklas acknowledged that collecting operational data is challenging at a non-towered airport like Taunton. In such cases, it is standard practice to differ to official FAA data, which was done for the TAN forecast. (It was noted that MassDOT Aeronautics is currently sponsoring a program to equip all state airports with equipment that should produce better data in the future.) With respect to based aircraft, the existing total was generated by a review of based aircraft listing/billings provided by TAN management. Several participants disputed this total.

- There was a comment from the audience that aircraft at TAN are not transitioning from the apron to hangars; they are transitioning away from TAN.

Design Aircraft

- Related to forecasting, Mr. Miklas described the importance of and process utilized in determining the design aircraft (or Runway Design Code) for TAN's runways. He reported that the RDC was not projected to change over the 20-year planning period from what is currently identified on its existing Airport Layout Plan (ALP). The RDC for Runway 12-30 will remain at B-II, while the RDC for Runway 4-22 will remain at A-I (see attached presentation for descriptions).

FAA Airport Design Standards

- Mr. Miklas provided a brief overview of some of the FAA airport design standards that must be examined/reviewed as part of an AMPU. He noted that TAN is compliant in nearly all areas, other than in runway/taxiway separation requirements for Runway 12-30 and Taxiway A. That standard states that the centerline-to-centerline separation must be 240' and the existing condition is 197'. The FAA has previously issued a Modification to Standard for this deficiency, but that must be reviewed as part of this AMPU.
- He also said that while it appears that TAN's Runway Protection Zones (RPZs) are currently compliant, the City should make efforts to ensure that only airport-compatible development be allowed in those zones.

Facility Requirements

- Mr. Miklas reviewed the range of airport facilities that are being reviewed as part of the Facility Requirements chapter. These are related to operational considerations (e.g. RW/TW length & width, NAVAIDs / instrument approaches, airspace, facilities & services); based /transient aircraft considerations (e.g. hangar space, apron space, etc.), and potential changes to the fleet mix.
- Mr. Miklas stated that since the FAA allowed the AMPU to consider a forecast scenario involving a potential large scale regional economic development initiative (i.e. Project First Light), that the plan would also be able to consider potential facility improvement associated with that development. In the case of Project First Light and a potential

resultant limited fleet mix shift to include some turbine aircraft, this could include improvements to Runway 12-30 such as lengthening and widening.

- He reviewed the listing of facilities/issues generated by TAN tenants at a previous meeting and noted that these would be included in this analysis.
- In reviewing three of the facility requirement categories, he noted that TAN is in line to receive a new terminal building as part of a statewide project sponsored by MassDOT Aeronautics. He stated that TAN's existing apron space is projected to be adequate to meet the Airport's long-term demand. He also stated that there is a projected significant shortfall in hangar space over the 20-year planning period. He attributed this in part to the increased reluctance in general (and in particular in New England) to store aircraft on open ramps rather than in hangars. Again, the expense of owning and operating aircraft has increased markedly and there is an understandable desire by owners to not leave their aircraft exposed to potentially harsh New England weather conditions.
- Mr. Miklas presented a graphic depicting the areas on the existing Airport that might be available for long-term development. These are areas located on-airport, outside of wetlands and outside of FAA airport design safety setbacks. He reviewed each site and described their pros/cons and potential constructability.
- There was a question as to who would build any future hangars – private owners or TAN? Mr. Miklas said that historically TAN has leased airport property to private hangar owners who will then construct hangars on the leased lands (leases at TAN are for 20 years and are renewable).

Runway 4-22

- Mr. Miklas provided an overview of Runway 4-22. Key points of this review included the following:
    - It is a crosswind runway to RW 12-30 and the original runway on the airport
    - It is 1,900 ' x 60' with turf/gravel surface in poor condition
    - It is open seasonally (closed during winter and mud season)
    - It does not have any instrument approaches (i.e. visual approaches only)
    - It was previously shortened to account for RSA/ROFA issues
    - Its current approach/departure areas have obstructions
    - While the standard approach surface for this type of runway is 20:1, the FAA reports it to have a 12:1 slope. (Note that based on recent analyses, the slope is steeper than that due to vegetative obstructions.)
    - Many of the identified obstructions are located off-airport. Most on-airport obstructions have been previously removed under an FAA clearance project.
    - Runway 4-22 has been the subject of many funding discussions with FAA.
- Mr. Miklas provided a general overview of FAA airspace surfaces, including their function, importance to safety, and compliance requirements. He also presented the results of an analysis conducted by ASG several years ago that quantified the first phase of a proposed

two-phased airspace clearance project for Runway 4-22 (see attached presentation). That analysis indicated the need to acquire nine avigation easement and one property in order to clear the existing obstructions to the runway. At that time, the cost for easement acquisition and associated environmental analyses was estimated to be $460K-$680K. That cost did not include the actual removal of obstructions which typically has differing costs depending on the methodologies employed, as well as environmental considerations. The second phase of that effort was not defined, but would likely include additional easement acquisition and clearance requirements.

- Mr. Miklas noted that, as discussed in PAC Meeting 1, this obstruction issue has been addressed directly with FAA on multiple occasions, since it is FAA that provides TAN with the majority of its funding (up to 90%) for eligible capital improvement projects, such as obstruction removal. The difficulty for TAN as that due to the extent/cost of the obstruction removal for Runway 4-22, FAA would have to utilize "discretionary" funds to support it. Unfortunately, due to prioritization requirements that the FAA itself must abide by in distributing discretionary funding throughout the New England region, combined with a general lack of available federal funding, as well as the growing number of higher priority projects (i.e. safety related projects for paved runway is a higher priority that for that of turf runways) in the region, there simply is not enough federal grant money available to fund obstructions removal for Runway 4-22. This has been the case for the past several years and it is anticipated that the need for higher priority projects (as defined within the FAA funding prioritization) will only increase in the foreseeable future. Essentially, the FAA does not have the funds available for TAN to support this project. Therefore, given that and the fact that while MassDOT Aeronautics has indicated similar funding restrictions, if this project were to occur, the Taunton Municipal Airport Commission should assume that it will have to be the sole funding entity.
- Mr. Miklas also stated that, even though federal funding is not available for the removal of obstructions to Runway 4-22, TAN (as a public use airport that has received federal grants and is bound by their associated assurances) is still responsible for maintaining the runway in accordance with FAA design standards. Failure to do so jeopardizes potential future federal/state funding for other Airport projects, and exposes TAN to potential liability issues.
- Mr. Miklas then detail one of the potential actions that TAN could take in dealing with the obstructions issue – that of displacing the thresholds to account for the penetrations. However, the challenges associated with that include the following:
    - In order the clear the surfaces for Runway 4 and for Runway 22, the runway thresholds would have to be displaced approximately 1,139' and 1,135'repsectively, resulting in net runway lengths of 761' and 765' for landing.
    - Displacement of thresholds only addresses landing aircraft and not departing aircraft. Some sort of as-of-yet to be determined special accommodations would

have to be made to allow for departing aircraft to operate with a clear departure surface.
    - Due to the extreme displacement that would be required (see graphic in attached presentation) to account for the obstructions, there is no standard available to appropriately mark the runway as to the location of the thresholds.
    - The vegetative data utilized in the analysis is now four years old and the trees have likely grown since that time. This means that the resultant displacements indicated above would likely have to increase.
- There were many comments provided with respect to Runway 4-22 by the audience. Following is an amalgamation of the key points and remarks by the audience:
    - Runway 4-22 is utilized approximately 35% of the time by taildragger pilots.
    - "Because of prevailing winds, if you take 4-22 out of the equation, you are going to lose all of the taildraggers."
    - It was noted there have been previous tree clearing projects at the airport and that it is believed that they are no longer an issue.
    - "That runway is very important, not just to the taildraggers but to anybody that comes in when the wind is maybe beyond the capability of the airplane and you need to land their safely and I have never had a problem with those trees that are so far back that you never even think about them."
    - It was suggested that the only reason that the obstruction issues associated with Runway 4-22 were being raised as part of the AMPU is so that new hangars could be built.
    - Runway 22 is utilized much more than Runway 4, since Runway 4 reflects northeast winds, which would indicate bad weather.
    - All of the tricycle gear, tail draggers, banner towers need that runway. People will leave TAN without that runway. "All that money that gets put into this airport is going to go right down the tubes." "Anything that you do has to keep that runway open."
    - TAN should not be considered to be a two-runway airport – it is only a one runway airport. For it to be viable, Runway 4-22 would have to be paved.
    - Since the FAA is so concerned about safety, they should know that TAN is a safer airport with 30' penetrations and an open crosswind runway than no crosswind runway.
    - "The Airport was built the wrong way. Without that runway you are going to lose this field."
- In discussing the Runway 4-22 obstructions, the question was asked, "What changed?" Mr. Miklas noted that it is a combination of vegetation continuing to grow, that these areas have either not been addressed for a long time or have never been addressed, and that FAA has begun to focus much more closely on obstructions. The end result is that since these obstructions are now known, the situation must be addressed by the Airport.

- In discussing the Runway 4-22 obstructions, the comment was made that no one from the airport has yet approached the land owners that have those obstructions to see if they can be removed. He also noted that he is aware of other airports that have had timber companies pay to clear acreages as long as they were able to harvest the lumber.
- In discussing the Runway 4-22 obstructions, the comment was made that these trees have been there for many, many years and they have not caused any problems. Mr. Miklas noted that regardless of the runway's history of no incidents, the Airport still has significant liability exposure by knowingly allowing the runway to remain open with these obstructions.
- "It seems like it's already been decided" was another comment with respect to closing Runway 4-22. Mr. Miklas responded that nothing has been decided, but that the Airport needed to establish a plan of action on how to address the obstruction issue. He also noted that neither FAA nor MassDOT Aeronautics would tell the Airport to close the runway – only that the airspace standards had to be addressed appropriately. He noted that while closure is certainly an option, so is shortening the runway, and clearing the obstructions. But it is up to the Airport to decide how to address it.
- It was noted that the FAA AC on runway length requirements only recommends a length of 800 feet for runways that accommodate small aircraft (12,500 lbs or less) and that have approach speeds between 30 and 50 knots. The suggestion was made to focus on that runway length and then to determine the obstructions associated with it. It might be possible to address only some of the obstructions and that, combined with a shorter runway, may buy the runway some time. Mr. Miklas said that ASG are conducting runway length analyses associated with the Facility Requirements that that this suggestion would absolutely be considered as part of the process.
- Another comment was that it would be in the best interest of the Airport to keep Runway 4-22 open, even at a reduced length, for the immediate future because it is used and it is possible that some sort of solution could be found to deal with the obstructions. The fear is that if the runway were to be closed, it would never be reopened. Future generations at the Airport may ultimately decide differently, but at this time, the best course of action seems to be to keep it open in some capacity.
- It was suggested that the noting of close-in obstructions with the AFD, and/or some sort of application of "operate at your own risk" be applied.

Potential Future Airport Development Areas

- Mr. Miklas again reviewed the listing of areas on the airport potentially available for development, noting that of the six identified, four are not usable for various reasons, one has some potential if TAN were to be granted a Modification to Standard, and the last is already under development. He stated that the options for establishing additional developable space included redevelopment of existing property or acquisition of abutting

property (if it were in an appropriate location and had suitable conditions) either through purchase or trade.

- It was mentioned during discussion that the ASOS site should be considered for possible future development. Mr. Miklas noted that a new site would have to be established and that the Airport has, in the past, been reluctant to consider moving it. However, he said that it should be considered as an alternative moving forward.
- A comment was made that since the existing apron is now largely vacant, that new hangars should be built within those areas. Mr. Miklas noted that some apron would likely be needed over the 20-year planning period and that an analysis would have to be conducted to determine if they could be fit within the FAA design criteria/airspace requirements. Additionally, it should be noted that if federal funding had previously been provided for the construction/preservation of that apron, that it may not be legally eligible for such a development.
- Mr. Miklas also explained that if the challenges associated with Runway 4-22 ultimately prove to be insurmountable and the runway had to be closed at some future time, significant developable areas could be made available by constructing a taxiway on the site of the existing runway.
- Through discussions, Mr. Miklas noted that TAN is primarily funded by revenues derived from ground leases for hangars. Profit from 100LL sales were very limited and TAN does not receive funding from the City of Taunton. Costs associated with operating TAN continue to outpace existing income, making it important for TAN (if it were to continue to operate within the current financial model) to continue to encourage the development of hangars in order to growth airport income. Mr. Miklas also stated that other airports have been able to modify that model by encouraging turbine operations and selling Jet-A fuel, which is significantly more profitable than 100LL.

