Rhode Island Airport Corporation

Rhode Island Airport System Plan 2016-2035

JUNE 2017

ABSTRACT

This document supersedes the *Rhode Island Airport System Plan* completed December 2004 and incorporates modest revisions to the State Guide Plan, Element 640 – "*Airport System Plan*", which was adopted by the Rhode Island Planning Council in September 2011. This report evaluates the airport system based on the latest inventory of data, revised forecasts and improvements implemented since the 2004 and 2011 reports were completed.

It concludes: (a) the roles of the six airports remain unchanged, (b) the forecasted growth of aviation activity over the next 20-years is virtually flat-lined and (c) basically, the planned improvements continue as shown in the 2011 State Guide Plan. Essentially, "No major changes to the infrastructure as we know it today".

Date: June 21, 2017

TABLE OF CONTENTS

EXECUTIVE SUMMARY LETTER

TO THE READER

This report presents the findings of the "Rhode Island Airport System Plan 2016 – 2035" dated Dec. 2016. It replaces the "2004 Airport System Plan". It was a collaborative planning effort between the Rhode Island Airport Corporation and the Louis Berger Group. It was funded by an FAA AIP Grant.

To provide a user-friendly report every effort was made to limit the narrative by summarizing the important details in a tabular or graphic format. It presents "Observations" and "Findings" in concise statements. The intent was to be sure the reader could easily find the necessary facts.

This new report, albeit different in terms of presenting the data and recommendations, did not find; (a) the airport roles, (b) system goals, or (c) capital improvements were dramatically different from those in the airport system plan adopted by the "2011 State Guide Plan". It does update the based aircraft and aircraft operations forecasts, and introduce a chapter on the performance of the system. The highlights of each chapter are summarized below.

Chapter 1 – INTRODUCTION

The chapter speaks to the purpose of maintaining a current ASP and the guidance obtained from the FAA Advisory Circular 150/5070-7 *"The Airport Planning System Process"*.

Chapter 2 - INVENTORY

This chapter develops all the latest data obtained from various sources, including a survey conducted with each airport manager. It also highlights the role of the six airports as defined by the FAA National Plan of Integrated Airport System. It also introduces their role as defined by the 2012 FAA study "General Aviation Airports.: A National Asset". The report documents the roles and functions airports provide to communities and a national airport system. Included is a map of the airport system with their respective role and location, as well as a tabulation to summarize all the physical data about each airport.

Chapter 3- FORECASTS

The chapter focuses on the forecast for Based Aircraft, Fleet Mix, Local & Itinerant Operations, and Passenger activity. It goes on to note that the forecast is the foundation to understanding system/airport capacity, airport improvements, capital investment and other vital parameters in managing the system. Developing reasonable forecasts is critical and very difficult given the vagaries of the data. It's best summarized by the commentary from the "*FAA 2015–2035 Aerospace Forecast"* which states; *"…developing forecasts of aviation demand and activity levels continues to be challenging and filled with uncertainty, particularly in the short-term"*.

Four widely accepted forecasting methodologies were utilized to develop the ASPU forecasts scenarios. They were: (a) "Extrapolation of Historical Data", (b) Airport Master Plan (AMP) Forecast, (c) Forecast Methodology: *2015-2035 FAA Aerospace Forecast* and (d) *2014 – 2040 FAA Terminal Area Forecast* (TAF). From the graphs produced for the chapter it reveals that the TAF is the best compromise between the four system forecasts over the 20-year study period. Given the importance and confidence FAA places on their TAF it is reasonable to adopt the TAF projections for the planning in this ASP. A summary table of the TAF "Based Aircraft" and "Operations" forecast is provided in the Chapter. The chapter includes a host of other Tables and Graphs to show system and airport projections over the 20-year period. Interestingly it also shows how the decline in GA operations in RI during the 2008 – 2010 period mirrors a similar decline in national GA activity. Looking forward, GA activity over the next 20-years (2016 – 2035) is only expected to show very modest growth in terms of based aircraft activity (281 versus 312) and operational activity (96,000 versus 109,000). The Block Island and Westerly passenger service currently provided by New England Airlines is also anticipated to reflect modest growth ranging from 10,000 to 13,000 passengers over the 20-year period.

Although our ASP analysis did not assess IFR activity per se it did reflect on a recent New England Regional Airport System Plan (NERASP) study in this chapter. The NERASP analysis on GA business activity highlighted the important relationship between IFR capability and business flying. The report states; "…*IFR flights account for a high proportion of business GA and are likely to have the greatest impact on local and regional economic development."* The issue of IFR capabilities cannot be underestimated in measuring system performance. At the moment only two RI airports have full ILS capabilities, T.F. Green and Quonset.

Chapter 4 – PERFORMANCE & NEEDS ASSESSMENT

This is the "report card" segment of the report. It is a comparison of how the system is doing and what needs to be done to improve the grades. The feature of this chapter is to (a) re-examine the goals and performance measures from the 2004 ASP and (b) show where the system has improved and where it is lacking. The review resulted in adding three (3) Goals (renamed Performance Goals) and creating more specific performance measures (renamed Performance Parameters). They did not materially alter the report card scoring system. The "Airport System" was judged for its ability to meet the "Performance Goals as measured by the "Performance Parameters". For each Goal a Table provides a "snapshot" of how the **"Existing" (E)** system is currently performing and whether investments $$ are needed for the **"Forecasted" (F)** improvement. This system plan assessment is done on a "top-down" basis and it does not account for the typical factors addressed in airport master planning or preliminary engineering efforts.

One thing is clear; airport service roles and runway configuration for the GA airports have not changed since the 2004 ASP. Based on the forecast and runway capacity analysis it is not expected that it will change during the 20-year forecast period. With that in mind the basic needs fall into the category of; (a) infrastructure, (b) FAA safety & design standards, (c) pilot services, (d) environmental commitments, (e) land use compatibility, (f) air/road access, and last but not least, (g) the fiscal status of the airport system. In general terms that means; RIAC must focus on sustaining the "qualitative" wellbeing of each airport, and the system overall. - Understandably, some are more important to achieve than others, especially those that are safety related.

While this chapter dwells on the performance of all 10 Goals there is one, "Economic & Financial Impact, that is worthy of mention. We can acknowledge that an airport's ability to successfully generate revenue from a variety of sources directly relates to that facility's financial stability and economic impact. It is also common knowledge that PVD continues to be the "work horse" in the system for developing revenue and profitability. It continues to generate the capital to sustain its own operation and the GA system. Except for OQU this financial outlook will exist for some time. OQU is the most promising airport in the GA system. Discounting depreciation, OQU should be able to sustain its operation in terms of revenue and expenses. It is also the airport with greatest upside for developing revenue. The full report discusses independent management studies that evaluated options to alleviate the costs of operating the GA system. The status quo however is not likely to change any time soon. A more optimistic perspective is; "in spite of the financial dependency of operating the GA system the economic impact of the GA system still has a dramatic impact on the RI economy". A recent study shows it is valued at almost $215M.

Chapter 5 – GOALS & ACTION PLAN

This chapter basically assigns a list of "Actions" to each of the ten (10) Performance Goals referred to in Chapter 4. The 2011 State Guide Plan (SGP) promoted planning based on seven (7) Goals. The difference is; the SGP did not list "Support Infrastructure", "Airport Security", and "Airport Services" as Goals. They were incorporated as items in the seven Goals. This ASPU identified them as separate Goals to give them more significance. The Goals and Actions are motivation and direction to move the airport system forward.

Chapter 6 –IMPROVEMENT PLAN

The chapter concludes the ASP update and recommends specific improvements to the airports. They have evolved as a result of a "system wide analysis" and therefore only provide a general recognition of future needs. We must remain aware that airport improvements are constantly evolving because of changes to Federal and RIAC priorities and the available funding which always present new challenges.

To manage funding programs FAA requires RIAC to maintain a 5-Year CIP to identify and prioritize airport development and funding sources. The on-going coordination process (a) maintains the focus on current year AIP funded projects and (b) ensures 2nd AIP year projects are on schedule. The FAA priority rating system is an indicator of opportunities for future AIP funding. The CIP is effective only if RIAC is motivated to promote and develop a "ready" project. Moreover, FAA is encouraged to support a CIP project if it meets some basic parameters; (a) on an approved ALP, (b) no engineering uncertainties, (c) meets environmental requirements and (d) no airport "compliance" issues. In short; the CIP is not a "wish list of airport needs" but a reflection of "well documented, high priority projects". A good CIP is the key to FAA funding.

The T.F. Green and GA System-wide priority projections are tabulated separately in this chapter. Based on the "ball-park" estimates provided it is clear the available funding exceeds our most optimistic expectations for AIP monies over the next 5-years. The chapter does identify other funding sources available to finance the

projects, which include; (a) RIAC, (b) PFC, (c) GARB and (d) private investment. To compensate, many projects will need to be deferred and completed over a longer period. The Chapter 4 summary emphasizes that RIAC investments must continue to be; "maintain existing airfield infrastructure in the best condition".

In summarizing the contents of the report it can be stated;

- The overall Report Card for the airport system is "**GOOD**".
- The airfield capacity of the airport system is capable of sustaining the forecasted 20-year projections.
- The individual airport roles won't change based on the forecasted 20-year projections. (That is not saying; "*there are no airport system requirements*". Chapter 4 clearly says otherwise).
- Looking forward the primary "Goals" for managing the airport system are to:
    a. Maintain the existing runway/taxiway pavement in good condition;
    b. Clear the runway approaches to maintain and/or improve existing FAA minimums;
    c. Meet all FAA airport design standards where practicable;
    d. Promote airport development consistent with Federal and State environmental requirements.
    e. Encourage development at GA airports to create revenue producing opportunities.
    f. Maintain efforts to assist host Towns to develop zoning and land-use compatibility.
- Most importantly; develop opportunities for T.F. Green to play a greater role in servicing the regional system as defined in the NERASP.

The reader is encouraged to peruse the full report to understand the airport system as it currently plays out and what areas need to be improved in considering priorities for the future. Too often we are focused on our specific areas of responsibility to see the "big picture." Hopefully we have captured the big picture for you.

****

CHAPTER 1 –THE PLANNING PROCESS

A. Introduction

The last comprehensive assessment of the Rhode Island Airport System Plan (ASP) [1] was completed December 2004. A subsequent planning effort was initiated several years later to bring the airport component (Element 640) of the State Guide Plan (SGP) up to date. After a re-evaluation of the 2004 ASP, a comprehensive coordination process with the Statewide Planning Program staff, an exhaustive review by their Technical Committee a new SGP document was completed. Finally, on September 15, 2011, the Rhode Island Planning Council adopted a new "Element 640 - Airport System Plan" into the State Guide Plan.

Although the ASP was formally adopted in September 2011 some of the data and projected activity trends date back to 2004. With the guidelines of the FAA Advisory Circular 150-5070-6 *"Airport System Planning"* in mind, as well as the dramatic changes that occurred in GA activity in the 2008 to 2010 period, it was clear that a re-evaluation of the ASP was needed. With the assistance of an FAA AIP grant the re-evaluation was initiated. It was a joint effort of RIAC and the Louis Berger Group (LBG).

The RIAC findings and recommendations for the six state-owned airports are presented in this "*Rhode Island Airport System Plan Update 2016 – 2035"*. The six airports are:

- T.F. Green Airport, Warwick (PVD) – *Primary Service, Small Hub* [Primary] [2]
- Westerly Airport, Westerly (WST) – *Non-Primary Commercial Service* [Regional][3]
- Block Island Airport, New Shoreham (BID) – *Non-Primary Commercial Service* [Regional]
- Quonset Airport, North Kingstown (OQU) – *General Aviation / Reliever* [Local]
- North Central Airport, Smithfield (SFZ) – *General Aviation / Reliever* [Local]
- Newport (Robert F. Wood), Middletown (UUU) – *General Aviation* [Local]

To date the airport system has more than adequately fulfilled the basic aviation needs of Rhode Island, and its connection to the national airport system. T.F. Green Airport has already proven its ability to effectively support the scheduled air service market for the State and Boston Regional System. Maintaining a continuous planning process provides RIAC with the assurance that it can sustain the system needed to meet the state's long-term transportation and economic interests. It must do so with consideration of national, state and local goals and be sensitive to recognize the physical and social environment surrounding the airports. The ASP is a planning tool that:

- Monitors the performance of our airports and our airport system;
- Aligns federal priorities with state and local objectives;
- Outlines in general terms airport improvements that are important to support their roles;

[1] A complete list of Acronyms & Abbreviations is provided in Appendix A

[2] The ASP understands this designation can change to a "Medium" hub if enplanements increase.

[3] The FAA ASSET Study identified WST "Unclassified". RIAC has assumed, because of the scheduled service, it is like BID.

- Provides guidance in capital budgeting; and,
- Assists in maximizing the benefits of our investments.

Moreover, because of our governance and geographic boundaries we are uniquely positioned to integrate some aspects of master planning into our ASP process.

A. Planning Context for the Rhode Island Airport System Plan

1. Aviation Industry Perspective[4]

Commercial airlines, including the "low-cost" carriers and regional air carriers have seen continued growth and success in their operations. From the general aviation (GA) perspective, fractional ownership operators and business jet activity have also continued to see steady growth. The other components of the GA fleet have been less fortunate, but they are; "holding their own". While the commercial aviation industry is driven primarily by national and global forces, GA can be impacted by the state and local economy. Specific impacts on Rhode Island's GA activity are addressed in Chapter 3 - Forecasts.