Alternatives Development

Mr. Miklas invited the PAC to provide comments to potential alternatives development options for the Airport. He noted that following as potentials:

- RW 4-22 – should the potential shortening/closure of the runway be incorporated into the alternatives development process?
- RW 12-30 – should runway enhancements be considered (e.g. widening in case of RW 4/22 closure; possible extension to accommodate potential casino demand; etc.)
- Property Acquisition – should this potential be considered to meet facility requirements?
- Other Improvements – fueling (e.g. self-fueling, Jet-A); terminal building; run-up pads, RCO, etc.

He again invited those attending to provide comments either during the meeting or after the meeting directly to the Airport or to him.

General Comments

- A question was raised by the audience as to what is inhibiting the growth of Taunton Airport in comparison to other airports within Massachusetts and/or compared to other parts of the country? Mr. Miklas responded that there are any number of factors that can influence airport growth ranging from general economic conditions, latent interest/demand for aviation, availability of aviation services (e.g. FBOs, fuel, etc.) and facilities (e.g. runway length, approaches, etc.), geographic proximity to pilot populations, proximity to industrial/commercial demand, etc.
- It was suggested that TAN develop a business or marketing plan to compete with other area airports. Mr. Miklas said that it was a good idea, but that the AMPU was not permitted to conduct such activities due to FAA restrictions on the process.
- It was suggested that the AMPU investigate how the Connecticut casinos have impacted Groton-New London.
- A question was asked as to whom will make the final decisions with respect to the AMPU recommendations. Mr. Miklas said the PAC is an advisory committee and feedback from that group, as well as the public meeting will be used as input by the AMPU Project Management Team (PMT). The PMT is comprised of the Taunton Municipal Airport Commission, the FAA, and MassDOT Aeronautics, and is the final decision-making body with respect to the AMPU.
- A comment was made that the highest priority for the Airport should be land acquisition. If more the Airport had more land, many of these issues would go away.

Next Steps

- ASG will continue to produce the AMPU work products.
- The next (and last) PAC meeting will review potential development alternatives being considered for potential integration into the recommended airport development plan
- The timing for the next meeting was targeted to be late October/ early November.

The meeting adjourned at approximately 8:55 PM EDT.

These meeting notes have been respectfully compiled by James Miklas (ASG). Please forward any comments/corrections to Mr. Miklas at jmiklas@airportsolutionsgroup.com

Meeting: TAN AMPU 2014 - *PAC Meeting 2* Location: Taunton Airport Date: September 3, 2014 7:00PM

SIGN IN SHEET

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Meeting: TAN AMPU 2014 - *PAC Meeting 2* Location: Taunton Airport Date: September 3, 2014 7:00PM

SIGN IN SHEET

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Taunton Municipal Airport

Airport Master Plan Update

Project Advisory Committee
September 3, 2014

ASG

Taunton Municipal Airport

Introduction

a. **James Miklas (ASG)** – *Project Manager*

b. **PAC Members** - *Serve as project advisors to ensure the TAN Master Plan Update addresses the key issues facing the Airport today and into the future.*

c. **Master Planning Process Review**
- *A comprehensive study that describes the short-, medium-, and long-term development plans to meet future aviation demand.*
- *Provides the framework to guide (and protect for potential) future airport development that will cost-effectively satisfy current & future aviation demand, while considering environmental and community factors.*

d. **Purpose of this Meeting** - ***SHARE IDEAS***

ASG Taunton Municipal Airport Airport Master Plan

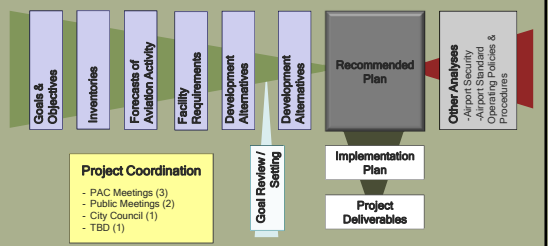
Taunton Municipal Airport

Opening Remarks

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Where are we in the Master Plan process?



ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Agenda

a. *Introduction*
b. *Where are we in the Master Plan process?*
c. *Runway 4-22*
d. *Alternatives Development*
e. *Next Steps*
f. *Questions & Comments*

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Where are we in the Master Plan process?

Inventory

a. **Airport Overview** - *location, history, role, economic impact, services, other data*
b. **Airside Facilities** – *runways & taxiways*
c. **Landside Facilities** - *buildings, fueling, aircraft & auto parking, hangars, terminal, access, utilities*
d. **Airspace & NAVAIDS** – *NAS, navigational aids, Part 77, TERPS (approach procedures)*
e. **Competition** - *other area airports*
f. **Environs** - *zoning, land use, socioeconomics, environmental considerations*

ASG Taunton Municipal Airport Airport Master Plan

Where are we in the Master Plan process?

Forecasts

a. Current Levels
- *Based Aircraft: 117 (March 2014 airport review/survey)*
- *Operations: 33,550 (FAA TAF)*

b. Forecasting Approach – *reasonable & defensible*
- *"Forecasting Range"*
- *10 methodologies employed (incl. socioeconomics, regression, OPBA, local econ development initiatives, other forecast comparisons)*
- *3 methods selected to establish range*
  - *High: FAA Aerospace Forecasts FY2014-2033 (1.44% AAG)*
  - *Mid: Employment growth in the Market Area (1.16% AAG)*
  - *Low: FAA TAF (0.00% AAG)*

ASG Taunton Municipal Airport Airport Master Plan

Where are we in the Master Plan process?

Forecasts (cont.)

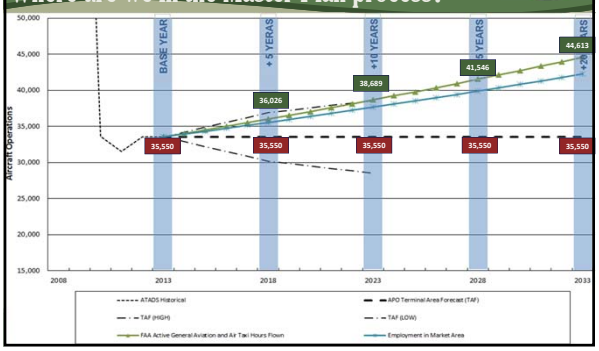
c. Project First Light Resort & Casino Development Scenario
- *Itinerant Operations: 4.0% AAG*
- *Local operations & Based Aircraft: 2.0% AAG*

d. FAA Projected Fleet Mix Shift
- *Single-engine piston: gradual decline (1.6% AAG)*
- *Multi-engine piston: steeper decline (3.0% AAG)*
- *Jet/Turbine: aggressive growth (4.0% - 5.0% AAG)*

e. FAA Review & Approval Process

ASG Taunton Municipal Airport Airport Master Plan

Where are we in the Master Plan process?



Where are we in the Master Plan process?

Facility Requirements

a. Meeting FAA Design Requirements
- *Based on current & future Runway Design Code (RDC), per FAA AC 150/5300-13A*
- *Existing RDC:* *RW 4-22 (A-I)* *RW 12-30 (B-II)*

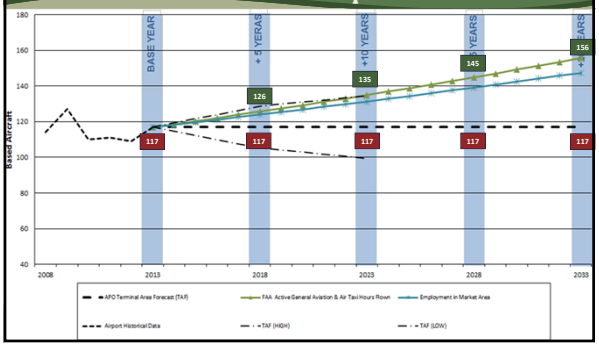
Future RDC: Function of future design aircraft (500 ops), ALP indicates same

Aircraft Approach Category (AAC)	
Approach Category	Approach Speed
A	< 91 knots
B	91 knots - < 121 knots
C	121 knots - < 141 knots
D	141 knots - < 166 knots
E	166 knots or more

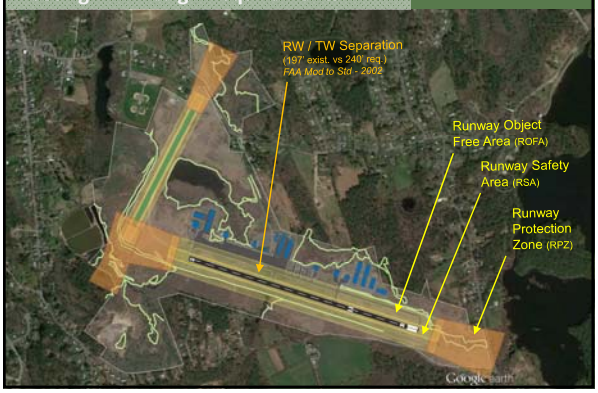
Aircraft Design Group (ADG)		
Design Group	Wingspan	Tail Height
I	< 49 feet	< 20 feet
II	49 feet - < 79 feet	20 feet - < 30 feet
III	79 feet - < 118 feet	30 feet - < 45 feet
IV	118 feet - < 171 feet	45 feet - < 60 feet
V	171 feet - < 214 feet	60 feet - < 66 feet
VI	214 feet - < 262 feet	66 feet - < 80 feet

ASG Taunton Municipal Airport Airport Master Plan

Where are we in the Master Plan process?



Meeting FAA Design Requirements



Where are we in the Master Plan process?

Facility Requirements (cont.)

b. Meeting Future Demand

- ***Operations***
  - *RW/TW Length & Width*
  - *NAVAIDs / Instrument Approaches*
  - *Airspace*
  - *Facilities & Services*
- ***Based Aircraft***
  - *Hangars*
  - *Apron*
- ***Fleet Mix Shift***
  - *Review of all requirements*

2013 TAN Tenants Meeting

1. Self-Service Fueling (100LL)
1. Improvements to Runway 4-22
3. Airport Water and Sewer
4. Terminal Building
5. Security Gate Access
6. Improved Airport Security
7. Remote Communications Outlet
8. Runway End Wind Socks
8. Access Road Improvements
8. Roller for Turf Runway
8. Jet Fuel

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Runway 4-22

Runway Considerations

- **Function:** crosswind runway to RW 12-30
- **Length / Width:** 1,900 ' x 60'
- **Surface:** turf/gravel (in poor condition)
- **Operational:** seasonal (closed during winter and mud season)
- **Instrument Approaches:** none – visual approach only
- **Additional notes:** - previously shortened to account for RSA/ROFA
  - approach/departure areas have obstructions
  - standard approach surface is 20:1; FAA reports 12:1
  - many obstructions located off-airport
  - has been the subject of funding discussions with FAA

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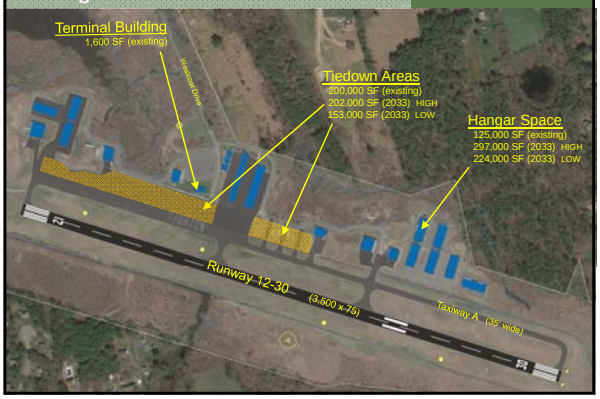
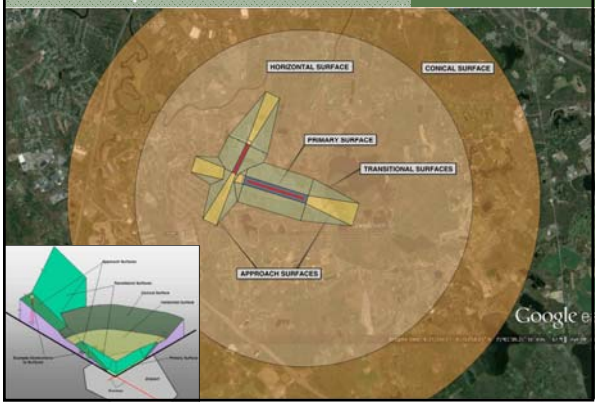
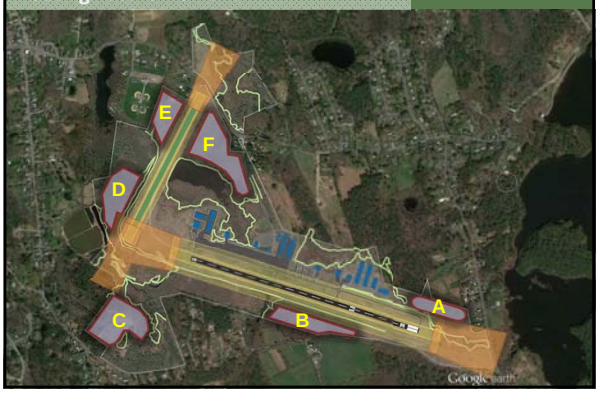
Meeting Future Demand

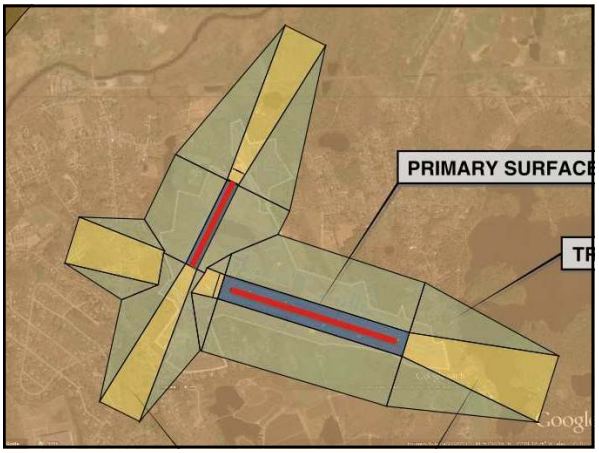


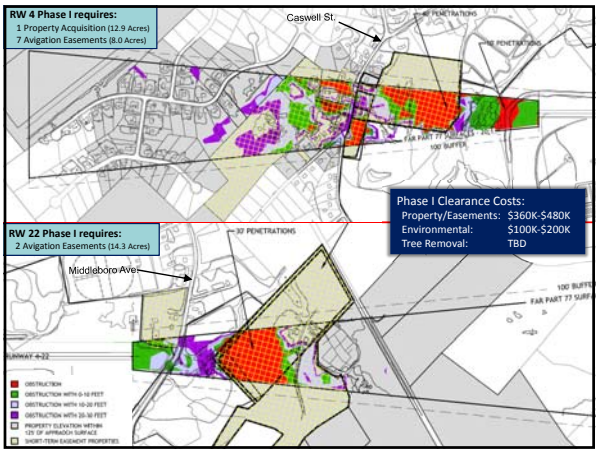
RW 4-22 Airspace Issues

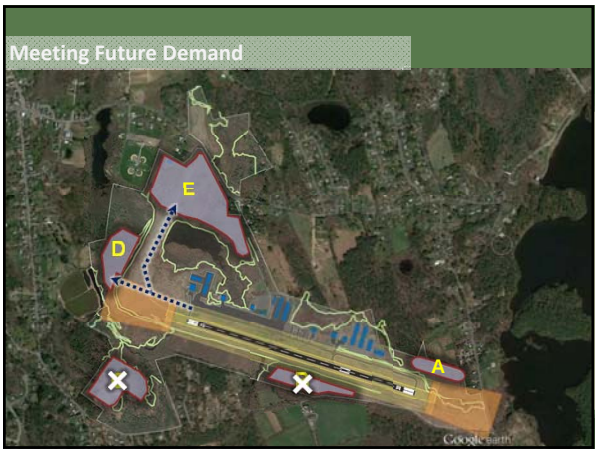


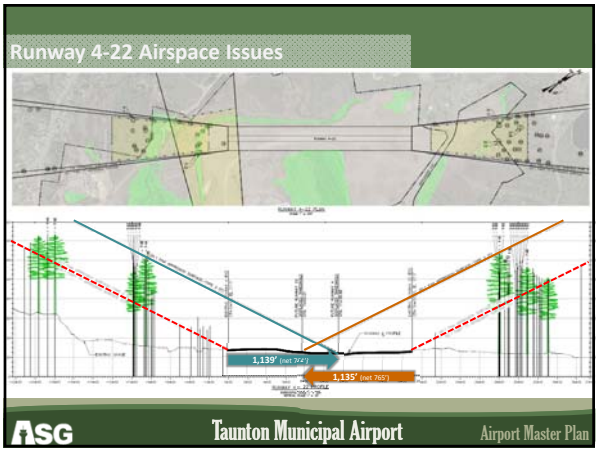
Meeting Future Demand









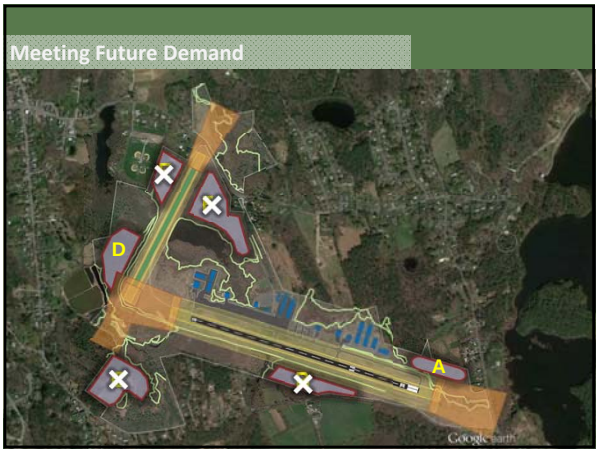


Taunton Municipal Airport
Alternatives Development

Topics of Discussion

- **RW 4-22** – should the potential closure of the runway be incorporated into the alternatives development process?
- **RW 12-30** – should runway enhancements be considered (e.g. widening in case of RW 4/22 closure; possible extension to accommodate potential casino demand; etc.)
- **Property Acquisition** – should this potential be considered to meet facility requirements?
- **Other Improvements** – fueling (e.g. self-fueling, Jet-A); terminal building; run-up pads, RCO, etc.

ASG Taunton Municipal Airport Airport Master Plan



Taunton Municipal Airport
Next Steps

Upcoming Tasks

a. Integrate PAC Input into the Development of Alternatives
b. Recommended Development Plan
c. Implementation Plan
d. Other Analyses
   - *SOP Update*
   - *Airport Security review*
e. PAC Meeting #3

Deliverables:
Master Plan Technical Report
Airport Layout Plan

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Questions & Comments

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

WHY are we undertaking the TAN Master Plan?

Key Planning Interfaces

(2011 MA Airport Economic Impact Study)

TOTAL AIRPORT IMPACTS	
Jobs	23
Payroll	$705,000
Output	$2.2 million

TOTAL STATEWIDE IMPACTS	
Jobs	124,369
Payroll	$4.9 billion
Output	$11.9 billion

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Thank You!

- *Primary Project Team Contact:*
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    Cell: 617.320.0701
    jmiklas@airportsolutionsgroup.com

ASG Taunton Municipal Airport Airport Master Plan

MEETING NOTES

project:	**TAN AIRPORT MASTER PLAN UPDATE (AMPU)**
meeting date:	WEDNESDAY, FEBRUARY 11, 2015 – 7:00 P.M. (EST)
meeting no:	3
location:	TAUNTON CITY COUNCIL CHAMBERS, TAUNTON, MA
subject:	PROJECT ADVISORY COMMITTEE (PAC) MEETING

PAC ATTENDEES:

There were a total of 44 people invited to attend the meeting. There were many attendees that were not identified members of the PAC. The sign-in sheet is attached.

MEETING PURPOSE / AGENDA:

This was the third and final meeting of the Project Advisory Committee (PAC) for the Taunton Municipal Airport (TAN) Airport Master Plan Update (AMPU). The primary purpose of this meeting was to inform the PAC on the current status of the project, discuss key issues that have been identified and to solicit feedback regarding the development of alternatives. Additionally, as detailed in the agenda (see attached presentation for meeting agenda), the meeting focused on the following questions and elements:

1. Introduction
2. Where are we in the Master Plan process?
3. Project Goals
4. Development Alternatives
    a. Facility Requirements / Special Considerations
    b. Airside Facilities
    c. Landside Facilities
    d. Other Facilities / Issues
5. Next Steps
6. Questions & Comments

INTRODUCTIONS:

Fred Terra (TMAC Chairman) thanked the members of the PAC for their attendance and participation in this meeting and welcomed those not part of the PAC that were in attendance. Mr. Terra then introduced Jim Miklas (ASG), the project manager for the TAN AMPU, who would also give a presentation and lead discussions during the meeting.

Mr. Miklas reminded the PAC of the following points discussed in the previous PAC Meetings:

- The role of the PAC and its members is to serve as project advisors to ensure the TAN AMPU addresses the key issues facing the Airport today and into the future.
- An AMPU is a comprehensive study that describes the short-, medium-, and long-term development plans at an airport to meet future aviation demand. It provides the framework to guide (and protect for potential) future airport development that will cost-

effectively satisfy current & future aviation demand, while considering environmental and community factors.

- TAN is a financially self-sustaining entity (i.e., it receives no support from the City of Taunton) and the AMPU must ultimately reflect that. Future development plans must be realistic and demonstrate financial self-sustainability.

Mr. Miklas then noted that this would be the last PAC meeting as part of the AMPU process and that the primary purpose of PAC Meeting 3 was to be an open forum to share ideas. He also asked that everyone in attendance sign the attendance sheet and noted that there were feedback forms available for those attending to provide written comments during or after the meeting.

POINTS OF DISCUSSION:

Mr. Miklas gave a presentation (see attached) to facilitate group discussion. General points of discussion are encompassed in the following general categories. (Note that discussions related to these general categories occurred at different points of the meeting; therefore, the following may not accurately reflect the chronological order in which they occurred):

Airport Economic Impact

- Mr. Miklas noted that MassDOT Aeronautics had recently published an update to its statewide airport economic impact study. The results of that effort indicated that TAN's annual activities are responsible for a total of 31 jobs (both on-airport and off-airport) having $978,000 in total payroll, generating a total of $3.261M in economic activity for the City of Taunton. For all of Massachusetts (including Boston-Logan), the statewide system is responsible for a total of 162,256 jobs (both on-airport and off-airport) having $6.1B in total payroll, generating a total of $16.6B in economic activity.

General Project Status

- Mr. Miklas provided an overview on the progress of the AMPU. He noted that draft chapters had been completed for the Inventory, Forecast, and Facility Requirements tasks, and that they are posted on the airport website. He said that the Development Alternatives have been completed and that the remaining three master plan chapters would be completed once a recommended plan had been established. He hoped that the PAC could come to consensus on the recommended plan during the meeting.

AMPU Goals

- Mr. Miklas reviewed the AMPU goals that had been established during PAC Meeting 1 as a reminder to the PAC that the resultant AMPU should fulfill those goals established at the outset of the process.
- He noted that one additional goal had been included as a result of feedback from PAC Meeting 2. The goal included was "Ensure that RW 4-22 is safe for use by those aircraft that need it (i.e., small aircraft and taildraggers)."

- Mr. Miklas asked the PAC if there were any other modifications to the goals that should be considered. There were none.