On a regional level it is well known that T.F. Green Airport and Manchester-Boston Regional Airport saw a decline in passenger service after Southwest began providing service to Boston Logan International Airport. With aggressive marketing efforts by RIAC to promote new air carrier service at T.F. Green we have seen the addition of Jet Blue in 2013 and charter carriers in 2015 and 2016. In 2017 the addition of foreign carriers like Norwegian Air is a further boost in the outlook for PVD. All indications there is a reversal in the direction the airport is headed. Moreover, with the completion of the Runway 5-23 extension in December 2017 there is a reason for optimism for increased service and passenger growth. If T.F. Green can once again play an active role to complement the Boston regional service area, it will return balance to the overall system and thus further recovery in the passenger trend at T.F. Green. There is evidence of landside capacity and aircraft noise issues resurfacing at Logan. It may hasten to make T.F. Green's role in the regional system more self-evident.

2. State Guide Plan Perspective

Rhode Island benefits from a tradition of a statewide planning program that is made possible in part because of our small geographic size. The Statewide Planning Program was established in 1964. It is charged with preparing and maintaining the State Guide Plan (SGP), which consists of 28 themed elements, as well as centralizing and integrating long-range goals and policies with short-term plans and projects. In addition to aviation there is surface transportation, freight rail, and waterborne passenger transit. The ASP in addition to serving the aviation planning interests of RIAC and FAA, also serves as an "Element 640" of the SGP. Because of the governance of comprehensive planning in RI, the ASP can have different agendas. It can be viewed from an aviation perspective or statewide planning perspective.

For instance, in addition to addressing the aviation needs for the State, the ASP must relate to the State requirements for "comprehensive planning". The Comprehensive Planning and Land Use Regulation Act

[4] Source; FAA Aerospace Forecast and FAA Terminal Area Forecast

(Act), passed in 1988, and amended in 2011, mandates that all cities and towns prepare a community comprehensive plan (CCP) to be submitted to the State for approval. Two ASP elements of the Act are:

- **Land Use 2025** – places all of the State's airports within an Urban Services Boundary;
- **Element 661** – State Rail Plan: Chapter 5 provides a description and analysis of Rhode Island's existing intercity rail passenger service, including commuter rail and excursion services. It also discusses existing and projected passenger rail issues. Chapter 6 describes proposed passenger rail service in the state including South County rail service, Providence Street Car, new stations in Cranston and Pawtucket, and intrastate rail shuttle service.
- **Transportation 2035** – focuses on means to reduce congestion and enhance mobility through better public transportation and improved intermodal connections. (The "Interlink", which provides commuter rail service to Providence and Boston, was a major project supporting this goal.) [5]

In addition, the R.I. General Assembly enacted airport zoning requirements, Title 1 - Aeronautics of the Rhode Island General Laws, Chapter 3, Airport Zoning, mandates that RIAC formulate airport approach plans for each state airport. It also requires that municipalities establish airport hazard areas that are consistent with these approaches under their police powers. RIAC is required to provide the guidance to define the hazard area requirements. In April 2014 RIAC, coordinating with Towns hosting an airport, published an Airport Compatibility Land-Use Guidebook to define "airport hazard areas".

The SGP promotes planning coordination in several ways. It is used as both a resource and review mechanism for projects and implementation measures, like:

- Review of local comprehensive plans (RIGL 45-22) (see section below);
- Proposals requesting federal funds (Presidential Executive Order (E.O.) 12372, Governor's Executive Order (E.O.) 83-11, and CFDA for individual programs);
- Applications for U.S. Army Corps of Engineers permits (33 CFR Part 325);
- Environmental Impact Statements (State Planning Council Rule I-12.08);
- R.I. Economic Development Corporation projects (42-64);
- Projects being reviewed by the Energy Facility Siting Board (RIGL 42-98);
- Applications for various loans, grants, or other federal or state financing (Presidential E.O. 12372, Governor's E.O. 83-11, and CFDA for individual programs); and,
- Property leases/conveyances proposed to State Properties Committee (RIGL 37-6/37-7).

An important function of the SGP is to review local comprehensive plans. Under the *Act*, R.I. cities and towns must have a locally adopted CCP and they must be updated at least once every ten years. The SGP review process also includes state agency goals and policies. Like local plans and projects, state projects and programs must also be consistent with state approved CCP's. In the event of an inconsistency, the SGP prevails. Because the ASP is an element of the SGP, the goals and policies of the ASP cannot be pursued to

[5] : Warwick Planning has noted, and it appears to be reasonable, that independent planning objectives could work to increase passenger traffic at TF Green by improving frequency of rail service tied with airline schedules.

the exclusion of other applicable elements. The SGP, in its entirety, must be used to ensure a balanced review of projects, plans and proposals.

In planning and implementing projects, RIAC are entitled to rely upon a written statement of the State Planning Council that a proposed project conforms to the SGP. When RIAC requests such a written determination in accordance with R.I.G.L. § 42-64-14, the state planning council shall, *inter alia*, seek an advisory comment from the community's planning department on a project's consistency with the community's comprehensive plan and zoning ordinances. Where municipalities find that actions of a state agency do not conform to a State approved Comprehensive Plan, excluding the state guide plan as provided for by R.I.G.L.§ 42-11-10, R.I.G.L. 45-22.2-10 allows the State Planning Council to hold a public hearing on the matter at which the state agency must demonstrate that the project or facility:

- Conforms to the stated goals, findings, and intent of this chapter;
- Is needed to promote or protect the health, safety, and welfare of the people of RI;
- Is in conformance with the relevant sections of the SGP; and,
- Size, scope, and design of the facility has been planned to vary as little as possible from the CCP of the municipality.

3. The Planning Hierarchy

FAA Advisory Circular (AC) 150/5070-7 *"The ASP Process"* describes the planning hierarchy as follows:

"*The primary purpose of airport system planning is to study the performance and interaction of an aviation system to understand the interrelationship of the member airports. ... The effort involves examining the interaction of the airports with the aviation user requirements, economy, population, and surface transportation of a specific geographic area. The system … may include all airports… in the study area that contribute to the national transportation system, as well as those that serve state and local aviation needs.*" The AC goes on to state:

"*The airport system planning process is an examination of system dynamics that leads to the effective use of federal, state, metropolitan, and local aviation resources in developing an efficient network of airports for current and projected needs. The product of the process is a cost-effective plan of action to develop airports consistent with established goals and objectives. The process also results in the establishment of perspectives on aviation priorities, such as airport roles, funding, policy strategies, and system trends in activity level. The process ensures that aviation plans remain responsive to the overall air transportation needs of the state …, while identifying the roles and characteristics of existing and recommended new airports, and describing the overall development required at each, including timeframes and estimated project costs. More detailed design, and capital and environmental planning are accomplished under an individual airport's master plan.*"

"*The airport system planning process should be consistent with state or regional goals for transportation, land use, and the environment. Overall, the planning process includes the elements listed below. It is a dynamic process, which involves feedback from stakeholders throughout the effort. The airport system planning process can include any of the following major elements: (a) Exploration of Aviation Issues in the Study, (b) Area Consideration of Alternative Airport Systems (c) Identification of Air Transportation Needs (d) Inventory of Current System, (e) Definition of Airport Roles and Policy Strategies, (f) Forecast of*

System Demand, (g) Recommendation of System Changes, (h) Funding Strategies and Airport Development, (I) Preparation of an Implementation Plan and (j) Exploration Plan."

a. National Plan of Integrated Airport Systems (NPIAS)

One must understand the role of the state system within the context of the NPIAS. It is an interactive process because the NPIAS is, in some respects, a product of state and regional planning.

The AC makes the point: "*The… NPIAS supports the FAA's strategic goals for safety, system efficiency, and environmental compatibility. The NPIAS identifies specific airport improvements that will contribute to the achievement of those goals. Metropolitan, state, and multi-state aviation system planning fits between the FAA's national planning effort, as documented in the NPIAS, and the more comprehensive master plans prepared for individual airports. It feeds information "up" ... into the NPIAS and "down" to provide goals and development recommendations for individual airports. The airport system planning process also clarifies federal, state, and local sponsor objectives, and helps make development of airports part of a regional transportation system.*"

The NPIAS is updated by FAA on a regular basis. The primary inputs to the NPIAS are state ASP's and AMP. An effective NPIAS is directly related to maintaining a current ASP. An airport must be listed in the NPIAS to be eligible for federal funding. The six R.I. airports are included in the NPIAS.

b. New England Regional Airport System Plan (NERASP)

In the context of system planning the NERASP is uniquely different in terms of airport system planning. It can be best defined as a "multi-state" system planning process that resulted from a series of "strategic planning events" from 1990 to 2006. It analyzed the condition of airline passenger service in New England. The primary objective of the NERASP planning process was to address the major air traffic delays being experienced at Boston Logan International Airport (Logan) at that time. The system planning efforts included the following:

- 1990: A study was conducted to investigate 163 potential locations in Massachusetts for a 2nd major airport. The investigation made it clear that it was not a feasible option.
- 1993: If not a new airport, how is the growing demand for air travel in New England to be managed? A subsequent analysis, "*A Strategic Assessment Report"* highlighted the best course of action was to make more effective use of our existing regional airports.
- 1995: Phase I of the NERASP was completed. The NERASP provided a travel profile of the New England air passenger and the impact of Logan on the region as a whole. Basically, the "the passenger" preferred to utilize Logan in lieu of the airport closer to their residence, whether it was Providence, Manchester, Worcester, or even some as far as Portland or Burlington. The "leakage rate"[6] ranged from 25% - 50%.

[6] "Leakage" referred to the percent of passengers using Logan Airport as opposed to Primary Airport located closer to their residence, e.g. a Providence resident driving to BOS in lieu of using service (albeit less frequent) at PVD.

- 2000: NERASP Phase II was initiated to understand the changes on our regional system since the Phase I report was issued. With new data, as well as the rapid growth that occurred at T.F. Green and Manchester in the late 1990's because of the "Southwest effect", the focus was to develop forecast models that better predicted the New England traveler. Other contributing factors were the new security requirements, and the dynamic changes in the airline financial situation. Based on the new information and new forecasts this study set out to describe in broad terms, the requirements, deficiencies and future direction of the eleven primary airports. In 2006 NERASP Phase II was issued. This study discovered some very interesting answers to the central question: "Will this (system) be enough to provide for the needs of the next generation of air passengers?"
    - "The region has an unusually high reliance on air transportation (It generates 2.5 passengers trips per capita, almost 80% higher than the national rate of 1.4)
    - "The system does have the ability to meet passenger demand through 2020."
    - "But to do so requires continued efforts to enhance the performance of each airport in the system."
    - "This is essential to achieve the level of efficiency and resiliency the system must have for a region so dependent on the services of a constantly evolving airline industry."
- The plan also identified both Manchester and T.F. Green as having important and substantial roles in the six-state region.

In 2015 a similar NERASP was produced to exclusively address the concerns of operating the New England (NE) GA system. It basically was an "Inventory of GA Conditions". A the most notable finding was; the cost of sustaining the runway/taxiway infrastructure for the 110 NE NPIAS airports would consume all the AIP monies typically made available to the FAA NE Region. That fact alone made it clear to the State Directors a different approach was necessary to maintain the GA system. RIAC manages only five GA airports but the struggle is no different. A potential complication in assessing the NE GA system is a new FAA airport classification system – "ASSET" **(See Table 2-2)**. The speculation is it will become a parameter for prioritizing and allocating AIP funds. The initial phase of the NERASP-GA outlined issues but FAA is not likely to fund a Phase II study.

c. State Airport System Planning

The NPIAS and NERASP planning process define national and regional (multi-state) system planning approaches respectively. The next level in the planning hierarchy is state airport system planning. A state ASP is fundamentally a strategic plan that utilizes a "top-down" planning approach. That is; it examines the airport system as a whole, as well as, how the individual airports interact with each other. It is a macro analysis that provides the guidance for local airports as they develop their individual development plans. The end goal of the ASP is to help ensure that airports are developed consistent with their role in the system. The approach maximizes the utilization and overall efficiency of the airport system. An ASP also provides guidance in developing an airport master plan. The role of the airport in the system can identify the basic facilities needed to meet that role.

d. Airport Master Plan (AMP)

Unlike the system planning process, which is a "top down" planning approach, an AMP is a "bottom up" planning approach. It focuses on a strategic development plan for an airport to achieve its role as defined by the ASP. It examines in detail; facility inventory, prepares activity forecasts, translates forecasts into facility requirements, and compares facility requirements to "real time" needs based on design and environmental parameters. Ultimately it is the basis for the FAA approved Airport Layout Plan (ALP) and recommended implementation plan. Over the past 9-years RIAC has systematically prepared a new AMP and ALP for each of the airports in the system. See **Table 1- 01 AMP Status**

TABLE 1-1 AIRPORT MASTER PLAN STATUS

Airport Name	FAA Approved ALP	AMP	Status of Planning
Block Island (BID)	03/22/06	06/05	Update Recommended[7]
Westerly State (WST)	07/16/09	04/09	Update Recommended
Newport State (UUU)	04/16/08	12/07	Update Recommended
North Central State (SFZ)	06/29/10	03/10	Update Recommended
T.F. Green State (PVD)	08/20/13	03/04	AMPU in progress
Quonset State (OQU)	07/15/15	12/14	Current

e. Planning Approach for this 2016 Airport System Plan Update

The five GA airports and T.F. Green (GA only) were examined in the context of aviation service requirements, economy, population, and surface transportation requirements. The fundamental approach was to obtain strategic data that would enable RIAC to make informed decisions related to the planning and development of the airport system. This ASP update made minor revisions to the sections of the 2011 SGP - Element 640 to introduce the most current data:

- Identification of planning factors;
- Inventory of physical assets;
- Forecasts of system demand;
- Exploration of issues that impact aviation;
- Definition of airport roles;
- Performance assessment of each airport;
- Development of goals and policies based on planning factors: and,
- Recommendations for airport development.