Development Alternatives

- Mr. Miklas stated that the development alternatives generated for the AMPU in order to fulfill the facility requirements previously established. The alternatives had been broken down into the following categories and were addressed individually within the presentation.
    - Airside Facilities
        - Runways (RW 4-22 & RW 12-30)
        - Taxiways
        - NAVAIDS
    - Landside Facilities
        - Terminal / Admin
        - Aviation-Related Development Areas
    - Other Facilities/Issues
        - Aircraft Fueling & Storage
        - Airport Security & Wildlife
        - Other

Runway 4-22

- Mr. Miklas reviewed the design and obstruction issues associated with RW 4-22 described in PAC Meeting 2. He reminded the PAC that FAA design and airspace standard are established with transient pilots in mind – meaning that pilots unfamiliar with a given public-use airport should have a reasonable expectation that industry standards are being adhered to. Additionally, since TAN has previously accepted federal grants and in doing so signed grant assurances that commits the Airport to meeting FAA design and airspace standards, TAN is obligated to comply with those standards. That said, Mr. Miklas also noted that the FAA funding levels are not such that TAN should reasonably anticipate receiving any funding to support RW 4-22 now or in the foreseeable future. However, this lack of funding support does not relieve TAN from the responsibility of meeting FAA standards, nor would it free the Airport from any potential liability exposure.
- Mr. Miklas noted that following feedback received during and after PAC Meeting 2, it was determined that RW 4-22 should be considered to have a Runway Design Code of A-1 (small). This classification would lessen the runway's obstruction issues due to less restrictive airspace slopes (15:1 vs 20:1). Additionally, the FAA's recommended runway length for a runway with such a classification is approximately 800', meaning that RW 4-22 (currently at 1,900' in length) could reasonably be shortened to assist in addressing the airspace obstruction issues.
- There was a question as to how the treetop elevations had been collected. Mr. Miklas said that an aerial photogrammetric survey was undertaken in 2011 to collect that data. He

also cautioned that since that data is now almost four years old, that much of the area vegetation has likely grown since then, possibly increasing the area and degree of vegetative penetrations. He also noted that ground elevations were not collected as part of that survey effort.

- There was a question regarding the acquisition of easements and the potential of those easements being "gifted" to the Airport. It was noted that as long as no federal funding were utilized for the acquisition, then there are no requirements placed upon the cost of the easements. However, if federal funding were to be utilized, then the federal process would have to be followed, which included paying "fair market value" for all easements.
- Mr. Miklas acknowledged that there is a local effort by interested airport pilots and stakeholders to clear vegetative obstructions to RW 4-22 independent of the Airport. He stated that this level of involvement and commitment by local parties is not typically found at other airports and is much appreciated. He also said that the runway alternatives were designed to account for that commitment by local users.
- Mr. Miklas presented six (6) alternatives for the future condition of RW 4-22. These included a variety of choices including maintaining the existing runway length, several variants of shortening the runway to minimize obstruction removal, and a runway closure alternative (see attached presentation for all alternatives). Through discussions with the PAC, it was determined that the preferred approach would be to relocate the RW 4 threshold end such that it would not require any off-airport vegetation removal (and would provide an industry standard 15-foot buffer between the tree tops and the airspace surface), and then maintain the RW 22 threshold end in its current location - this is Alternative 2. (Note that the location of the RW 22 threshold end could be adjusted based on the amount of vegetation removal that can in fact be enacted.) However, it was also recognized that if the vegetation could not be removed either by the interested airport stakeholder group or by some other means, the recommended alternative would have to ultimately revert to Alternative 4, which is effectively the closure of the runway.
- There was a question as to what would happen to the Airport if nothing were done to clear obstructions for the runway. FAA representatives reminded the PAC that in accepting federal grants, the Airport signed federal grant assurances committing the airport to following and meeting federal airport design requirements. A PAC member expressed concern about potentially jeopardizing future federal grants for the Airport if it did not fully comply with the requirements of the grant assurances. FAA representatives indicated that projects are looked at on an individual basis (i.e., issues with RW 4-22 obstructions may not impact future funding for RW 12-30); however, they do consider overall patterns of sponsor compliance with requirements and assurances when allocating discretionary funding.
- There was another question related to the approximate cost of avigation easements in Massachusetts. FAA representatives noted that while the actual cost of the easement may

be relatively low, the federal acquisition process requires a rigorous and more costly effort.

- There was a general discussion about the difference about the RW 4-22 survey data currently in the FAA system and what is actually on the ground at the Airport. Mr. Miklas indicated that he is working with the FAA directly to ensure that the appropriate data is being utilized by the FAA.
- Per a request at PAC Meeting 2, Mr. Miklas offered recommended language for inclusion in the Airport Facility Directory (AFD). While this would not relieve liability considerations, it would provide pilots (particularly transient pilots) with more accurate information regarding the current condition of RW 4-22. It can be modified as conditions change on the runway.

Runway 12-30

- Mr. Miklas reviewed the current design standards and specifications for RW 12-30 as discussed during PAC Meeting 2. He noted that based on the current and projected aircraft fleet mix (RDC = B-II), the existing runway length, width, and design standards are adequate to meet demand throughout the 20-year planning period. (This was confirmed through a review of FAA standard requirements and recommendations.)
- Mr. Miklas also stated that the FAA requires that an AMPU closely examine potential future airport expansion considerations. This requirement was also acknowledged during the AMPU forecasting effort where a development scenario was created that reflected the potential change in airport demand levels and fleet mix associated with the possible development of a casino/resort within the City of Taunton. As a result, the potential facility implications associated with this possibility were examined as part of this effort.
- It was noted that the future casino development scenario would likely result in a slight shift in the fleet mix from “aircraft up to small-sized corporate” to “aircraft up to mid-sized corporate”. In following FAA design standards and recommendations, this would require a runway length of up to 4,600’. Therefore, the AMPU produced alternatives for a potentially extended RW 12-30 to a total length of 4,600’.
- Mr. Miklas emphasized that exploring alternatives associated with this potential scenario was neither currently justified by existing conditions, nor endorsed by the Airport, the FAA or MassDOT Aeronautics. These alternatives were simply a planning exercise to explore possible future development that could be required at TAN if circumstances required it. In effect, this could “protect for future development potential” at the Airport by including it on the Airport Layout Plan, much like how a city may establish “paper roads” for potential future housing developments. Mr. Miklas also acknowledged that if an extension of RW 12-30 were to ever become more realistic, there would be multiple additional federal environmental and planning efforts that would have to be undertaken that would include extensive public coordination.
- Mr. Miklas presented five (5) alternatives including the existing 3,500’ runway, several 4,600’ runways, and a 4,063’ runway (see attached presentation for all alternatives). Through discussions with the PAC, it was determined that Alternative 5 should be identified as being the recommended alternative.

- A question was asked that if the casino development were to move forward and they were willing to extend the runway at their own cost, would the inclusion of the extension on the ALP as part of the AMPU help facilitate that process? Mr. Miklas responded that for such a project to move forward, the extension would have to be included on the ALP, so the answer would be "yes."

Taxiways

- Mr. Miklas reviewed TAN's existing taxiways. He noted that the FAA separation requirement between RW 12-30 and TW A is currently deficient (at 199.5' where 240' is required), but that the Airport has an existing FAA "Modification to Standard" for that deficiency. However, as part of the AMPU process, it is incumbent upon the Airport to try to eliminate or at least reduce that deficiency. He also noted that FAA design standards for taxiways have recently changed and that based on the aircraft types projected to use that taxiway throughout the planning period, when TW A is reconstructed in 2025, it will have its width reduced from 35' to 25'.
- Mr. Miklas then presented three alternatives addressing this runway/taxiway separation deficiency issue (see attached presentation for all alternatives). (He also stated that a relocation of RW 12-30 was examined, but that it proved to be cost prohibitive.) Through discussion with the PAC, it was determined that Alternative 2 should be identified as being the recommended alternative. Note that this would increase the separation from 199.5' to 204.5' when the taxiway is reconstructed in 2025. (Therefore, the current FAA "Modification to Standard" should be updated to reflect the current 199.5' separation, and again once the taxiway is reconstructed in 2025.) He also said that this alternative would have a negative impact on the existing apron tiedown parking configuration, and would ultimately require either the loss of tiedowns and/or the reconfiguration of the apron parking plan.

NAVAIDs

- Mr. Miklas noted that when RW 12-30 is next reconstructed, REILs should be installed on the RW 12 approach end, along with PAPIs on both ends (replacing the RW30 VASIs).
- He also detailed the establishment of an LPV approach upgrade for RW 12-30 currently scheduled for publication during Fall 2016. Due to existing and extensive off-airport obstructions, in order for the approaches to be published, the approach angle to both runway ends would have to be increased from 3.0 degrees to 3.1 degrees. This would result in a 14-foot difference in the threshold crossing height. It was recommended that TAN move forward with this approach angle adjustment in order to allow for the publication process to proceed.

Terminal / Administration Building

- Mr. Miklas reviewed the current deficiencies of the existing terminal building. He also stated that TAN has been included in a MassDOT Aeronautics Program to construct Administration/Terminal Buildings at Massachusetts Airports. This program provides 95%

state funding for these standardized buildings. Currently, TAN has been designated to receive a 5,500 square foot building that will be designed in 2016 and constructed in 2017.

- Mr. Miklas noted that funding associated with this building is not associated with any other federal or state funding provided to airports for capital programs and it is not available for any other purposes other than the construction of these buildings.

Aviation-Related Development Areas

- Mr. Miklas reviewed the Airport facility requirements for hangars and tiedowns. For both the forecast and the casino development scenario, the Airport has a hangar deficiency and an apron surplus (to varying degrees) throughout the planning period.
- He noted that hangar development on the Airport is entirely privately funded, and that it is a challenge to secure funding for supporting facilities (i.e., ramp) from the FAA for revenue-supporting development (i.e., hangars).
- Mr. Miklas estimated 80%+ of Airport income is derived from ground leases associated with hangars. The remaining income comes from a mixture of business fees, fuel sales, etc. Because ground leases comprise such a large percentage of the annual income, meeting long-term hangar development demand is critical to support the Airport's long term financial viability.
- As discussed in association with Taxiway A, the ultimate relocation of the taxiway in 2025 will have a negative impact on the existing ramp's tiedown configuration. Mr. Miklas presented an alternative apron parking layout that accounted for both the relocated taxiway, and the construction of the new administration building, which itself will have aircraft parking needs that would differ from the current configuration. (He also said that new FAA taxiway design requirements would mandate the installation of a grass island in the apron to prevent potential runway incursions.) The new configuration would result in a total of 39 based and transient tiedowns (currently there are 57 with 21 to be lost due to the taxiway relocation and an additional 4 to be lost due to the new administration building). Mr. Miklas stated that, if required, other future aviation-related development areas could be utilized to fulfill additional tiedown requirements.
- Mr. Miklas then identified three general areas on the Airport that could be utilized for future aviation-related development. He then presented conceptual development plans for each (see attached presentation for all alternatives). He noted that if Area 1 (including southeast area and existing flightline infill) and Area 2 (current ASOS site) were both to be fully developed, the forecasted facility requirements for hangars and apron for the planning period would be fulfilled.
- Development Area 3 was singled out as having significant development potential, particularly in response to a long-term corporate aviation demand (e.g., casino/resort development). However, development of that site will require the extension of TW A in an end-around configuration to RW 4-22. The relocation of the RW 4 approach end would make this taxiway extension feasible.

Other Facilities / Issues

- Mr. Miklas discussed the aircraft fueling and storage considerations that the Airport is currently weighing, including self-fueling of 100LL and the installation of Jet-A fuel.
- With respect to wildlife management, Mr. Miklas noted that the Airport should soon undertake a Wildlife Hazard Assessment, per FAA requirements. He also noted the Airport would have to consider improved maintenance of the existing fence line, as well as potentially increasing its height in selected areas.

Summary

- Mr. Miklas concluded the presentation with a brief review of the topics discussed as well as a review of the previously reviewed project goals. He then invited the PAC members to review the subjects discussed that night and to compare the results of those discussions with the project goals.
- He again invited those attending to provide comments either during the meeting or after the meeting directly to the Airport or to him.

Next Steps

- ASG will continue to produce the AMPU work products.
- A public meeting will be scheduled that will present an overview of the AMPU process, as well as the DRAFT recommended development plan. The timing for that next meeting was targeted for mid- to late-March.

The meeting adjourned at approximately 8:35 PM EST.