[7] FAA Advisory Circular recommends an Airport Master Plan update about every 5 years.

f. Identifying the Planning Factors

The seven planning parameters agreed to in preparing the 2004 ASP and the 2011 SGP were:

- Economic: Ability to support the state economy and airport financial self-sufficiency.
- Capacity: Ability to provide airside and landside facilities for existing and future needs.
- Air Accessibility: Ability of airports to be accessible from the air.
- Ground Accessibility: Ability of airports to be accessible from the ground.
- Compatibility: Ability to operate as compatibly as possible within the community.
- Compliance: Ability to meet environmental regulatory requirements.
- Standards: Ability to meet applicable design and safety standards.

****

CHAPTER 2 – INVENTORY OF THE EXISTING SYSTEM

A. Introduction

The first step was to conduct an inventory of the existing airport infrastructure. The data was taken from the:

- 2004 Rhode Island Airport System Plan;
- 2011 State Guide Plan (Element 640 – Airport System Plan);
- Airport Master Plans and Airport Layout Plans;
- FAA Terminal Area Forecasts (TAF) 2013-2040;
- FAA Airport Facilities Directory (AFD);
- FAA Published Instrument Approach Plates;
- RIAC Data/ Records (Misc.);
- 2014 Land Use Guidebook; and,
- 2015 Airport Managers Survey.[8]

Table 2-1 provides a reference to the Tables in the Inventory Chapter and the information provided.

TABLE 2-1: INVENTORY SURVEY SUBJECT AREAS & REFERENCE TABLES

Table No.	Table Information
Table 2-2	FAA ASSET Classification – GA Airport Categories
Table 2-3	FAA NPIAS Service Level and ASSET Role
Table 2-4	General Airport Data
Table 2-5	Airport Reference Code (ARC) Parameters
Table 2-6	Runway & Taxiway Data
Table 2-7	Navaids, Approaches and Minimums
Table 2-8	Runway Approach Obstructions
Table 2-9	Runway Visual Aids
Table 2-10	Pavement Conditions
Table 2-11	Aircraft Hangar & Tie-down Capacity
Table 2-12	Airport Fueling Services
Table 2-13	Fleet Mix for Based Aircraft
Table 2-14	Operations & Enplanements
Table 2-15	Terminal Building/FBO Facilities/Airport Services (Page 1 of 2)
Table 2-15	Terminal Building/FBO Facilities/Airport Services (Page 2 of 2)
Table 2-16	Airport Plans

[8] The survey form (See Appendix C) included a series of questions ranging from based aircraft types to trends in airport activity. Survey data collected was supplemented from FAA data sources.

B. Rhode Island State Airport System Overview

The Rhode Island airport system includes six public airports[9] **(See Figure 2-1)**. They are owned by the Rhode Island Department of Transportation (RIDOT) and operated and maintained by the Rhode Island Airport Corporation (RIAC). The operations (fueling, etc.) at the GA airports are contracted to AvPorts.

C. National Plan of Integrated Airport System (NPIAS) Roles

On a national level, the Federal Aviation Administration's (FAA) **NPIAS** identifies 3300 plus airports that are essential for an effective national system of airports. Almost 3000 are essentially General Aviation (GA) airports. The NPIAS categorizes them as "primary airports" (large, medium and small hub, non-hub), and "non-primary airports" (commercial service, reliever, and general aviation). The airport role also defines the federal funding for airport development as established by Congress. The **2015-2019 NPIAS** includes all six state-owned airports. Information on their respective airport roles is provided in **Table 2-2: FAA ASSET Classification - GA Airport Categories.**

- Primary Commercial Service: Airports with scheduled airline service and >10,000 enplaned passengers each year. The "Hub" designation is determined by the number of enplaned passengers at the airport as a percentage of the national total of enplaned passengers. PVD is primary airport with a small to medium hub classification[10]. BID and WST are classified primary non-hub airports[11]. Their total enplanements are just over the 10,000 enplanement mark based on New England Air service.
- Non-Primary Commercial Service: Airports with scheduled airline service that have at least 2,500 enplaned passengers but < 10,000 each calendar year.
- Cargo Service: Airports that in addition to other air transportation services also provide air cargo service with a total annual landed cargo weight of >100 million pounds.
- Reliever: Airports designated by the FAA to relieve GA congestion at Hub airports. OQU and SFZ are GA Relievers to PVD.
- General Aviation Airports are airports that do not receive scheduled commercial service or that do not meet the criteria for classification as a commercial service airport may be included. This would include UUU.

D. General Aviation Airports: A National Asset

In cooperation with the aviation community, FAA completed two, top-down, reviews of the existing network of general aviation facilities included in the NPIAS. The results of these efforts are contained in the May 2012 report entitled "General Aviation Airports: A National Asset" and the second report, March 2014, entitled "ASSET 2: In-Depth Review of 497 Unclassified Airports." The result was; FAA documented the important airport roles and aeronautical functions these airports provide to their communities and the national airport

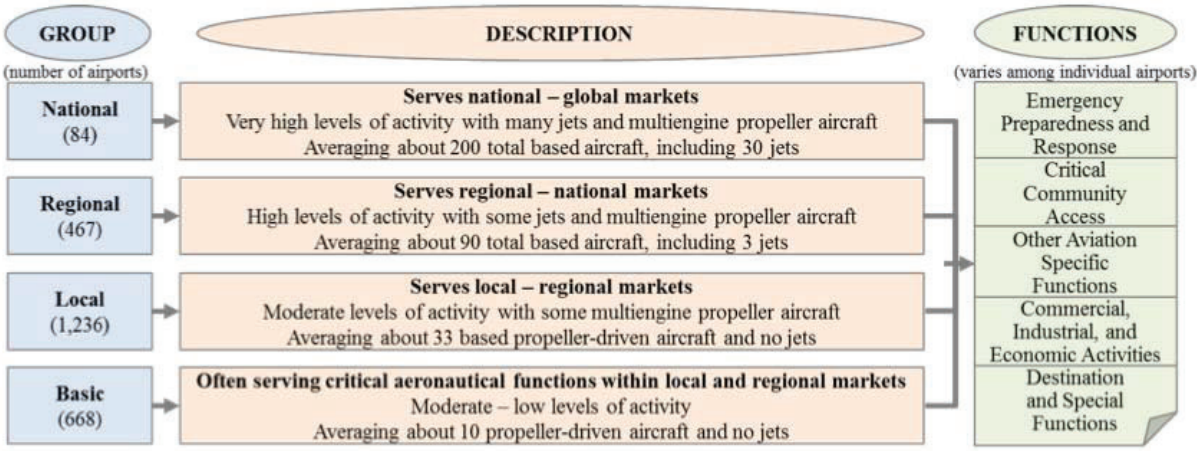
[9] The two privately owned airports are not included. Their capacity impact on system is minimal.

[10] PVD varies from year to year because the enplanements fluctuate and it is close to the cutoff point between the two categories. The current 2016 count places it in the Medium Hub category.

[11] This designation is somewhat misleading because the dominant activity and aircraft design type still relates to that of a GA airport which for all intent and purpose is what RIAC considers both these airports.

system. It includes emergency response, transportation of people and freight, commercial applications (e.g. agricultural spraying, aerial surveying, oil exploration, etc.). Many of these functions are not efficiently or economically serviced at primary airports. Based on existing activity measures (e.g., number and types of based aircraft and volume and types of flights) GA airports were divided into four categories: (a) National, (b) Regional, (c) Local, and (d) Basic. These categories are shown in **Table 2-1: FAA GA Airport Categories – ASSET.** The new categories more effectively capture their diverse functions and the economic contributions GA airports make to their communities and the Nation.

TABLE 2-2: FAA ASSET CLASSIFICATION - GA AIRPORT CATEGORIES



The purpose of this new classification system is to help FAA make better planning decisions about GA airports. According to FAA, '*Future development of general aviation airports included in NPIAS will continue to be based on eligible and justified needs and priorities, with these new categories providing a more consistent framework within which to evaluate proposed projects.'* According to FAA statements the ASSET classification system is not anticipated to effect funding levels of RIAC's airports, it is simply an organizational tool the FAA has implemented.

Based on the above criteria FAA ASSET established the following classifications for GA airports. By FAA's ASSET standards PVD and WST are not "GA airports" (had >10,000 enplanements) and not included in the classification system. Technically BID should also fall into that category – since the ASSET study conducted BID also achieved >10,000 enplanements.) That being said the dominant activity at BID and WST remains servicing GA activity. The NPIAS in fact acknowledges that a majority of the airports in the "primary non-hub" category service predominately GA activity.

TABLE 2-3: FAA NPIAS SERVICE LEVEL AND ASSET ROLE

Airport	LOC ID	NPIAS Role	ASSET Role
T.F. Green State	PVD	Primary (Medium Hub)	Not Included
Westerly State[12]	WST	Primary (Non-Hub)	Not Included
Block Island State	BID	Primary (Non-Hub)	Not Included
North Central State	SFZ	GA/Reliever	Local
Quonset State	OQU	GA/Reliever	Local
Newport State	UUU	General Aviation	Local

[12] The NPIAS role and ASSET classification for WST & BID can fluctuates because the minimum qualifying passenger count can in some years be <10,000 enplanements. The Table 2-2 reflects the most current condition (2015)

FIGURE 2-1: RHODE ISLAND AIRPORT SYSTEM PLAN

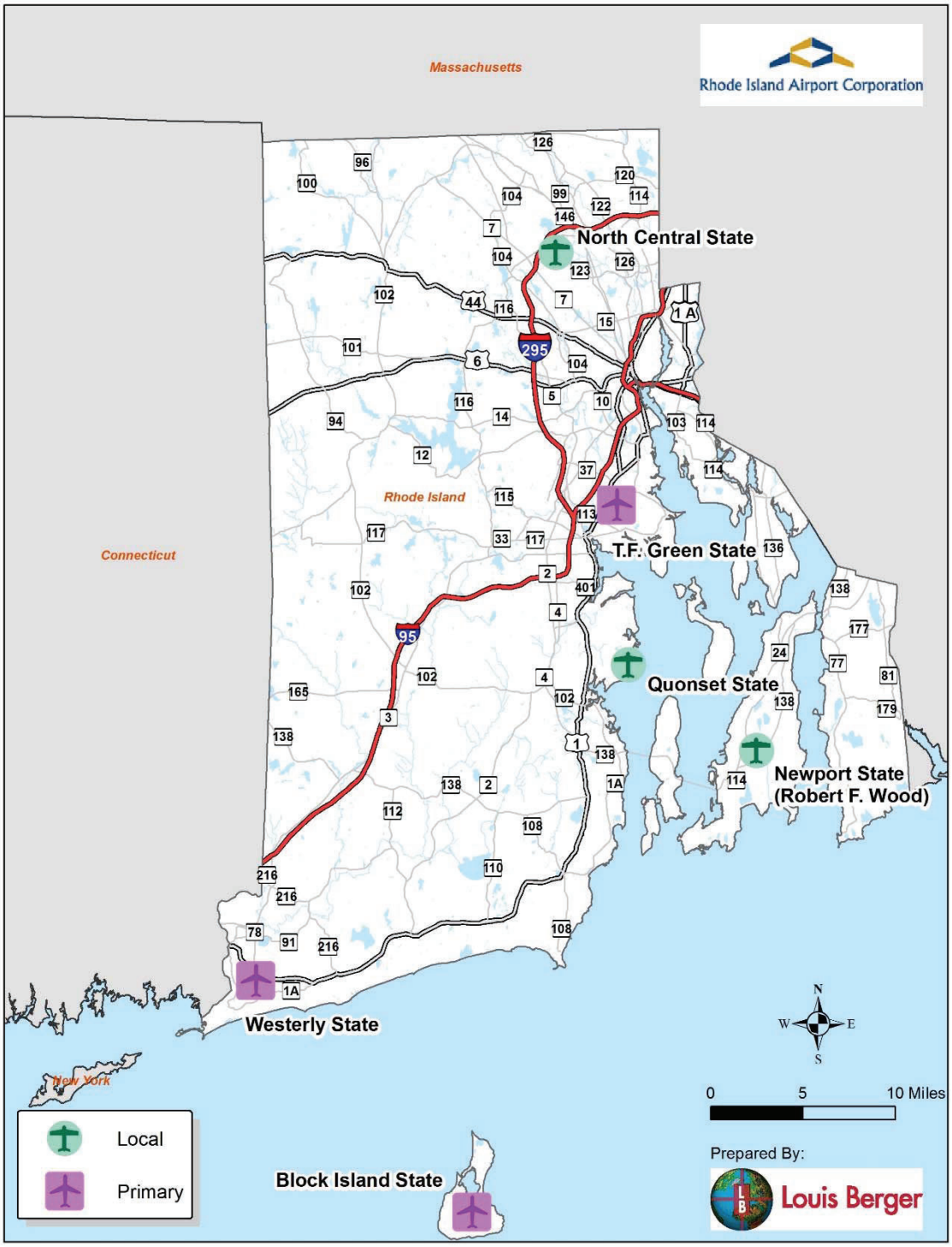
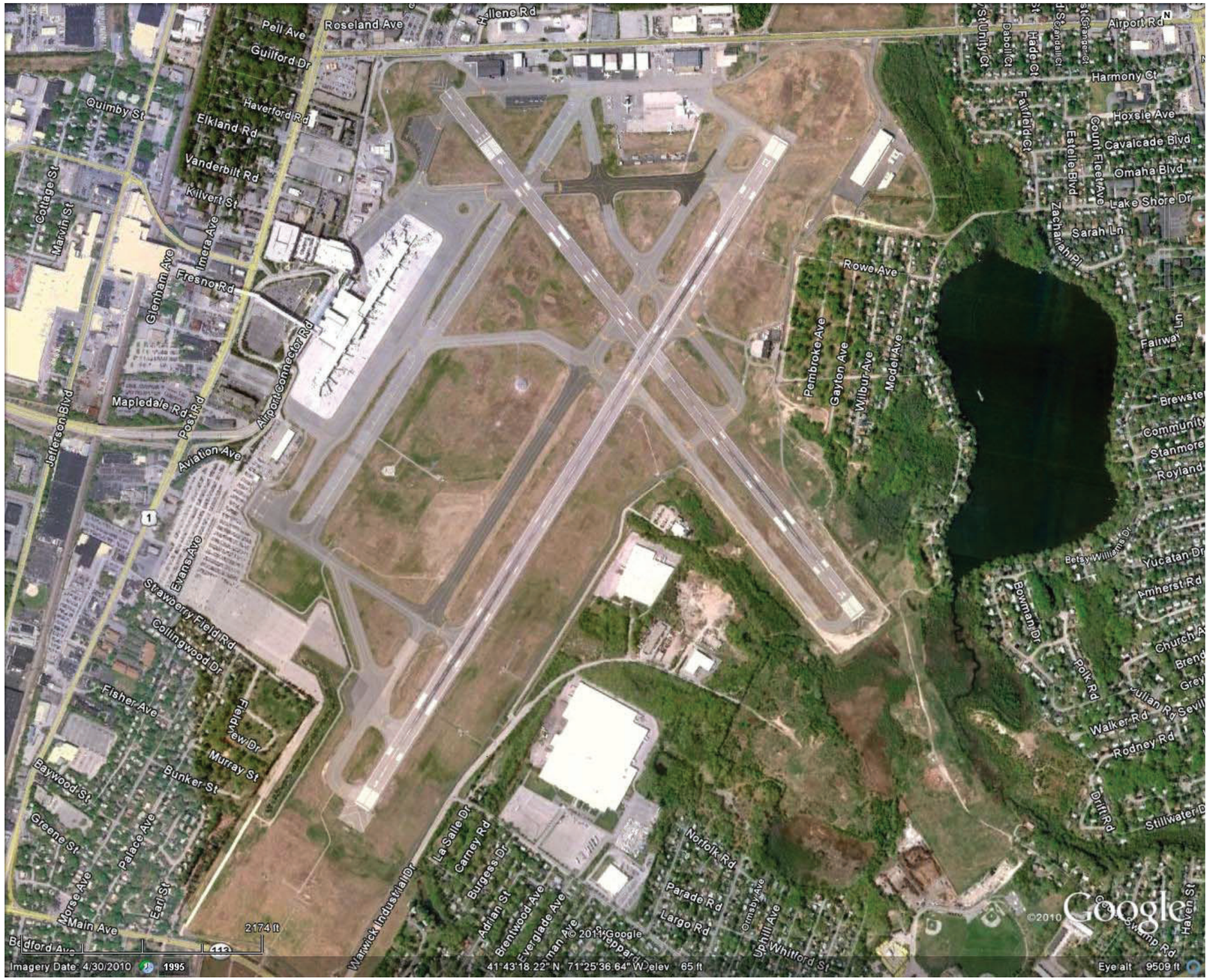


FIGURE 2-2 AERIAL VIEW OF T.F. GREEN STATE AIRPORT



Source: Google Earth (04.30.2010)

FIGURE 2-4 AERIAL VIEW OF WESTERLY STATE AIRPORT

Source: Google Earth (04.30.2010)

FIGURE 2-6 AERIAL VIEW OF BLOCK ISLAND STATE AIRPORT

Source: Google Earth (04.30.2010)

FIGURE 2-8 AERIAL VIEW OF NORTH CENTRAL STATE AIRPORT

Source: Google Earth (04.30.2010)

FIGURE 2-10 AERIAL VIEW OF QUONSET STATE AIRPORT

Source: Google Earth (04.30.2010)

FIGURE 2-12 AERIAL VIEW OF NEWPORT STATE AIRPORT

Source: Google Earth (04.30.2010)

E. General Airport Information

TABLE 2-4: GENERAL AIRPORT DATA

Airport (ID)	Host City	ARC[13]	Latitude	Longitude	Elevation (MSL)
T.F. Green (PVD)	Warwick	D-IV	41-43-26.3970N	071-25-41.5960W	55
Westerly (WST)	Westerly	B-II	41-20-58.6787N	071-48-12.3006W	81
Block Island (BID)	New Shoreham	A-II	41-10-05.2000N	071-34-40.2000W	108
North Central (SFZ)	Smithfield / Lincoln	5-23: B-II 15-33: B-I	41-55-14.7000N	071-29-29.1000W	441
Quonset (OQU)	North Kingstown	5-23: B-II 16-34: D-IV	41-35-49.7000N	071-24-43.7000W	18.3
Newport (UUU)	Middletown	B-II	41-31-56.7831N	071-16-53.5582W	171.8

TABLE 2-5: AIRPORT REFERENCE CODE (ARC) PARAMETERS

Aircraft Approach Category		Airplane Design Group		
Category	Approach Speed	Group	Tail Height	Wingspan
A	Less than 91 knots	I	20 feet or less	49 feet or less
B	91-120 knots	II	20-29 feet	49-78 feet
C	121-140 knots	III	30-44 feet	79-117 feet
D	141-165 knots	IV	45-59 feet	118-170 feet
E	166 knots or more	V	60-65 feet	171-213 feet

Source: FAA

The ARC and Runway approach minimums are the benchmarks for selecting the appropriate FAA RW/TW design standards. Knowing the standards enables the analysis to determine if the airport meets the design and demand requirements. The results of the analysis are presented in Chapter 5 – *System Performance and Needs.*

[13] The ARC is a FAA airport design standard. It correlates the physical and operating characteristics of the critical aircraft to airport design parameters. The "critical" aircraft is one that conducts 500 or more annual operations. The ARC identifies the aircraft approach speed with a capital letter designation and aircraft wingspan, with a Roman numeral designation.

TABLE 2-6: RUNWAY AND TAXIWAY DATA

Airport	Runway	R/W Length	R/W Width	[14]R/W Lighting	[15]Primary Approach	T/W Type	T/W Lighting
T.F. Green	05/23	7166' (8700')[16]	150'	HIRL	Precision	Partial Parallel (75')	HITL
T.F. Green	16/34	6081'	150'	HIRL	Precision	Partial Parallel (75')	HITL
Westerly	07/25	4010'	100'	MIRL	Non-Precision	Full Parallel (50')	MITL
Westerly	14/32	3980'	75'	MIRL	Visual	Full Parallel (50')	MITL
Block Island	10/28	2501'	100'	MIRL	Non-Precision	Partial Parallel (40')	MITL
North Central	5/23	5000'	100'	HIRL	Non-Precision	Full Parallel (50')	MITL
North Central	15/33	3210'	75'	MIRL	Visual	Full Parallel (25')	MITL
Quonset	16/34	7504'	150'	HIRL	Precision	Full Parallel (75')	MITL
Quonset	5/23	4003'	75'	MIRL	Visual	Partial Parallel (50')	MITL
Newport	04/22	2999'	75'	MIRL	Non-Precision	Full Parallel (40')	MITL
Newport	16/34	2623'	75'	MIRL	Visual	Stub (40')	MITL

[14] See Table 2-7 and 2-9: Runway Approach Aids for more information on Runway Lighting
[15] See Table 2-7: Runway Approaches for more information on Runway Approach types
[16] Currently under construction

FIGURE 2-14: PRIMARY RUNWAY LENGTH

The primary runway length is typically the critical length to accommodate the design aircraft (aircraft used for the airport to best function in system role).

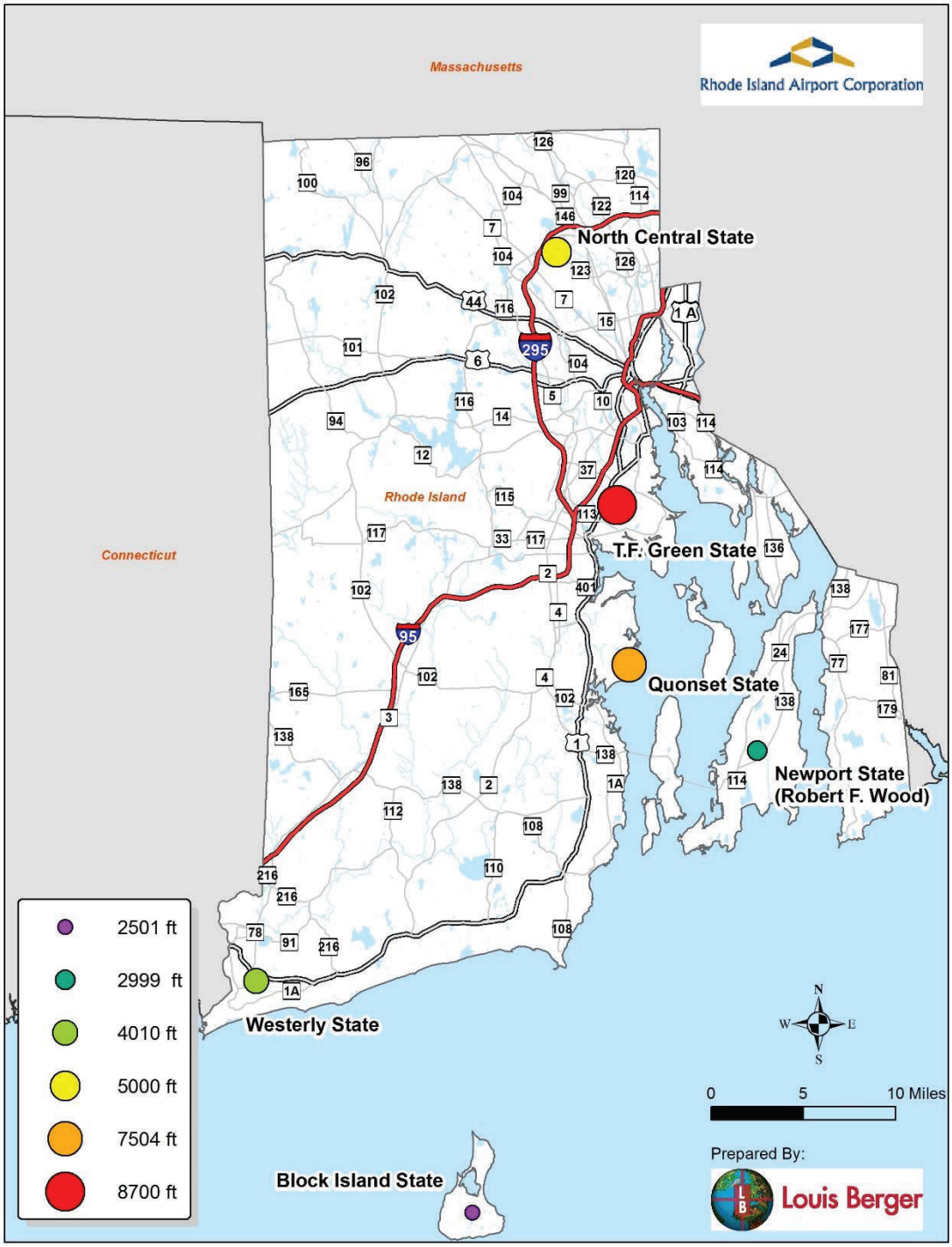
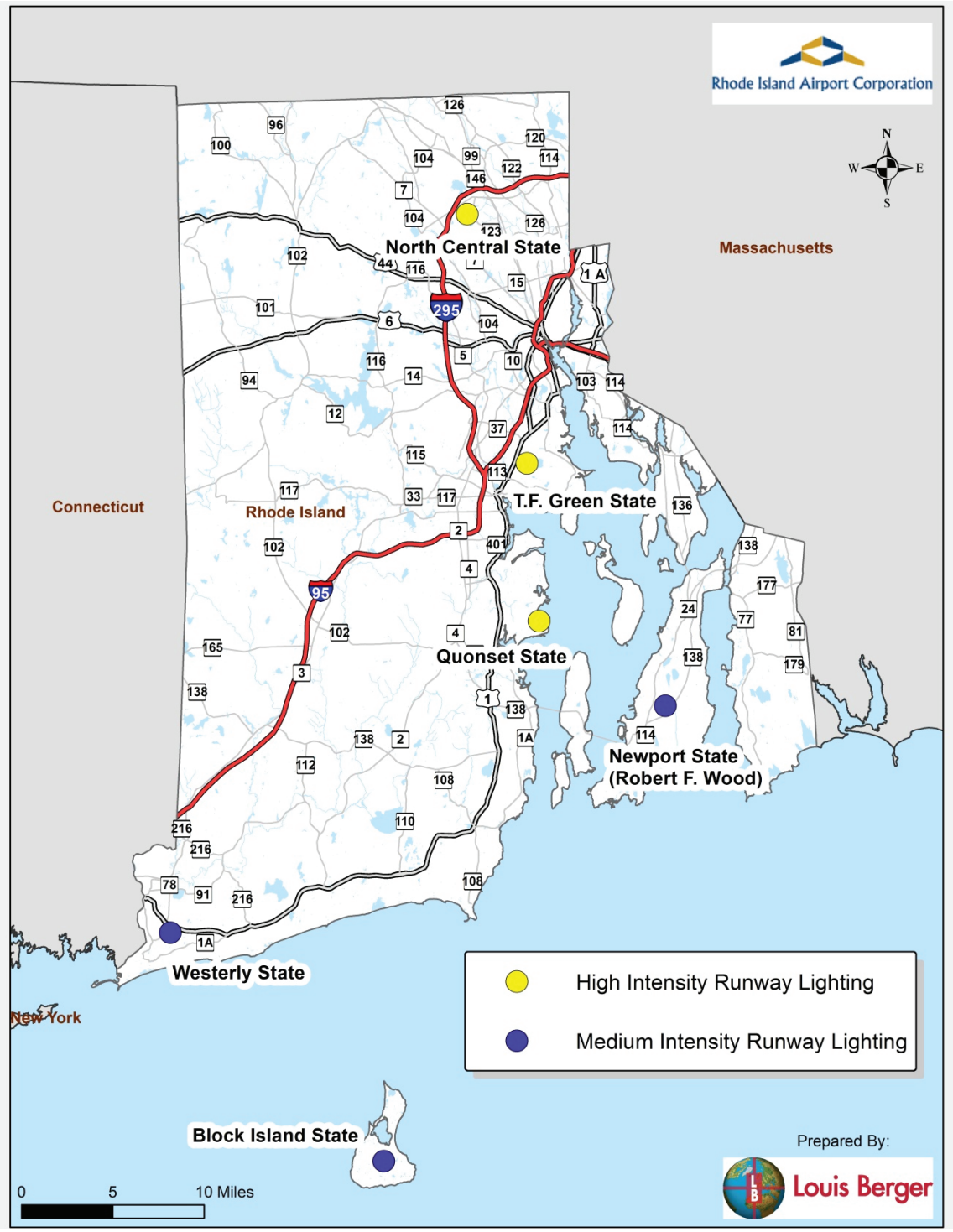


Figure 2-14: "Red Dot" 8700 ft – will be available by December 2017

FIGURE 2-15: PRIMARY RUNWAY LIGHTING

This figure identifies the airport's primary runway lighting intensity.