These meeting notes have been respectfully compiled by James Miklas (ASG). Please forward any comments/corrections to Mr. Miklas at jmiklas@airportsolutionsgroup.com

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TAUNTON MUNICIPAL AIRPORT

PAC MEETING #3
WEDNESDAY February 11, 2015, 7:00 PM

AIRPORT MASTER PLAN UPDATE

SIGN IN SHEET
(Please print clearly)

massDOT
Massachusetts Department of Transportation
Aeronautics Division

ASG
AIRPORT SOLUTIONS GROUP
Innovative Airport Development Specialists

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TAUNTON MUNICIPAL AIRPORT

PAC MEETING #3
WEDNESDAY February 11, 2015, 7:00 PM

AIRPORT MASTER PLAN UPDATE

SIGN IN SHEET
(Please print clearly)

massDOT
Massachusetts Department of Transportation
Aeronautics Division

ASG
AIRPORT SOLUTIONS GROUP
Innovative Airport Development Specialists

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2/

TAUNTON MUNICIPAL AIRPORT

PAC MEETING #3
WEDNESDAY February 11, 2015, 7:00 PM

AIRPORT MASTER PLAN UPDATE

SIGN IN SHEET
(Please print clearly)

massDOT
Massachusetts Department of Transportation
Aeronautics Division

ASG
AIRPORT SOLUTIONS GROUP
Innovative Airport Development Specialists

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Lisa Lesperance	FAA		
Cliff Vacirca	FAA		

Taunton Municipal Airport

Airport Master Plan Update

Project Advisory Committee
February 11, 2015

ASG

Taunton Municipal Airport

Introduction

a. **James Miklas (ASG)** – *Project Manager*

b. **PAC Members** - *Serve as project advisors to ensure the TAN Master Plan Update addresses the key issues facing the Airport today and into the future.*

c. **Master Planning Process Review**
- *A comprehensive study that describes the short-, medium-, and long-term development plans to meet future aviation demand.*
- *Provides the framework to guide (and protect for potential) future airport development that will cost-effectively satisfy current & future aviation demand, while considering environmental and community factors.*

d. **Purpose of this Meeting** - ***SHARE IDEAS***

ASG Taunton Municipal Airport Airport Master Plan

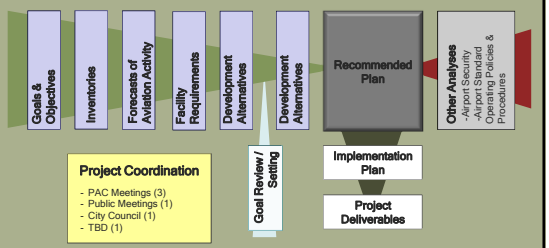
Taunton Municipal Airport

Opening Remarks

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Where are we in the Master Plan process?



ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Agenda

a. *Introduction*
b. *Where are we in the Master Plan process?*
c. *Goals*
d. *Development Alternatives*
e. *Next Steps*
f. *Questions & Comments*

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Master Plan Goals

- **Federal: FAA AC 150/5070-6B, *Airport Master Plans***
- **State: 2010 Massachusetts Statewide Airport System Plan**
- **Local: TAN Airport Master Plan Update**
  - **Preserve and protect public and private investments** in TAN's existing facilities;
  - Reflect community and regional goals, needs, and plans;
  - **Enhance the safety** of aircraft operations, as well as those who live near and around TAN;
  - **Maximize TAN's economic benefit** for the local community, the city, the state and the region;
  - Provide a plan that allows the Airport **to meet the long-term air transportation needs of the city, the state and the region in a safe, secure, and efficient manner;**
  - Document changes in the aviation industry and economy to assist and **prepare TAN for future challenges**, as well as **anticipating potential future opportunities** in the highly competitive aviation market;

ASG Taunton Municipal Airport Airport Master Plan

Master Plan Goals

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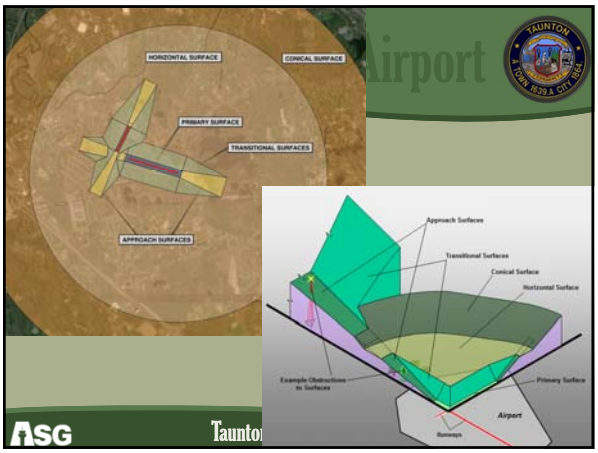
  - Identify the airfield, ground transportation, and aviation support facilities necessary to **accommodate TAN's future aviation demand** and to fulfill the needs of its users and stakeholders;
  - Promote the development of **compatible land uses** in the vicinity of TAN in a manner that is sensitive to the surrounding communities and the environment;
  - Identify **appropriate and best uses of land within airport property**;
  - Ensure that the AMPU results are consistent with the improvements in the Airport's current Capital Improvement Program (CIP) and recommendations of previous planning efforts, including the 2010 Massachusetts Statewide Airport System Plan (MSASP);
  - **Ensure that development plans are consistent with the safe, secure, efficient, environmentally responsible, and financially sound operation of Taunton Municipal Airport**;
  - **Actively engage the public** throughout the planning process; and
  - ***Ensure that RW 4-22 is safe for use by those aircraft that need it*** *(i.e., small aircraft and taildraggers).*

ASG Taunton Municipal Airport Airport Master Plan

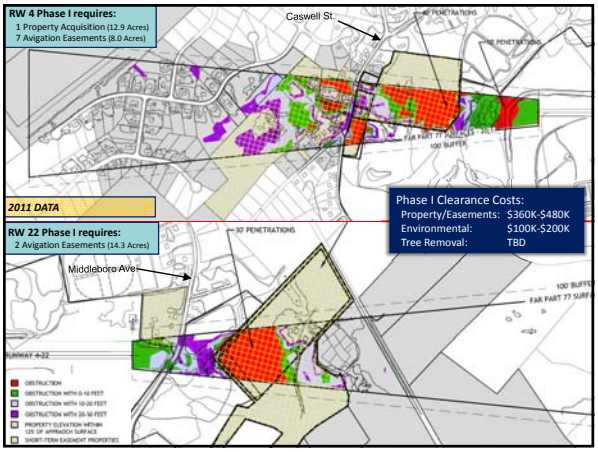


ASG Taunton

Development Alternatives

- **Facility Requirements / Special Considerations**
- **Airside Facilities**
  - Runways (RW 4-22 & RW 12-30)
  - Taxiways
  - NAVAIDS
- **Landside Facilities**
  - Terminal / Admin
  - Aviation-Related Development Areas
- **Other Facilities/Issues**
  - Aircraft Fueling & Storage
  - Airport Security & Wildlife
  - Other

ASG Taunton Municipal Airport Airport Master Plan



Runway 4-22

- **Runway Facts**
  - Crosswind runway; visual approach; required by light aircraft
  - Length & Width = 1,900 ft x 60 ft; Surface = Turf /Gravel
  - Airspace Obstructions
- **Facility Requirements**
  - Design Aircraft = Piper J-3 (i.e. taildragger)
  - RDC = A-1 small (30-50 kts; <49' wingspan)
  - FAA Length Requirement = 800 ft
- **Planning Considerations**
  - Vegetative obstructions to airspace surfaces (A-1 small = 15:1 slope)
  - No federal funding likely to be available for runway
  - Pilot safety issue (FAA standards primarily designed for transient pilots)
  - City / Airport liability exposure

ASG Taunton Municipal Airport

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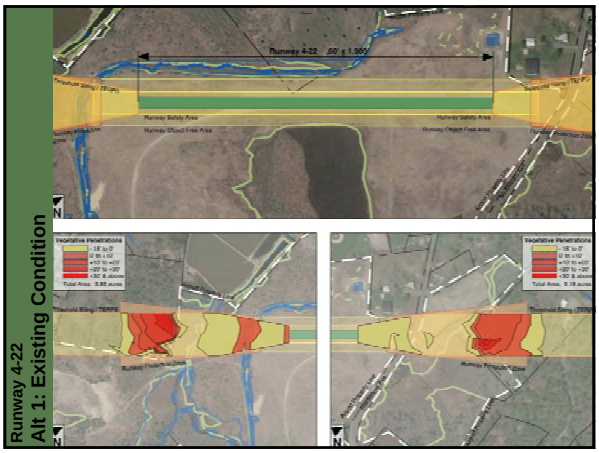
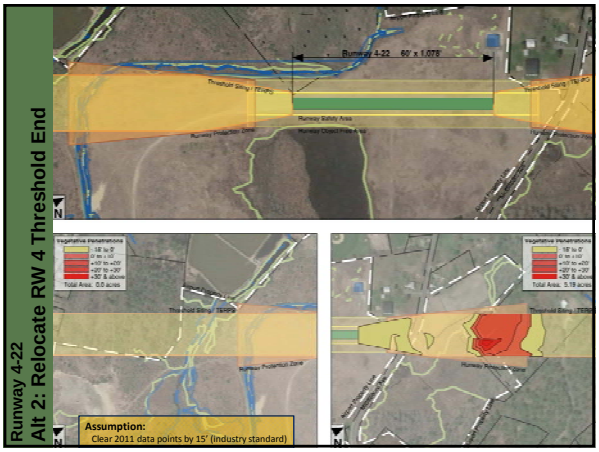
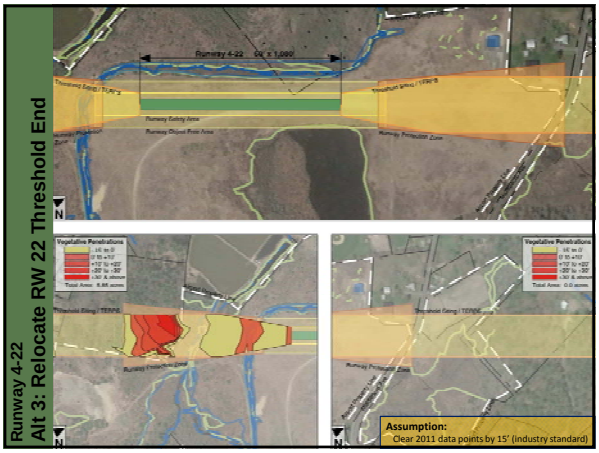
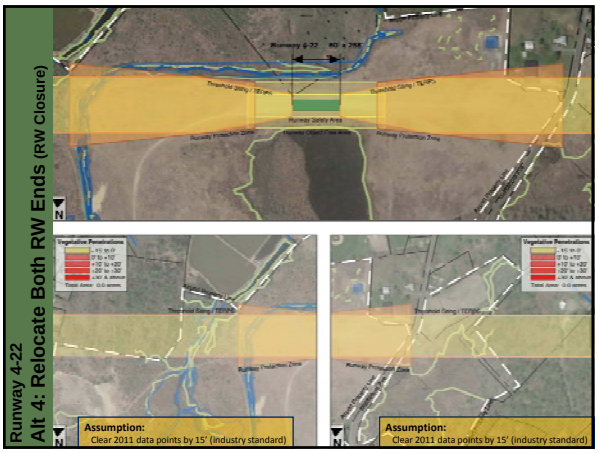
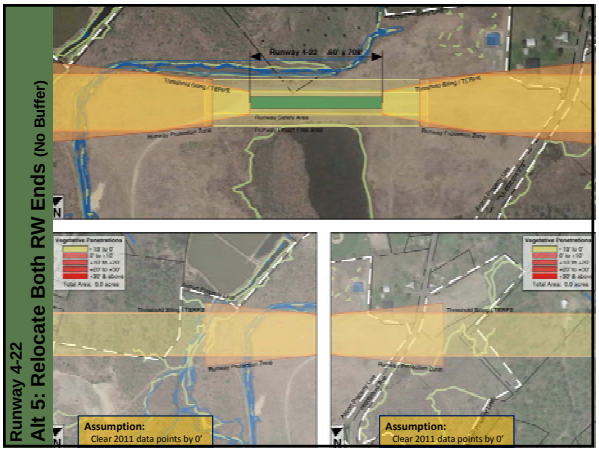
ASG Taunton Municipal Airport