F. Navigational Aids

While the runway and taxiway infrastructure is the basic unit of any airport, the approaches are an equally important component of the runway system. They can be identified as visual or instrument approaches depending on the lighting or electronic aids servicing the runway. Not to be discounted is the condition of the approach surface. Specifically each instrument procedure is dependent on an obstruction free approach surface. If the approach surface does not meet the FAA standards they will modify the procedures, that is, raise the minimums to protect for the critical obstruction. In some cases, like at UUU and WST they suspended the procedure until such time as RIAC corrects the condition. In essence this reduces the effectiveness of the runway and therefore the service it provides to the user. Enough cannot be said about the importance of maintaining the runway approaches. For some users it may be more important than the length of the runway in terms of ensuring the safest conditions to land. Typically the "primary" runway is the most utilized runway and the one most likely to support the critical aircraft. It is therefore the one where it should be a priority to maintain the highest and best approaches.

The approach procedures and the equipment that provide vertical and horizontal guidance to enhance landings is, for the most part, the responsibility of FAA. Maintaining clear approaches in accordance with FAA criteria however is the sole responsibility of the airport sponsor.

Approach NAVAIDs, that provide vertical and/or horizontal guidance, enable night landings and approaches during periods of inclement weather conditions. Four types of runway approach categories provide pilots with varying levels of navigational guidance. These include:

i. Precision: An Instrument Landing System (ILS) provides vertical and horizontal guidance. With an unobstructed approach surface and the approach lighting system (ALS) the minimums can be below a ½ mile visibility and a 200' ceiling.

Localizer Performance with Vertical Guidance (LPV) approaches: Uses satellite based Global Positioning Signals (GPS) to provide vertical and horizontal guidance. Like an ILS the LPV approach minimums can be as low as ½ mile visibility and ceiling heights of 200 feet.

Non-precision instrument approaches - Use ground based equipment such as very high frequency omnidirectional radio range (VOR) stations, distance measuring equipment (DME) and a localizer (LOC) to provide only horizontal guidance to the aircraft. Minimums can vary depending on the approaches. Typically they range from ¾ to 1 mile visibility.

Visual approaches - Require a pilot to navigate an approach with visual references.

The following tables and figures provide an inventory of the NAVAIDs and visual aids that make-up the Rhode Island airport system.

TABLE 2-7: RUNWAY NAVAIDS, APPROACH AND MINIMUMS

Airport	Runway	Approach	Lowest Visibility Minimums (Miles)	Lowest MDH Feet
T.F. Green	5 CAT IIIC ILS 23 LOC/ DME	Precision	(R/W 5): 0 MI	0' MDH for CAT IIIC ILS 5R
	34 ILS	Precision	(R/W 34): ¾ MI	700' MDH
Westerly	7 LOC/DME	Non-Precision	(R/W 7): 1 MI	444' MDH LOC 7
	14/32	Visual	-	-
Block Island	10 GPS & VOR DME	Non-Precision	(R/W 10): ¾ MI 28: 1 MI	431' MDH for GPS 10 & VOR DME 10
North Central	5 LOC/DME	Non-Precision	(R/W 5): ¾ MI	391' MDH for LOC 5
	15/33	Visual	-	-
Quonset	16 ILS 34 RNAV (GPS)	Precision	(R/W 16-34): ½ MI	200' MDH for ILS 16
	05/23	Visual	-	-
Newport	22 LOC/DME	Non-Precision	(R/W 22): ¾ MI	468" MDH for LOC 22
	16 RNAV (GPS)	Non-Precision	(R/W 16): ¾ MI	2100' MDH

FIGURE 2-16: PUBLISHED APPROACH LOCATIONS (PRECISION/NON-PRECISION)

This figure identifies the airport's primary runway approach capabilities as defined by FAA standards.

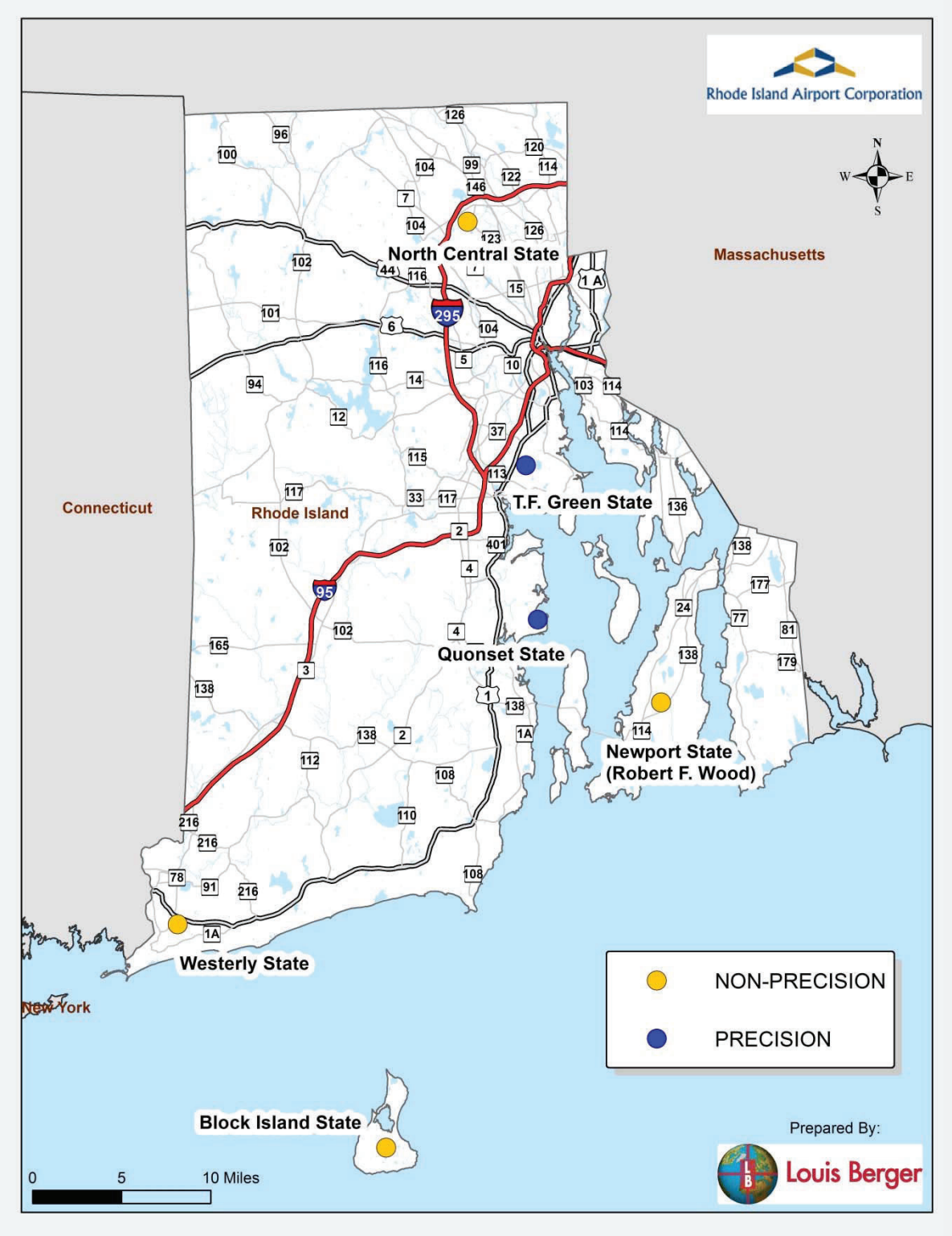


TABLE 2-8: RUNWAY APPROACH OBSTRUCTIONS[17]

Airport	Runway End(s)	Controlling Obstruction
T.F. Green	23	Trees
	16	Trees, Utility Poles, Structures
	34	Trees
Westerly	07/25	Trees
	14/32	Trees
Block Island	10	Trees
North Central	05/23	Trees
	15/33	Trees
Quonset	05	Pole
	16	Trees
Newport	04/22	Trees
	16/34	Trees

Source: FAA 5010 Facilities Record

[17] See AMP and Obstruction Studies for more detail on airport obstructions

TABLE 2-9: RUNWAY VISUAL AIDS [18]

Airport	Windsock	Rotating Beacon	Weather Reporting	REILS	VASI	PAPI	ALSF	MALSR	MALSF
T.F. Green	Yes	Yes	Yes	16	23 34	16	5	34	-
Westerly	Yes	Yes	Yes	25 14 32	25	07 14 32	14 07	-	07
Block Island	Yes	Yes	Yes	10 28	10	28	-	-	-
North Central	Yes	Yes	Yes	23 15 33	05	23 15	-	-	05
Quonset	Yes	Yes	No	05 23	-	05 23	-	16	-
Newport	Yes	Yes	Yes	22	04	22	-	-	-

[18] See Appendix A for list Acronyms and Abbreviations

FIGURE 2-17: VISUAL GLIDE SLOPE INDICATORS (VASI/PAPI)

A visual aid using lighting configurations to provide a visual queue – landing too high (white) or too low (red) – to assist a pilot in landing the aircraft in VFR weather conditions or in conjunction with a non-precision approach.

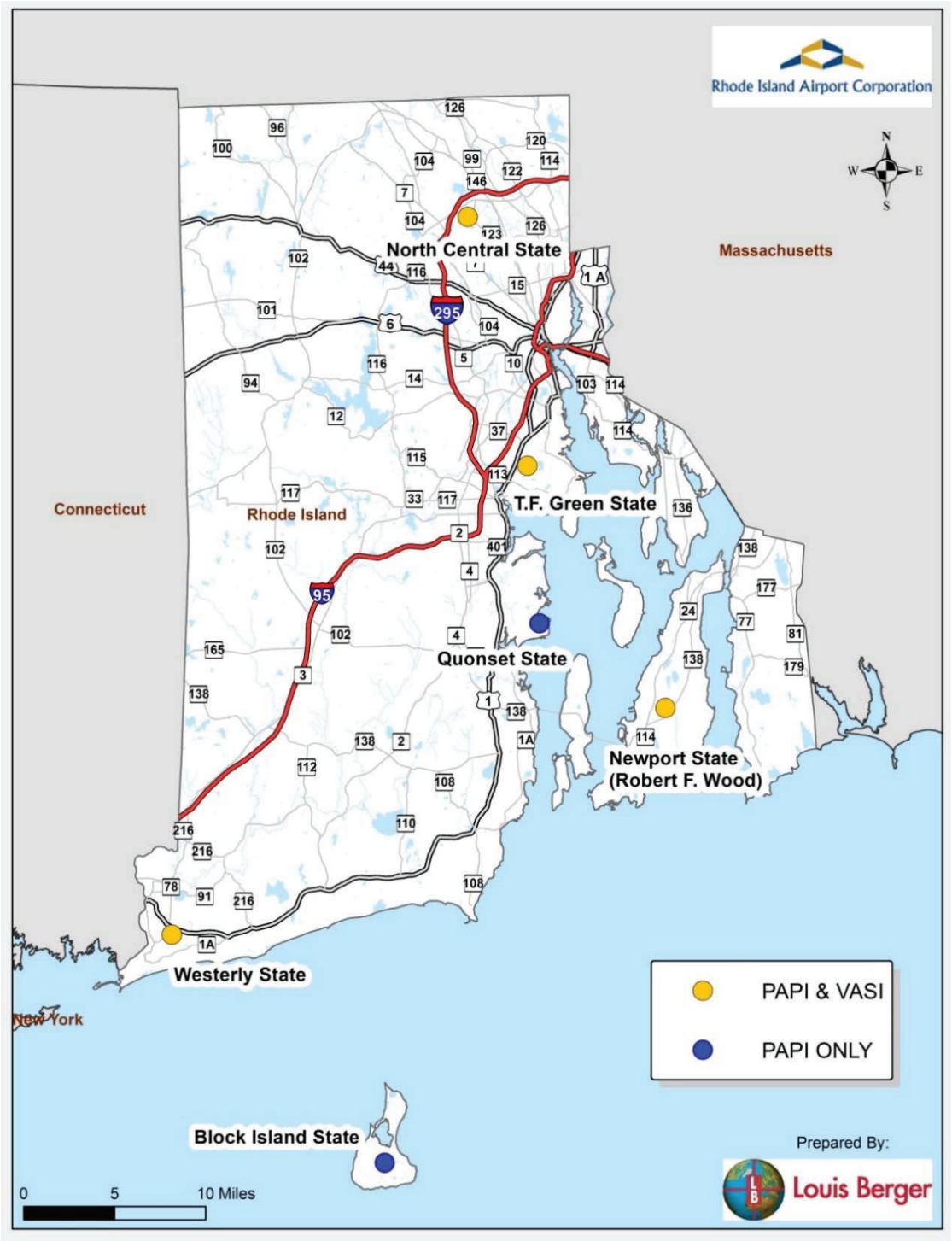


FIGURE 2-18: RUNWAY END IDENTIFIER LIGHTS (REILS)

This system provides positive identification to the end of the runway.

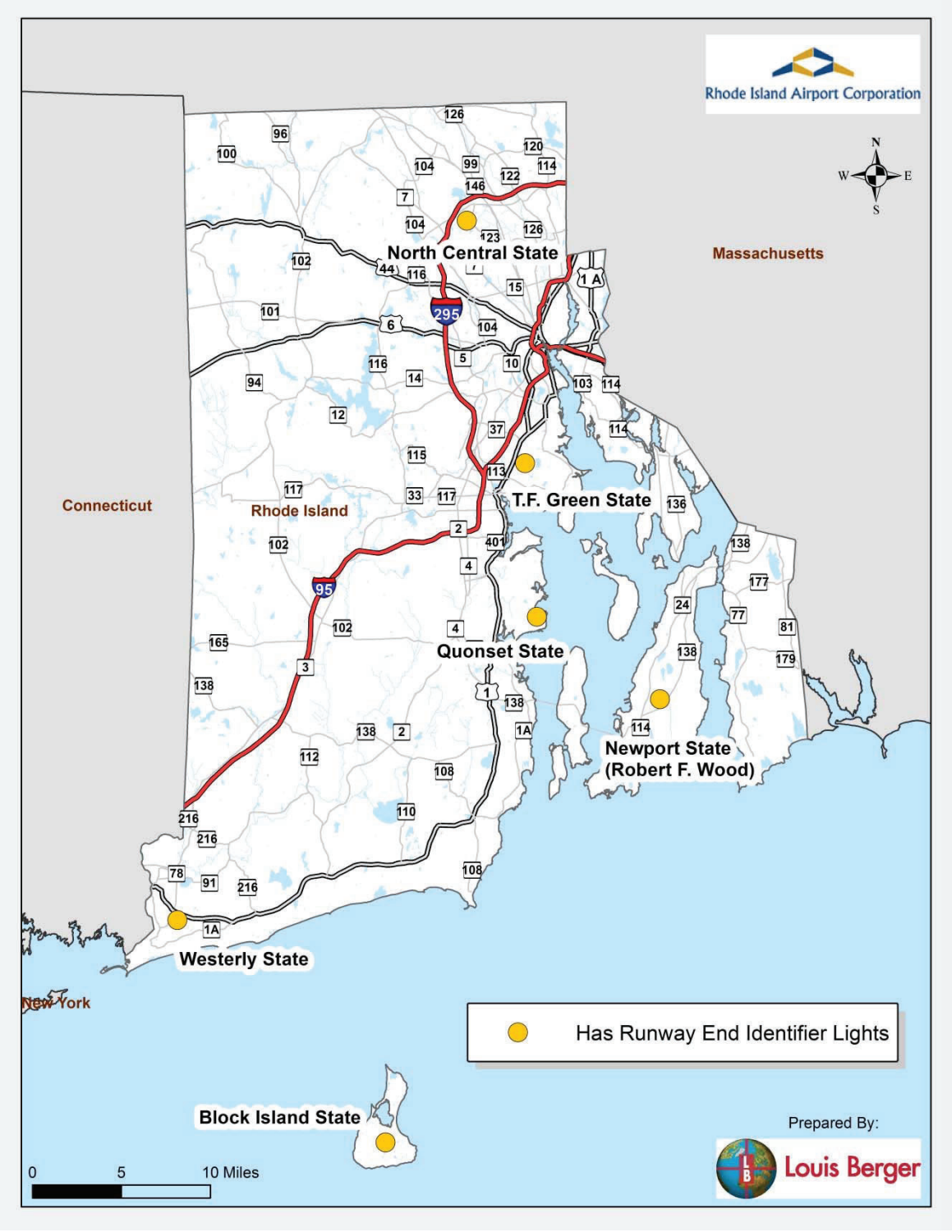


TABLE 2-10: PAVEMENT CONDITIONS[19]

Airport	Primary Runway	Secondary Runway	Taxiway	Apron
T.F. Green	Good	Good	Good	Good
Westerly	Good	Good	Good	Good
Block Island	Good	Not Applicable	Fair/Good	Poor
North Central	Good	Good	Good/Excellent	Based A/C: Poor, Transient A/C: Good
Quonset	Fair	Fair	Fair/Good	Civilian: Fair-Good, Military: Good-Excellent
Newport	Fair	Good	Fair/Good	Based A/C: Poor, Transient A/C: Poor

It should be noted that the condition reported is an overall assessment of the runway, taxiway or apron pavement. Clearly there may be varying conditions in a specific segment of a particular pavement that is not reflected in **Table 2-10**. Runway pavement conditions are monitored on a routine basis. Pavement management programs are in place to ensure the longevity of the runways is achieved. Runway pavement rehabilitation represents the single highest priority when soliciting FAA AIP funding.

[19] This is the latest assessment (Dec 2016) by RIAC's Senior Engineer.

FIGURE 2-19: WEATHER REPORTING EQUIPMENT

The airports equipped with weather reporting equipment to provide latest weather information.

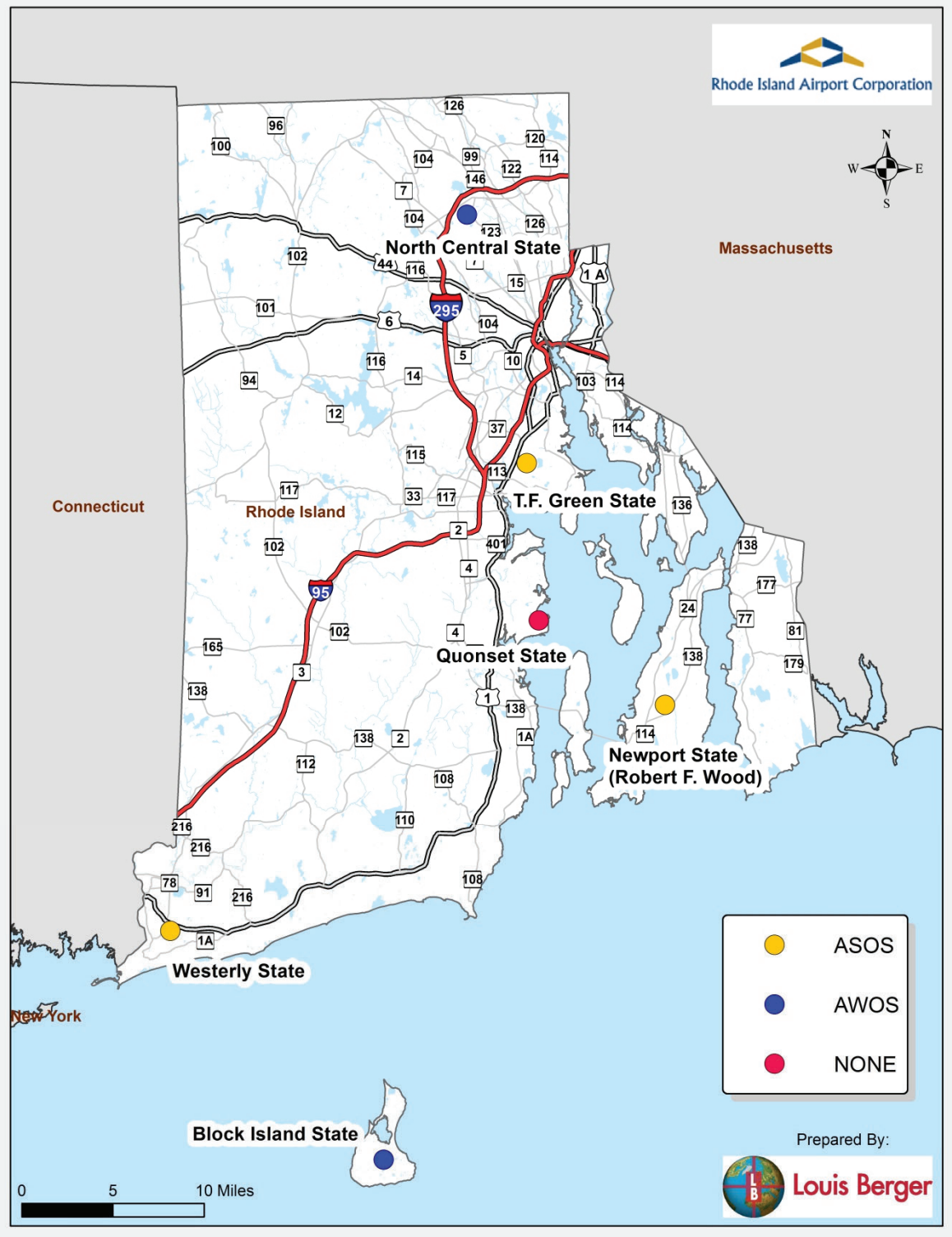


FIGURE 2-20: FLIGHT INSTRUCTION SERVICES

The Figure identifies airports where flight instruction services are provided.

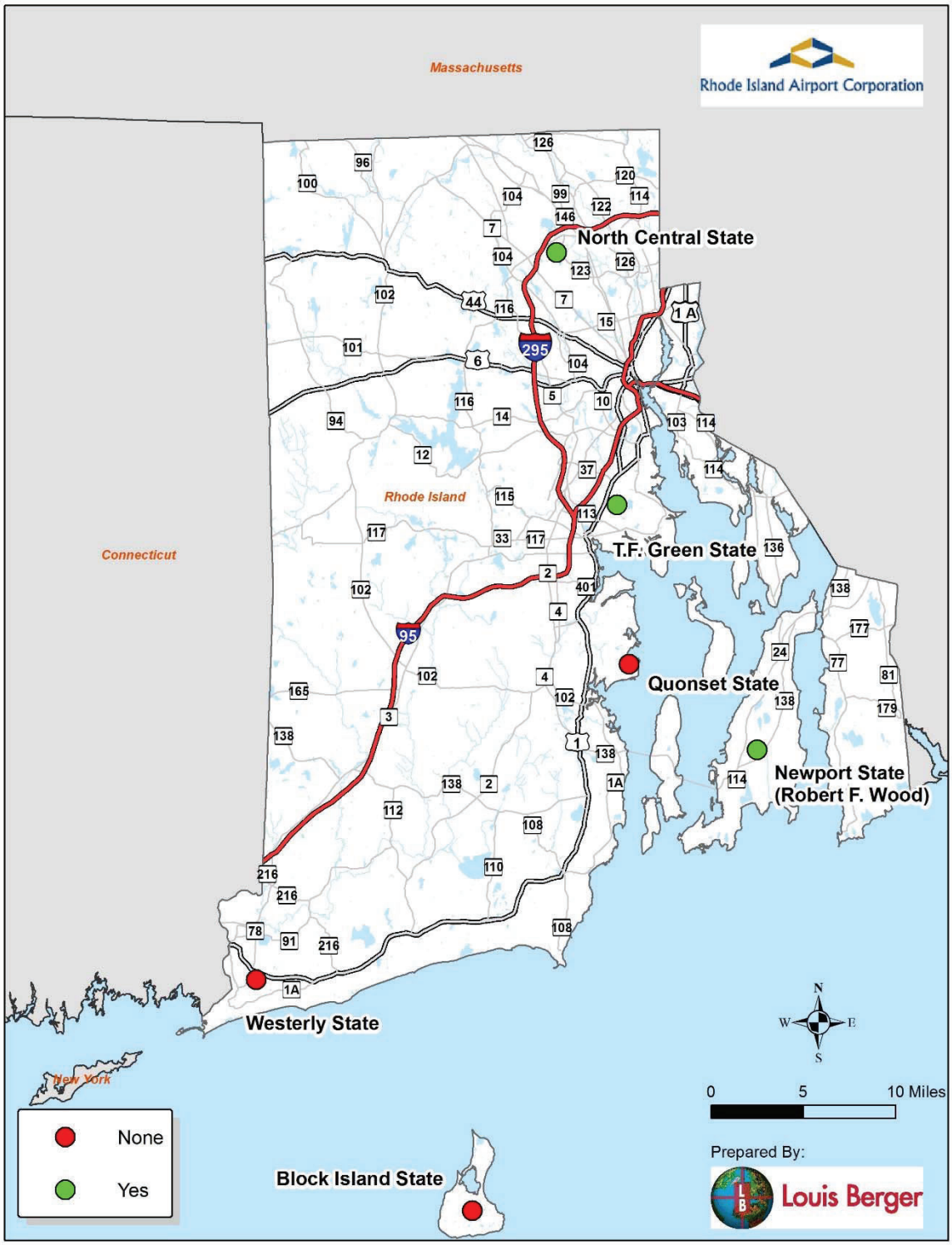


FIGURE 2-21: FUEL TYPE & AVAILABILITY

The Figure identifies airports where 100LL fuel, Jet A fuel or both are provided.