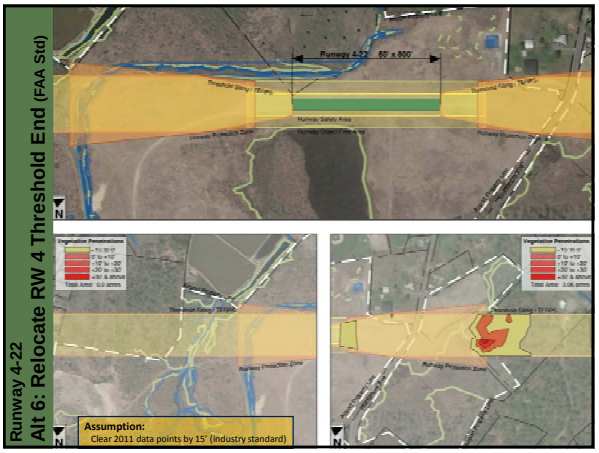

Runway 4-22
Alt 1: Existing Condition


Runway 4-22
Alt 2: Relocate RW 4 Threshold End
Assumption:
Clear 2011 data points by 15' (Industry standard)


Runway 4-22
Alt 3: Relocate RW 22 Threshold End
Assumption:
Clear 2011 data points by 15' (Industry standard)


Runway 4-22
Alt 4: Relocate Both RW Ends (RW Closure)
Assumption:
Clear 2011 data points by 15' (Industry standard)


Runway 4-22
Alt 5: Relocate Both RW Ends (No Buffer)
Assumption:
Clear 2011 data points by 0'


Runway 4-22
Alt 6: Relocate RW 4 Threshold End (FAA Std)
Assumption:
Clear 2011 data points by 15' (Industry standard)

Taunton Municipal Airport

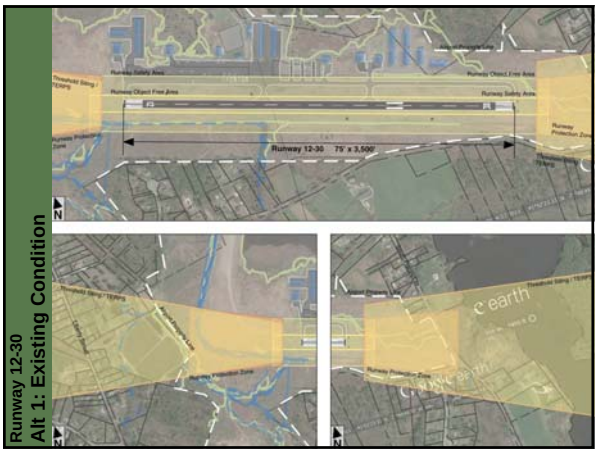
Runway 4-22

Decision Matrix

Alternatives	Safety / Operations	Economic	Environmental	Implementation	Total
	Impact / Benefit Factors				
Alternative 1	5	1	2	1	9
Alternative 2	5	4	3	3	15
Alternative 3	5	3	3	2	13
Alternative 4	1	1	5	5	12
Alternative 5	2	2	5	5	14
Alternative 6	4	5	4	4	17

Notes: 1 = Negative impact/least benefit; 3= No impact/neutral benefit; 5 = Positive impact/most benefit
NA = Deemed not acceptable for other reasons

ASG Taunton Municipal Airport Airport Master Plan



Taunton Municipal Airport

Runway 4-22

Airport/Facility Directory (AFD) Recommendation

Ops discouraged for pilots unfamiliar with Rwy 04-22. Small aircraft only Rwy 04-22. Tree obstructions in apch both ends Rwy 04–22; +80' trees on centerline 850' from Rwy 04 thld; +100' trees on centerline 900' from Rwy 22 thld. Rwy 04-22 surface rough and loose stones. Rwy 04-22 not plowed during winter months. Deer and birds on or inv of arpt.

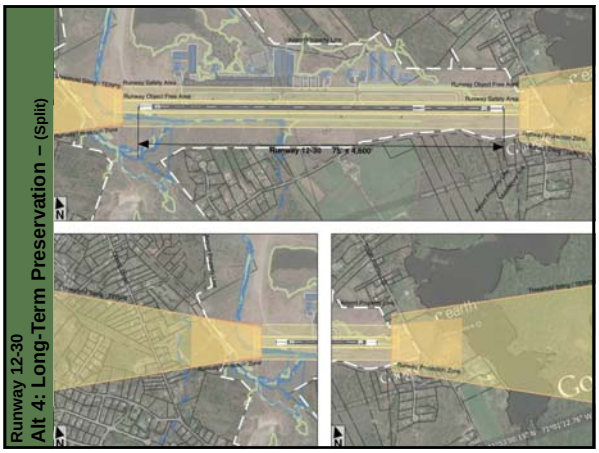
ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Runway 12-30

- **Runway Facts**
  - Primary runway; instrument approaches
  - Length & Width = 3,500 ft x 75 ft
  - Surface = Asphalt
- **Facility Requirements**
  - Design Aircraft = King Air C90
  - RDC = B-II *(91-121 kts; 49' - 79' wingspan)*
  - Length Requirement = 3,550 ft *(Small Airplanes with Fewer than 10 Passenger Seats)*
- **Planning Considerations**
  - FAA requires "Future Airport Expansion Considerations"
  - Project First Light Resort & Casino / other regional development
  - Role of ALP is to "Protect for Potential" (incl. airspace)
  - RDC remains B-II
  - Length Requirement = 4,600 ft *(75 Percent of Fleet at 60 Percent Useful Load)*

ASG Taunton Municipal Airport

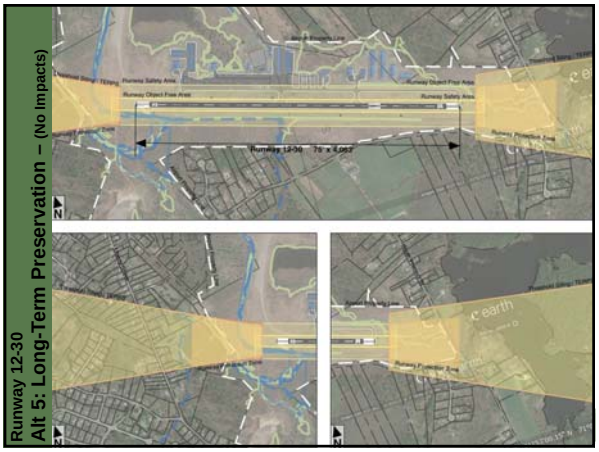


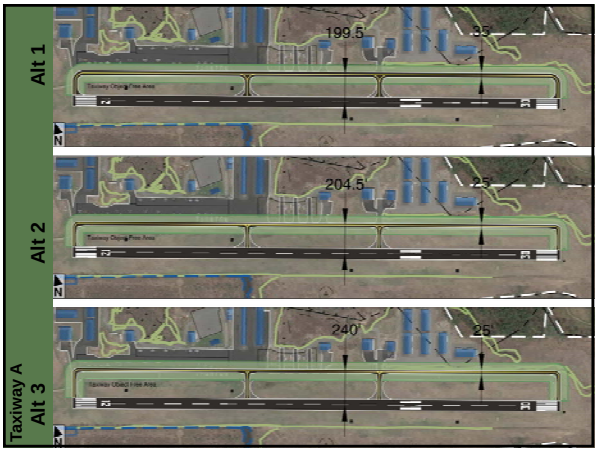
Taunton Municipal Airport

Taxiways

- **Taxiway Facts**
  - TW A: Full length parallel w/4 stubs to RW 12-30
  - TW B: Stub to access East Development Area
- **Facility Requirements**
  - RDC = B-II
    - RW/TW CL Separation Requirement = 240 feet *(currently 199.5')*
    - TOFA = 131'
  - TDG = 1A or 1B
    - Width Requirement = 25 feet *(currently 35')*
- **Planning Considerations**
  - Priority is to Meet FAA Standards where practicable
  - Current FAA "Mod to Std" for TW A
  - TW A reconstruction in 2025
  - Protect for potential fleet mix shift

ASG Taunton Municipal Airport Airport Master Plan





Taunton Municipal Airport

Runway 12-30

Decision Matrix

Alternatives	Safety / Operations	Impact / Benefit Factors: Economic	Environmental	Implementation	Total
a) No Action					
Alternative 1	3	3	4	4	14
b) Extend Runway					
Alternative 2	5	1	1	1	8
Alternative 3	5	2	1	2	10
Alternative 4	5	2	3	2	12
c) RW Relocation					
	NA	*NA*	*NA*	*NA*	*NA*
d) RW Realignment					
	NA	*NA*	*NA*	*NA*	*NA*
e) RW Shift					
	NA	*NA*	*NA*	*NA*	*NA*
f) Reduce Length					
Alternative 5	4	5	3	5	17
g) Combination					
	NA	*NA*	*NA*	*NA*	*NA*

Notes: 1 = Negative impact/least benefit; 3 = No impact/neutral benefit; 5 = Positive impact/most benefit
NA = Deemed not acceptable for other reasons

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Navaids

- **Lighting**
  - REILs (for RW 12)
  - VASI angle = 3.6° (current)
  - PAPIs (RW 12 & RW 30)
- **Instrument Approaches**
  - LPV upgrade by FAA (Fall 2016)

Runway 12

	Current	Proposed
Glideslope Angle (GS)	Visual *(default 3.0°)*	3.1°
Threshold Crossing Height (TCH)	Visual	59 ft
LPV Decision Altitude (DA)	*NA*	353 MSL/ 318 HAT
VNAV Decision Altitude (DA)	*NA*	603 MSL/ 568 HAT
LNAV Decision Altitude (DA)	*NA*	640 MSL/ 605 HAT

Runway 30

	Current	Proposed
Glideslope Angle (GS)	3.05°	3.1°
Threshold Crossing Height (TCH)	45 ft	59 ft
LPV Decision Altitude (DA)	*NA*	359 MSL/ 318 HAT
VNAV Decision Altitude (DA)	*NA*	598 MSL/ 557 HAT
LNAV Decision Altitude (DA)	600 MSL/ 557 HAT	560 MSL/ 519 HAT

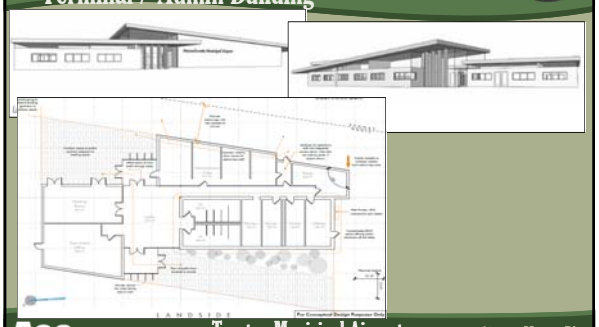
ASG Taunton Municipal Airport

Terminal / Admin Building

- **Existing Facility Facts**
  - Dated structure (approx. 1,600 SF)
  - Primarily used for flight training tenants
  - Does not conform to the Americans with Disabilities Act (ADA) requirements
- **Facility Requirements**
  - Building Program = 6,300 sf
  - Airport Administration, Public, Pilot, Shared, & Support spaces
- **Planning Considerations**
  - MassDOT Aeronautics Program - *Strategic Master Plan for Administration Building Program at Massachusetts Airports*
  - 95% state funded
  - 5,500 square foot building has been programed to be designed in 2016 and to be constructed in 2017

ASG Taunton Municipal Airport Airport Master Plan

Terminal / Admin Building



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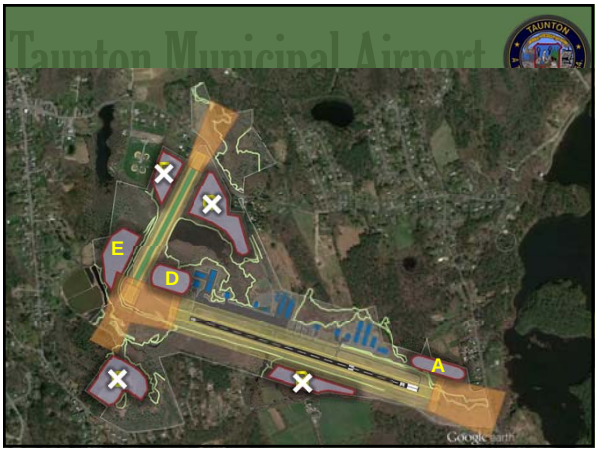
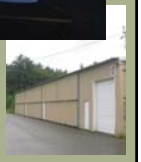


Aviation-Related Development Areas

- **Existing Facility Facts**
  - Existing Hangars = 125,765 SF (approx)
  - Existing Apron (based & transient) = 171,510 SF (approx)
- **Facility Requirements**
  - Hangar Demand 2033 = 204,800 SF (-79,035 SF)
  - Apron Demand 2033 = 66,560 SF (105,010 SF)
  - Hangar Demand ALT 2033 = 276,600 SF (-150,835 SF)
  - Apron Demand ALT 2033 = 99,000 SF (72,510 SF)
- **Planning Considerations**
  - Hangar development is privately funded
  - FAA funding challenges for revenue-supporting development
  - Estimated 80%+ airport income from leases (remaining from business fees and fuel)
  - Relocated TW A TOFA Impacts (tiedown loss)
  - New FAA TW design requirements to reduce RW incursions



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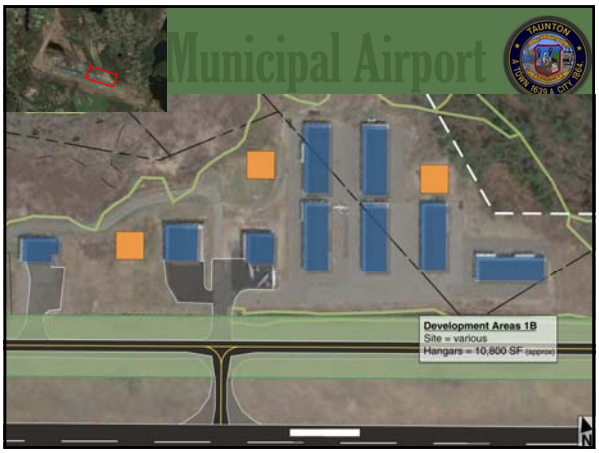
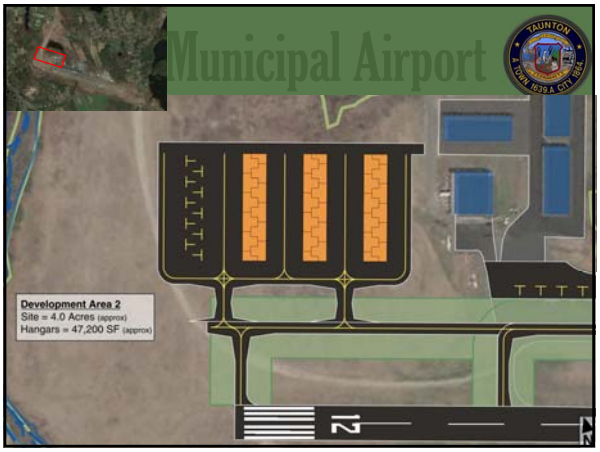
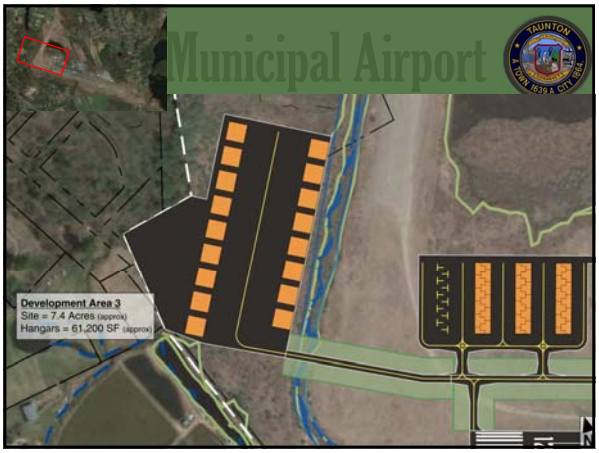

Municipal Airport
Development Areas 1B
Site = various
Hangars = 10,800 SF (approx)

Taunton Municipal Airport


Municipal Airport
Development Area 2
Site = 4.0 Acres (approx)
Hangars = 47,200 SF (approx)

Taunton Municipal Airport
Other Facilities / Issues
Aircraft Fueling & Storage
Fire Marshall
Jet-A fuel
Airport Security & Wildlife
Wildlife Hazard Assessment
Fence Repair, Height & Clearing
Security Cameras
Other
Wind Socks
Remote Communications Outlet (RCO)
Access Road
Deicing
Airfield Equipment Cold Storage
Airport Land Use Compatibility
GATE 8
ASG
Taunton Municipal Airport
Airport Master Plan


Municipal Airport
Development Area 3
Site = 7.4 Acres (approx)
Hangars = 61,200 SF (approx)

Taunton Municipal Airport
Summary
a. Runway 4-22
b. Runway 12-30
c. Taxiway A
d. NAVAIDS
e. Terminal Building
f. Apron
g. Hangars
h. Fuel
i. Security / Wildlife
j. Other
ASG
Taunton Municipal Airport
Airport Master Plan

Taunton Municipal Airport

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ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Questions & Comments

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

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ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Thank You!

- *Primary Project Team Contact:*
  - James Miklas
    Airport Solutions Group
    Cell: 617.320.0701
    jmiklas@airportsolutionsgroup.com

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Next Steps

Upcoming Tasks

a. Public Meeting
b. Recommended Development Plan
c. Implementation Plan
d. Other Analyses
   - *SOP Update*
   - *Airport Security review*

Deliverables:

Master Plan Technical Report
Airport Layout Plan

ASG Taunton Municipal Airport Airport Master Plan

TAN – 4/8/15 MEETING

LEGAL NOTICE

AIRPORT MASTER PLAN UPDATE PUBLIC MEETING

The Taunton Municipal Airport (TAN) is in the final stage of its Master Plan Update, which will help guide future airport development. The Airport is hosting a community-wide public meeting to engage residents, businesses, airport users and others regarding draft findings of the Airport Master Plan Update.

WHERE: Taunton City Hall (141 Oak Street, Taunton, MA)

WHEN: Wednesday, April 8, 2015, 7 p.m. to 9 p.m.

PRELIMINARY AGENDA:

- Update on the current state of the Airport and recent activities
- Overview of the Airport Master Plan Update process and its goals
- Discussion of Airport opportunities and constraints
- Presentation of the proposed Airport development plan
- Open discussion/questions and answers

Everyone is welcome to attend. Those unable to go to the meeting may view the presentation on the City website, www.taunton-ma.gov (on the Airport Commission webpage, and under Airport Master Plan Update link). Comments may be submitted via email, by fax, or by mail; see the Airport Master Plan Update website Contacts tab for details. The auditorium is accessible to people with disabilities.

AD#13261469
TDG 4/3/15

Taunton Municipal Airport

Airport Master Plan Update

Public Meeting
April 8, 2015

ASG

Taunton Municipal Airport

Opening Remarks

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

Agenda

a. *Opening Remarks*
b. *A Snapshot of Taunton Municipal Airport (TAN)*
c. *What is an Airport Master Plan?*
d. *What are the Results?*
e. *Questions & Comments*

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

TAN Snapshot - Airport History

a. ***Oldest continuously-operated airport*** *in Massachusetts*
b. ***TAN Built in 1919*** *by Henry King on his 50-acre dairy farm*
c. *Established a flying school with a WWI surplus* ***Curtiss Jenny***
d. *Operated small* ***air taxi service*** *in 1940s & 1950s*
e. *Primary runway* ***paved in 1959***
f. ***TAN given*** *to the City of Taunton in 1961*
g. ***King Hangar*** *on the National Register of Historic Places*

ASG Taunton Municipal Airport Airport Master Plan

Taunton Municipal Airport

TAN Snapshot – Airport Context

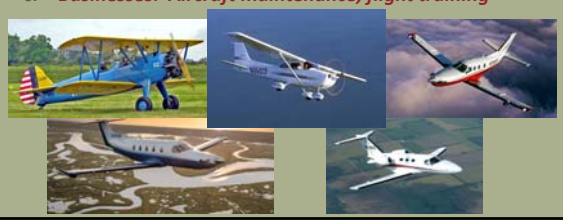
- **Key Stats**
  - 19,000 airports, heliports, seaplane bases, and other landing facilities in the US.
  - 3,300 airports are included in the FAA's National Plan of Integrated Airport Systems (NPIAS).
  - 2,952 are considered to be General Aviation airports.
  - 39 public-use airports in Massachusetts
- **General Aviation**
  - Focuses on services that scheduled airline service cannot provide.
  - In 2009, nonairline operators at these general aviation airports spent over $12 billion, flying an estimated 27 million flights for emergency medical services, aerial fire fighting, law enforcement and border control, agricultural functions, flight training, time-sensitive air cargo services, business travel, and scheduled services.

Taunton Municipal Airport

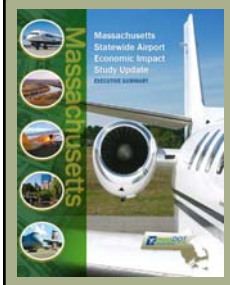
TAN Snapshot - Airport Facilities Today

TAN Snapshot - Airport Operations Today

a. ***Annual Operations*** *(takeoff or landing)* ***= 35,550*** *(FAA est.)*
b. ***Based Aircraft = 117*** *(FAA est.)*
c. ***Businesses: Aircraft maintenance, flight training***



TAN Snapshot - Airport Economic Impact



Taunton Municipal Airport
Total Jobs = 31
Total Payroll = $978K
Total Output = $3.26M

TAN Snapshot – On the Horizon

Agenda

a. *Opening Remarks*
b. *A Snapshot of Taunton Municipal Airport (TAN)*
c. ***What is an Airport Master Plan?***
d. *What are the Results?*
e. *Questions & Comments*

ASG Taunton Municipal Airport Airport Master Plan

What is an Airport Master Plan?

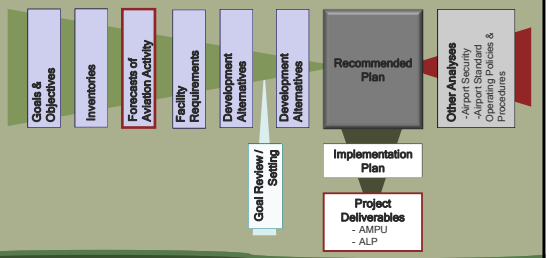
a. Defined
- *A comprehensive study that describes the short-, medium-, and long-term development plans to meet future aviation demand.* (Last TAN AMPU 2002)
- *Provides the framework to guide (and protect for potential) future airport development that will cost-effectively satisfy current & future aviation demand, while considering environmental and community factors.*

b. Public Participation
- Project Advisory Committee (PAC) – *45 invitees; 3 meetings*
- City Council Briefing
- Airport Commission Briefings
- Public Meeting
- Project Website (www.airportsolutionsgroup.com/TAN)

ASG Taunton Municipal Airport Airport Master Plan

What is an Airport Master Plan?

c. Process



ASG Taunton Municipal Airport Airport Master Plan

What is an Airport Master Plan?

c. **Master Plan Goals**

- **Federal: FAA AC 150/5070-6B, *Airport Master Plans***
- **State: 2010 Massachusetts Statewide Airport System Plan**
- **Local: TAN Airport Master Plan Update**
  - **Preserve and protect public and private investments** in TAN's existing facilities;
  - **Reflect community** and regional goals, needs, and plans;
  - **Enhance the safety** of aircraft operations, as well as those who live near and around TAN;
  - **Maximize TAN's economic benefit** for the local community, the city, the state and the region;
  - Provide a plan that allows the Airport **to meet the long-term air transportation needs of the city, the state and the region in a safe, secure, and efficient manner;**
  - Document changes in the aviation industry and economy to assist and **prepare TAN for future challenges**, as well as **anticipating potential future opportunities** in the highly competitive aviation market;

ASG Taunton Municipal Airport Airport Master Plan

What is an Airport Master Plan?

c. **Master Plan Goals** (cont.)