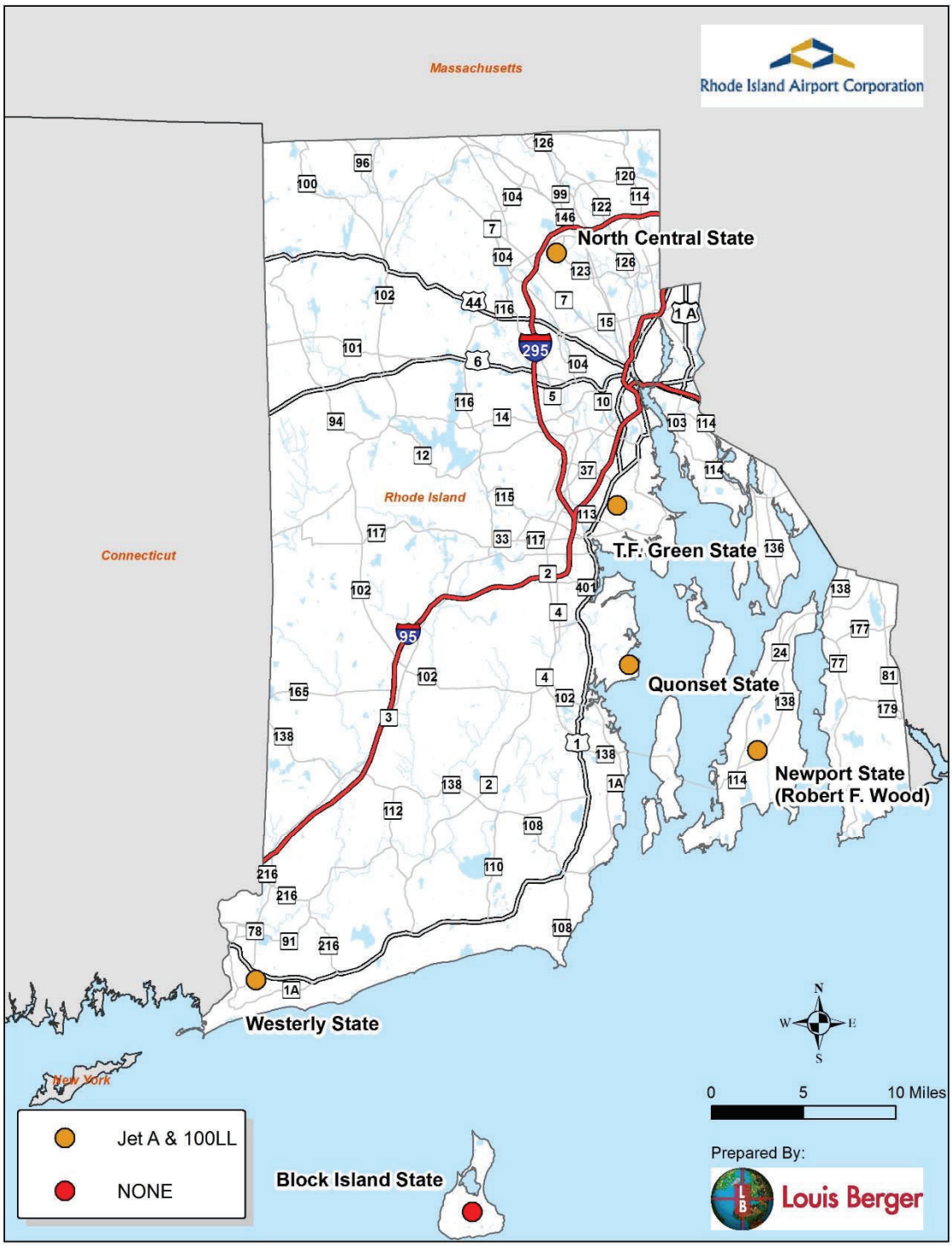


FIGURE 2-21: AVAILABILITY AIRCRAFT MAINTENANCE AND REPAIR

The Figure identifies airports where aircraft maintenance and repair services are provided.

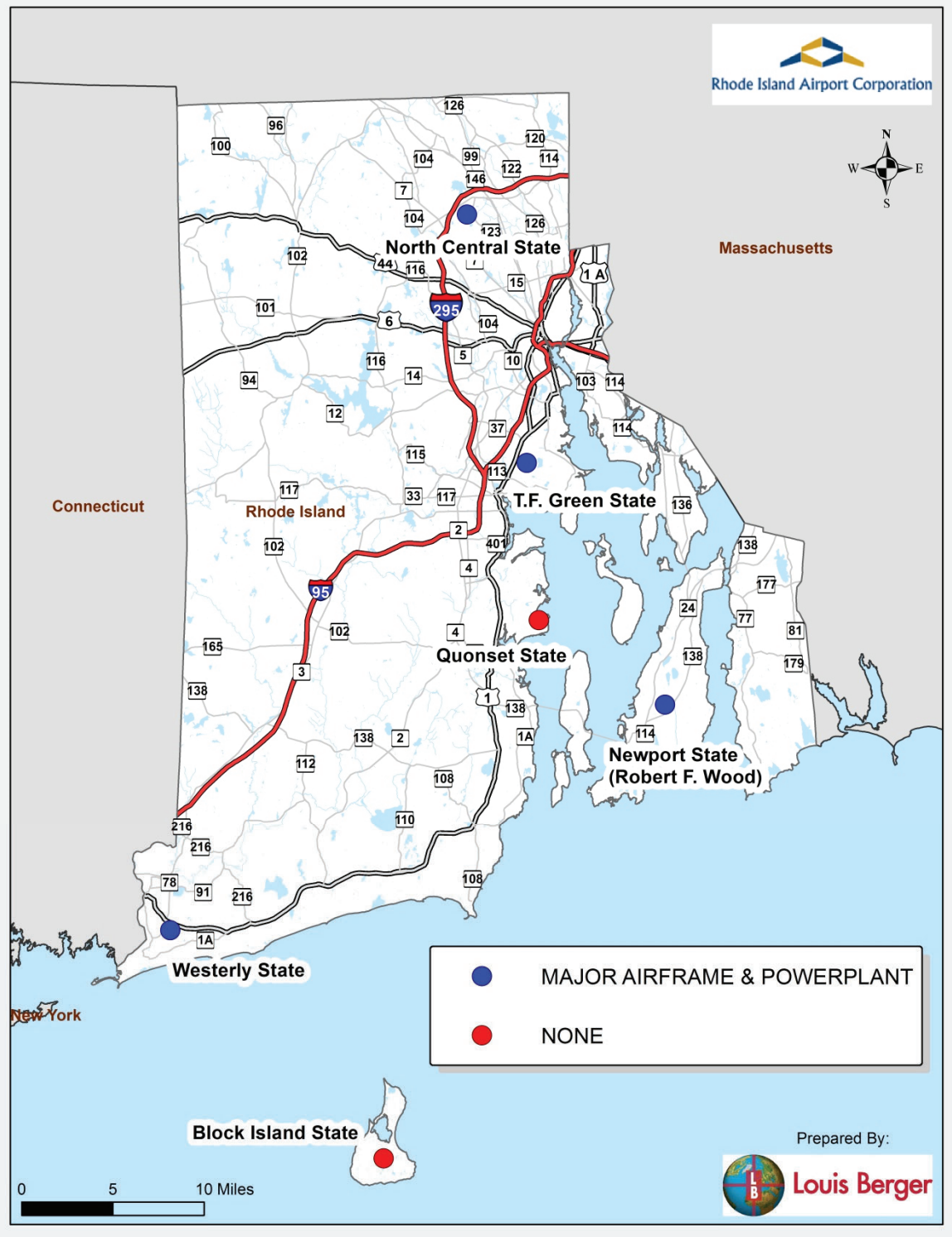


TABLE 2-11: AIRCRAFT HANGAR & TIE-DOWN (ADEQUATE/INADEQUATE) [20]

Airport	Hangars			Tie-downs		Hangar Waiting List
	Based A/C T Hangar	Based A/C Conventional	Transient A/C	Based A/C	Transient A/C	
T.F. Green	Adequate	Adequate	Adequate	Adequate	Adequate	-[21]
Westerly[22]	100% Occupied (Inadequate)	100% Occupied (Inadequate)	100% Occupied (Inadequate)	Adequate	Adequate	Yes
Block Island	Adequate	Adequate	100% Occupied (Inadequate)	Adequate	(Inadequate)[23]	No
North Central	100% Occupied (Inadequate)	100% Occupied (Inadequate)	100% Occupied (Inadequate)	100% Occupied (Inadequate)	100% Occupied (Inadequate)	Yes
Quonset	100% Occupied (Inadequate)	100% Occupied (Inadequate)	100% Occupied (Inadequate)	100% Occupied (Inadequate)	100% Occupied (Inadequate)	Yes
Newport	100% Occupied (Inadequate)	100% Occupied (Inadequate)	100% Occupied (Inadequate)	-	(Inadequate)	Yes

Key -

Adequate: There is space available to accommodate additional aircraft

Inadequate: There are space constraints and would be difficult to accommodate additional aircraft

[20] Based on December 2014 Inventory Survey Response and latest master plans

[21] Information is not available.

[22] There is a "through the fence" operation at the airport. That means the FBO is located off the property but has access to the airport via lease agreements.

[23] The deficiency exists only during peak summer tourist season.

TABLE 2-12: AIRPORT FUELING SERVICES

Airport	100LL	Capacity (gallons)	Jet A	Capacity (gallons)	Fuel Operator	Self-Fueling	24 hour Availability	Underground Fuel Storage
T.F. Green	Yes	12,000	Yes	350,000	Allied Aviation NorthStar Aviation	No	Yes	Jet A
Westerly	Yes	10,800	Yes	15,000	AvPorts	Yes	Yes (Avgas)	No
Block Island	No Fuel Available							
North Central	Yes	12,000	Yes	12,000	AvPorts	No	No	No
Quonset	Yes	12,000	Yes	12,000	AvPorts	No	Yes	No
Newport	Yes	10,000	Yes	3,000	AvPorts	Yes	Yes (100LL)	No

TABLE 2-13: FLEET MIX FOR BASED AIRCRAFT (2014)

Airport	Single- Engine	Multi-Engine	Jet	Helicopter	Other	Total
T.F. Green	37	6	11	2	0	56
Westerly	45	7	0	1	0	53[24]
Block Island	3	1	0	0	0	4
North Central	77	7	0	2	0	86
Quonset[25]	28	2	5	12	9	56
Newport	29	3	0	2	0	34

TABLE 2-14: OPERATIONS/ENPLANEMENTS (2014)

Airport	Air Carrier Ops	Air Taxi/ Commuter Ops	Itinerant: GA Ops	Military Ops	Commuter Enplanements	Air Carrier Enplanements
T.F. Green	35,598	12,964	15,480	101	478,319	1,358,285
Westerly	0	6,286	6,801	104	9,491	0
Block Island	0	6,328	9,832	35	10,479	0
North Central	0	817	7,135	30	0	0
Quonset	0	601	6,054	7,676	0	0
Newport	0	386	1,604	10	0	0

Source: December 2014 Inventory Survey Response, FAA APO Terminal Area Forecast

[24] Virtually all of the Based Aircraft are parked at the "through the fence" FBO.
[25] Airport Survey data was not available, used FAA 5010 data.

TABLE 2-15: TERMINAL BUILDING/ FBO FACILITIES/ AIRPORT SERVICES (1 OF 2)

Facilities and Services	TF Green	Westerly	Block Island	North Central	Quonset	Newport
GA Terminal/ FBO	Yes	Yes	Yes	Yes	Yes	Yes
Date Constructed	2000	2001	2009	2004	2009	-
Terminal Space Sufficient	Yes	Yes	Yes	Yes	Yes	No
Condition	Good	Fair	Excellent	Excellent	Good	Poor
Pilot Lounge	Yes	Yes	No	Yes	Yes	Yes
Restaurant	Yes	No	Yes	No	No	No
Conference Room	Yes	Yes	No	Yes	Yes	-
Flight Planning Room	Yes	Yes	No	Yes	Yes	-
Internet/ WIFI Access	Yes	Yes	No	Yes	Yes	-
Cellphone Coverage	Strong	Moderate	Strong	Strong	Strong	Moderate
Food/Beverage/ Vending	Yes	Yes	No	Yes	Yes	Yes
Catering	Yes	Yes	No	Yes	Yes	Yes
Restaurant	No	No	Yes	No	No	No
Restrooms	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle parking	Yes	Yes	-	-	Yes	Yes

TABLE 2-15: TERMINAL BUILDING/ FBO FACILITIES/ AIRPORT SERVICES (2 OF 2)

Facilities and Services	TF Green	Westerly	Block Island	North Central	Quonset	Newport
Snow Removal	Yes	Yes	No	Yes	Yes	Yes
Maintenance Building	Yes	No	Yes	Yes	No	Yes
Green Alternative Equipment	No	No	No	No	Yes	No
ARFF Building	Yes	No	No	No	Yes	Yes
Onsite Car Rental	Yes	Yes	Yes	Yes	Yes	No
Courtesy Car	Yes	No	No	No	Yes	No
Crew Car	No	No	No	No	Yes	No
Intermodal Transportation (Taxi, Bus, Light rail)	Yes	No	Yes	Yes	Yes	Yes
Flight Instruction	Yes	No	No	Yes	No	Yes
Airframe Repair	No	Yes	No	Yes	No	Yes
Power-plant Repair	No	Yes	No	Yes	No	Yes
Avionics Repair	No	No	No	No	No	Yes
Aircraft Sales	No	Yes	-	No	No	Yes
Aircraft Rentals	Yes	No	-	-	No	Yes
Snow Removal	Yes	Yes	-	Yes	Yes	Yes
Deicing	Yes	No	No	Yes	Yes	No