- **Local: TAN Airport Master Plan Update** (cont.)
  - Identify the airfield, ground transportation, and aviation support facilities necessary to **accommodate TAN's future aviation demand** and to fulfill the needs of its users and stakeholders;
  - Promote the development of **compatible land uses** in the vicinity of TAN in a manner that is sensitive to the surrounding communities and the environment;
  - Identify **appropriate and best uses of land within airport property**;
  - Ensure that the AMPU results are consistent with the improvements in the Airport's current Capital Improvement Program (CIP) and recommendations of previous planning efforts, including the 2010 Massachusetts Statewide Airport System Plan (MSASP);
  - **Ensure that development plans are consistent with the safe, secure, efficient, environmentally responsible, and financially sound operation of TAN**;
  - **Actively engage the public** throughout the planning process; and
  - ***Ensure that RW 4-22 is safe for use by those aircraft that need it*** *(i.e., small aircraft and taildraggers).*

ASG Taunton Municipal Airport Airport Master Plan

Agenda

a. *Opening Remarks*

b. *A Snapshot of Taunton Municipal Airport (TAN)*

c. *What is an Airport Master Plan?*

d. ***What are the Results?***

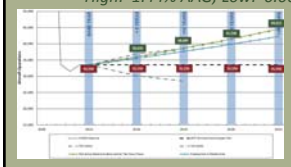
e. *Questions & Comments*

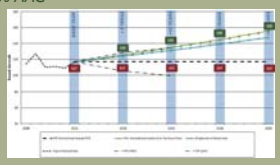
ASG Taunton Municipal Airport Airport Master Plan

What are the Results?

a. **Forecasts**

- *High: 1.44% AAG; Low: 0.00% AAG*





- **Project First Light Resort & Casino Development Scenario**
  - *Itinerant Operations: 4.0% AAG*
  - *Local operations & Based Aircraft: 2.0% AAG*
  - *Small to mid-sized turbine aircraft*

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What are the Results?

b. **Facility Requirements**

- *FAA Design & Safety Standards*
- *Design Aircraft remains the same*

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What are the Results?

c. **Recommendations**

– **Airside Facilities**
  - Runways (RW 4-22 & RW 12-30)
  - Taxiways
  - NAVAIDS

– **Landside Facilities**
  - Terminal / Admin
  - Aviation-Related Development Areas

– **Other Facilities/Issues**
  - Aircraft Fueling & Storage
  - Airport Security & Wildlife
  - Other

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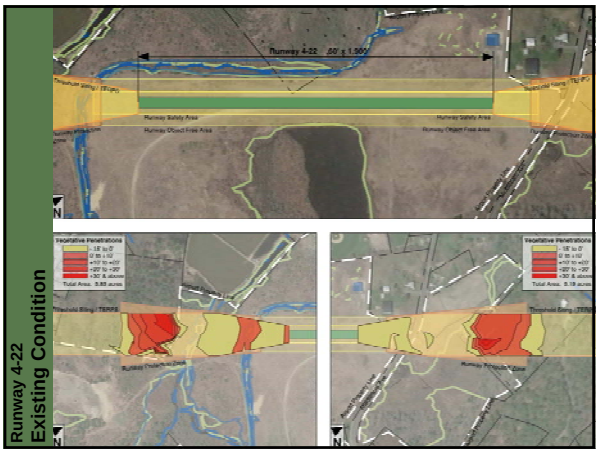
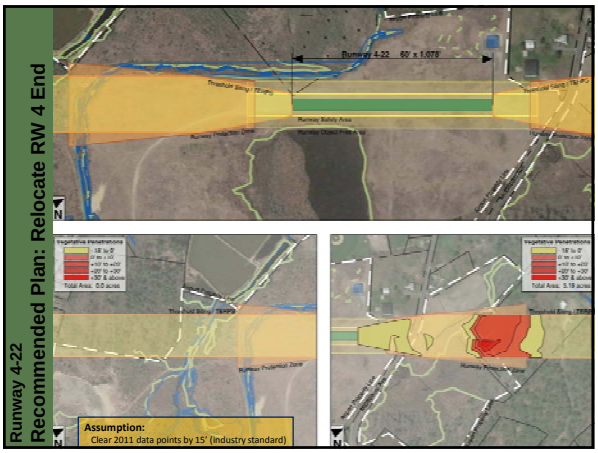

Runway 4-22
Existing Condition


Runway 4-22
Recommended Plan: Relocate RW 4 End
Assumption:
Clear 2011 data points by 15' (industry standard)

Taunton Municipal Airport
Runway 12-30
Runway Facts
Primary runway; instrument approaches
Length & Width = 3,500 ft x 75 ft
Surface = Asphalt
Facility Requirements
Design Aircraft = King Air C90
RDC = B-II (91-121 kts; 49' - 79' wingspan)
Length Requirement = 3,550 ft (Small Airplanes with Fewer than 10 Passenger Seats)
Planning Considerations
FAA requires "Future Airport Expansion Considerations"
Project First Light Resort & Casino / other regional development
Role of AMPU/ALP is to "Protect for Potential" (incl. airspace)
RDC remains B-II
Length Requirement = 4,600 ft (75 Percent of Fleet at 60 Percent Useful Load)
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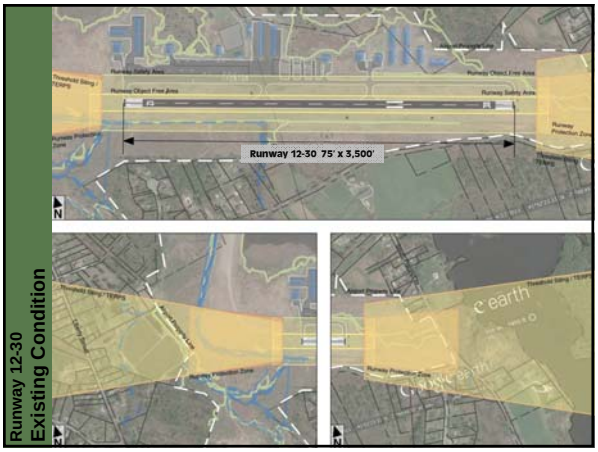
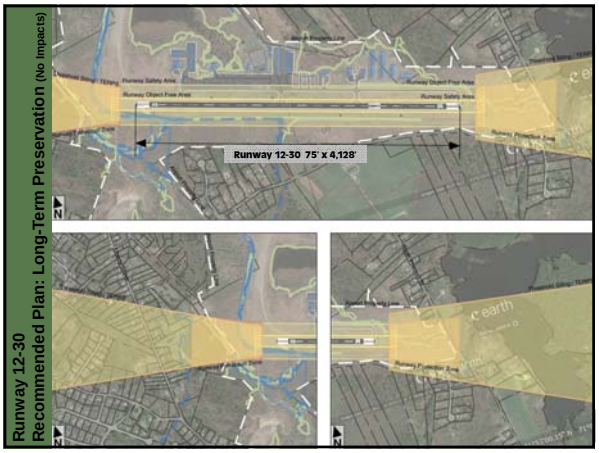
Taunton Municipal Airport


Runway 12-30
Existing Condition
Runway 12-30 75' x 3,500'


Runway 12-30
Recommended Plan: Long-Term Preservation (No Impacts)
Runway 12-30 75' x 4,128'

Taunton Municipal Airport
What are the Results?
c. Recommendations (cont.)
– Taxiway A
204.5'
25'
– NAVAIDs
– Instrument Approach Upgrades - LPV upgrade by FAA (Fall 2016)
– Lighting Improvements (e.g., PAPIs, REILs)
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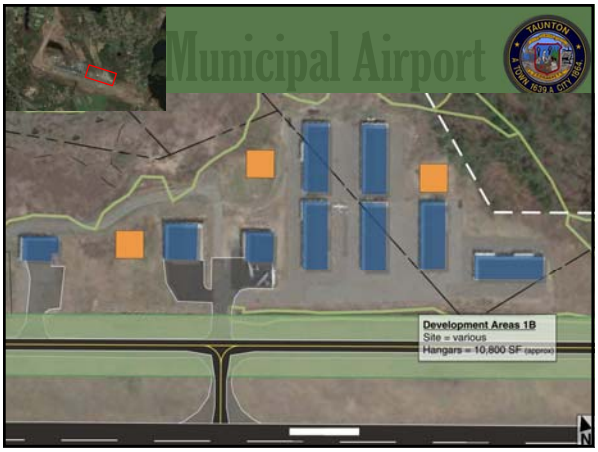
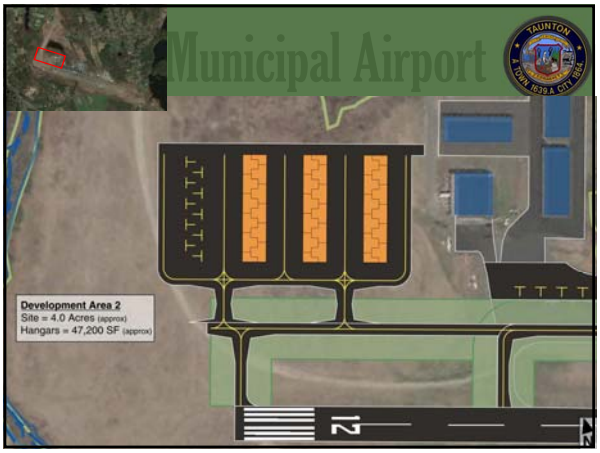
Taunton Municipal Airport
Airport Master Plan

Taunton Municipal Airport
What are the Results?
c. Recommendations (cont.)
– Landside Facilities (Terminal /Administration Building)
• MassDOT Aeronautics Program - 95% state funded
• 5,500 square foot building has been programed to be designed in 2016 and to be constructed in 2017

Taunton Municipal Airport
What are the Results?
c. Recommendations (cont.)
– Landside Facilities (Potential Development Areas)
E
D
A

Municipal Airport
Development Area 1A
Site = 2.0 Acres (approx)
Hangars = 19,000 SF (approx)


Municipal Airport
Development Areas 1B
Site = various
Hangars = 10,800 SF (approx)


Municipal Airport
Development Area 2
Site = 4.0 Acres (approx)
Hangars = 47,200 SF (approx)

Municipal Airport
Development Area 3
Site = 7.4 Acres (approx)
Hangars = 61,200 SF (approx)

Taunton Municipal Airport

Taunton Municipal Airport
Other Facilities / Issues
c. Recommendations (cont.)
– Aircraft Fueling & Storage
– Self-Fueling (100LL) / Jet-A fuel
– Airport Security & Wildlife
– Wildlife Hazard Assessment
– Fence Repair, Height & Clearing
– Security Cameras
– Other
– Wind Socks
– Remote Communications Outlet (RCO)
– Access Road
– Deicing
– Airfield Equipment Cold Storage
– Airport Land Use Compatibility
GATE 8
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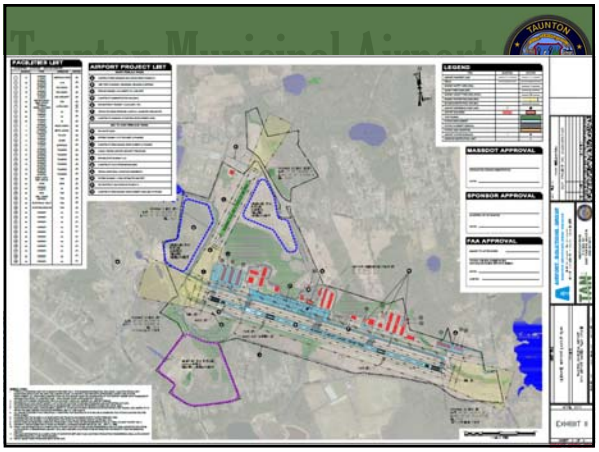
Airport Master Plan



Taunton Municipal Airport
Agenda
a. Opening Remarks
b. A Snapshot of Taunton Municipal Airport (TAN)
c. What is an Airport Master Plan?
d. What are the Results?
e. Questions & Comments
For more information see the following websites:
www.taunton-ma.gov/Pages/TauntonMA_Airport/
www.airportsolutionsgroup.com/TAN
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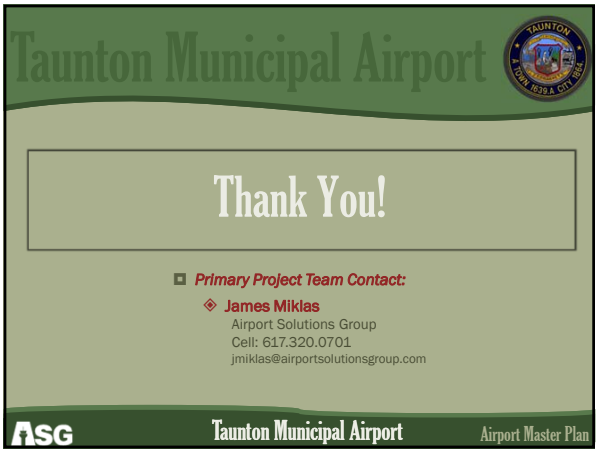
Taunton Municipal Airport
Thank You!
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