TABLE 2-16: AIRPORT PLANS

Airport Plans	TF Green	Westerly	Block Island	North Central	Quonset	Newport
Airport Master Plan	Yes (2002)	Yes (2009)	Yes (2005)	Yes (2010)	Yes (2014)	Yes (2007)
Airport Layout Plan	Yes (2013)	Yes (2009)	Yes (2005)	Yes (2010)	Yes (2014)	Yes (2007)
Capital Improvement Plan	Yes (2001)	Yes (-)	Yes (2005)	Yes (-)	Yes (-)	Yes (-)
Business Plan	-	No	Yes (-)	Yes (2007)	Yes (2014)	No
Economic Plan	-	No	Yes (-)	Yes (2006)	No	Yes (-)
Minimum Standards	-	No	Yes (-)	Yes (-)	No	No
Rules and Regulations	-	No	Yes (-)	Yes (2014)	No	No
Obstruction Analysis	-	Yes (-)	Yes (-)	Yes (2001)	No	Yes (-)
Part 150 Study	Yes (-)	No	No	No	No	No
Noise Evaluation	No	Yes (-)	No	No	No	No
Wildlife Management Plan	No (-)	Yes (-)	Yes (-)	Yes (-)	Yes (-)	Yes (-)
Emergency Plan	Yes (-)	Yes (2012)	Yes (-)	Yes (-)	Yes (2007)	Yes (-)
Winter Operations Plan	Yes (-)	Yes (-)	Yes (-)	No	Yes (2014)	No
Pavement Management Plan	Yes (-)	Yes (-)	Yes (-)	Yes (-)	Yes (-)	Yes (-)
Comp. Solid Waste Management Plan	Yes (-)	Yes (-)	Yes (-)	Yes (-)	Yes (-)	Yes (-)
Vegetation Management Plan	Yes (-)	Yes (-)	Yes (-)	Yes (2004)	Yes (2010)	Yes (-)
Wetland Delineation Plan	Yes	No	Yes (-)	Yes (2008)	Yes (2004)	Yes (-)

CHAPTER 3 – FORECAST OF AVIATION ACTIVITY

A. Introduction

The **FAA 2015–2035 Aerospace Forecast** highlights the fact that *"developing forecasts of aviation demand and activity levels continues to be challenging and filled with uncertainty, particularly in the short-term"*. However, overall they are optimistic about the general aviation markets as evident by their following commentary: *"As the economy recovers from the most serious economic downturn since World War II and the slowest expansion in recent history, aviation will continue to grow over the long run."*

Traditionally airport forecasts are projected on a short-term (0 – 5 year), medium-term (6 – 10 year) and long-term (11 – 20 year) basis. Whereas the short term is about planning "now", the long-term only provides a "sense" of the future. Long-term forecasts and planning should be re-evaluated at 5-year intervals. This is where our system planning update begins.

The Forecast Chapter is important because it provides the foundation needed to:

- Monitor and assess the role and performance of the airport system.
- Develop overall policy and strategy for managing the airport system.
- Evaluate the system capacity and the ability to accommodate projected demand.
- Provide an approximation as to the extent of future airside/landside improvements.
- Estimate the investment needed in short range capital improvement plans (CIP).
- Plan operational (staffing, and equipment) components of the system.
- Ensure the ASP is consistent with the Statewide Guide Plan.

The last comprehensive forecast was developed in conjunction with the 2004 Rhode Island Airport System Update. Some components of the general aviation (GA) activity received a modest review and were subsequently revised to prepare the 2011 State Guide Plan (Element 640). The T.F. Green operational activity was revised in 2012 in to prepare the Environmental Impact Statement (EIS) for the T.F. Green Airport Improvement Program. Projecting aviation activity is a dynamic process and 4 -5 years have elapsed since the forecasts for the State Guide Plan and T.F. Green EIS were prepared. It is reasonable to assume there could be changes in some elements of the airport system. Chapter 3 evaluates the general aviation (GA) activity and prepares the latest outlook for the airport system.

This ASP update focused primarily on the GA forecasts. That includes:

- Based aircraft.
- Fleet mix.
- Local and itinerant operations.
- Commercial air taxi activity at Block Island and Westerly airports.

GA activity is an important component of the state and national transportation system. The demand for business jet aircraft services is of particular interest because it has been the most active sector of GA. Contributing to that growth is the fact that the corporate fleet offers convenience of scheduling, minimal flight delays and more effective use of business time. As a result; on-demand corporate and fractional ownership has become a more efficient method of travel.

In summary, the fundamental demand for aviation is driven by economic activity and although uncertainty surrounds the U.S. and global economy, the FAA projects aviation activity to reflect modest growth over the planning period.

B. Forecasting Aviation Activity

Four generally accepted forecasting methodologies were utilized to develop the GA forecasts. They are reasonable methodologies because the data base utilized is estimated activity. Only one of our four GA airports has accurate ATCT data. To develop the projected activity levels for (a) based aircraft[26] and (b) aircraft operations the data sources were:

- Historical Data[27]
- GA Airport Master Plans Forecasts
- FAA 2015 – 2035 Aerospace Forecast
- FAA 2014 – 2040 Terminal Area Forecast
- T.F. Green Airport Improvement Program EIS Forecasts
- Air Traffic Activity Data Systems (ATADS)

1. Based Aircraft

a. Forecast Methodology: "Extrapolation of Historical Data"

Step one was a review of the airport managers' survey report. The survey provided data on based aircraft, aircraft operations and passenger enplanements for the period 2004-2014 (last complete year of data). This methodology relies on establishing a 'trend line' of the historical data and extrapolating it to future years. It relies heavily on professional judgment because the empirical data may distort the information and over (or under) estimate future projections. By observing the historical data in **Figure 3-1** it is clear there are dramatic shifts in based aircraft activity. Starting with 2004, the total based aircraft in the system increases from 341 to a peak of 353 in 2008. However, by the end of 2009 the total based aircraft declined to 273. Interestingly, for the period, 2009 – 2010, the total based aircraft drops dramatically from 351 to 273, a decrease of 78 based aircraft system wide. That is a one-year 25% decline in based aircraft. For the period, 2011 – 2012, it continues to decline to 260 based aircraft. It holds steady at 260 based aircraft in 2013. Although the past several years reflect only a modest decline, any decline is not an optimistic outlook. It is

[26] Based aircraft as defined by FAA is; "aircraft that are operational and air worthy, at a facility for the majority of the year".
[27] Activity reported by AvPort's managers on the Survey data sheet.

important to report that during that same period GA activity was undergoing a similar decline on a national level. The FAA's annual GA survey for 2013 showed that between 2010 and 2013 the number of active GA aircraft went down by 10.5 percent. The biggest decline was in the piston aircraft category, where the number of active aircraft decreased 11.4%. GA flight hours decreased by 7.8% in 2013 and the largest component of the overall drop in GA flight hours was single engine piston aircraft hours which declined by 12%. According to FAA; *"Not surprising rising fuel prices, stagnant household incomes, falling household wealth, and a shrinking pilot population are all viewed as contributing to the long run decline in general aviation activity."*

To corroborate the national and RI trend we researched the findings of the 2015 New England Regional Airport System Plan-General Aviation Phase-I (NERASP-GA) report. The NERASP-GA data for the evolution of GA in New England (2000 to 2010) stated; *"…the total number of active aircraft appears to have varied cyclically from year to year, with a peak in 2004 and troughs in 2002 and 2006. There appears to have been a significant decline in the Region's active aircraft since 2007. This cyclical pattern appears to vary by state…"*

FIGURE 3-1 HISTORICAL RECORD OF BASED AIRCRAFT (2004-2014) SYSTEM-WIDE

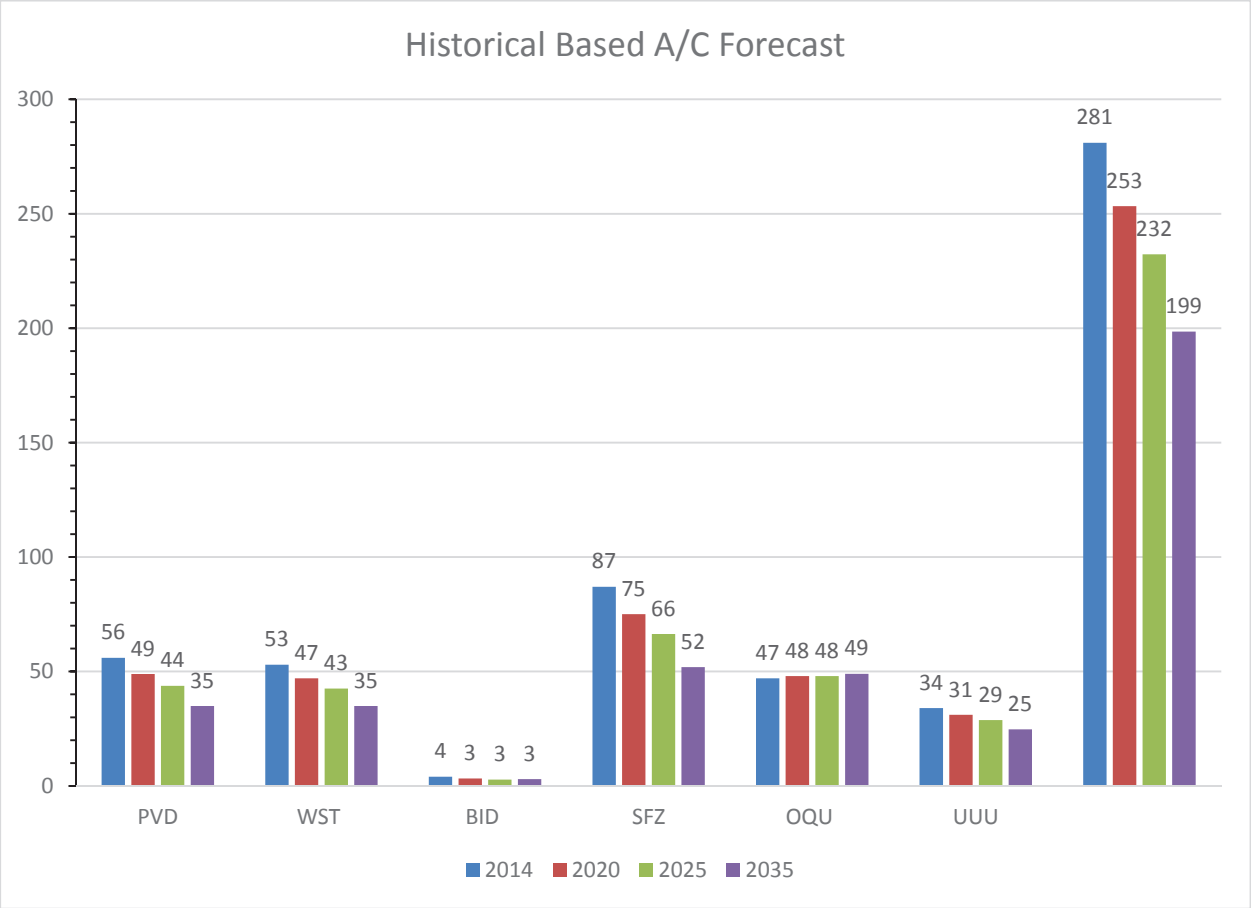
Source: RI Airport Economic Impact Study

For 2014, the baseline year, the based aircraft figures used were from the 2015 airport survey conducted for the *RI Airport Economic Impact Study*. It was utilized to forecast the airport's based aircraft for the 5-year (2020), 10-year (2025) and 20-year (2035) periods. Analyzing the survey data provided a historical **Average Annual Growth Rate (AAGR)** for the airport. The historical AAGR rate was determined by taking the number of based aircraft for the airport and subtracting the based aircraft figure from the previous year. That number is then divided by the original based aircraft figure in order to provide the percentage increase (or decrease) from the previous year. As an example; PVD had 72 based aircraft in 2005. It increased to 75 in 2006. The Annual Growth Rate (AGR) [75 – 72/72] = 4.2%. The AGR was determined for each airport by repeating the process for each year for the 10-year period. Adding the AGR for the 10-year period and dividing by 10 provides the AAGR for the airport. The AAGR was applied to the base year 2014 and extrapolated for each forecast year. (See **Figure 3-2** and **Figure 3-3**)

FIGURE 3-2 EXTRAPOLATION OF HISTORICAL DATA – BASED AIRCRAFT FORECAST

Airport Name	Historical AAGR	2014	2020	2025	2035
T.F. Green State [PVD]	-2.22%	56	49	44	35
Westerly State [WST]	-1.97%	53	47	43	35
Block Island [BID]	-3.33%	4	3	3	3
North Central State [SFZ]	-2.43%	87	75	66	52
Quonset State [OQU]	0.22%	47	48	48	49
Newport State [UUU]	-1.50%	34	31	29	25
	Totals:	**281**	**253**	**232**	**199**

Source: RI Airport Economic Impact Study and Louis Berger



Source: RI Airport Economic Impact Study and Louis Berger

b. Forecast Methodology: Airport Master Plan (AMP) Forecast

This methodology involved reviewing forecast data from the current airport master plans (AMP). The AMP growth rates were applied to the 2014 based aircraft data and projected through 2035. Observing the date the AMP was completed (See list below) it is questionable whether the source data is current. Four of the five reports are 5 – 10 years old. Utilizing the AAGR could also be questionable - do they really reflect current GA conditions? In the final analysis it was our professional judgment that an updated AMP report for any of those four airports would not 'materially' change the outcome of the forecasts or the airport system requirements.

- Block Island AMP - June 2005
- Newport AMP - December 2007
- Westerly AMP - April 2009
- North Central AMP - March 2010
- Quonset AMP - December 2014

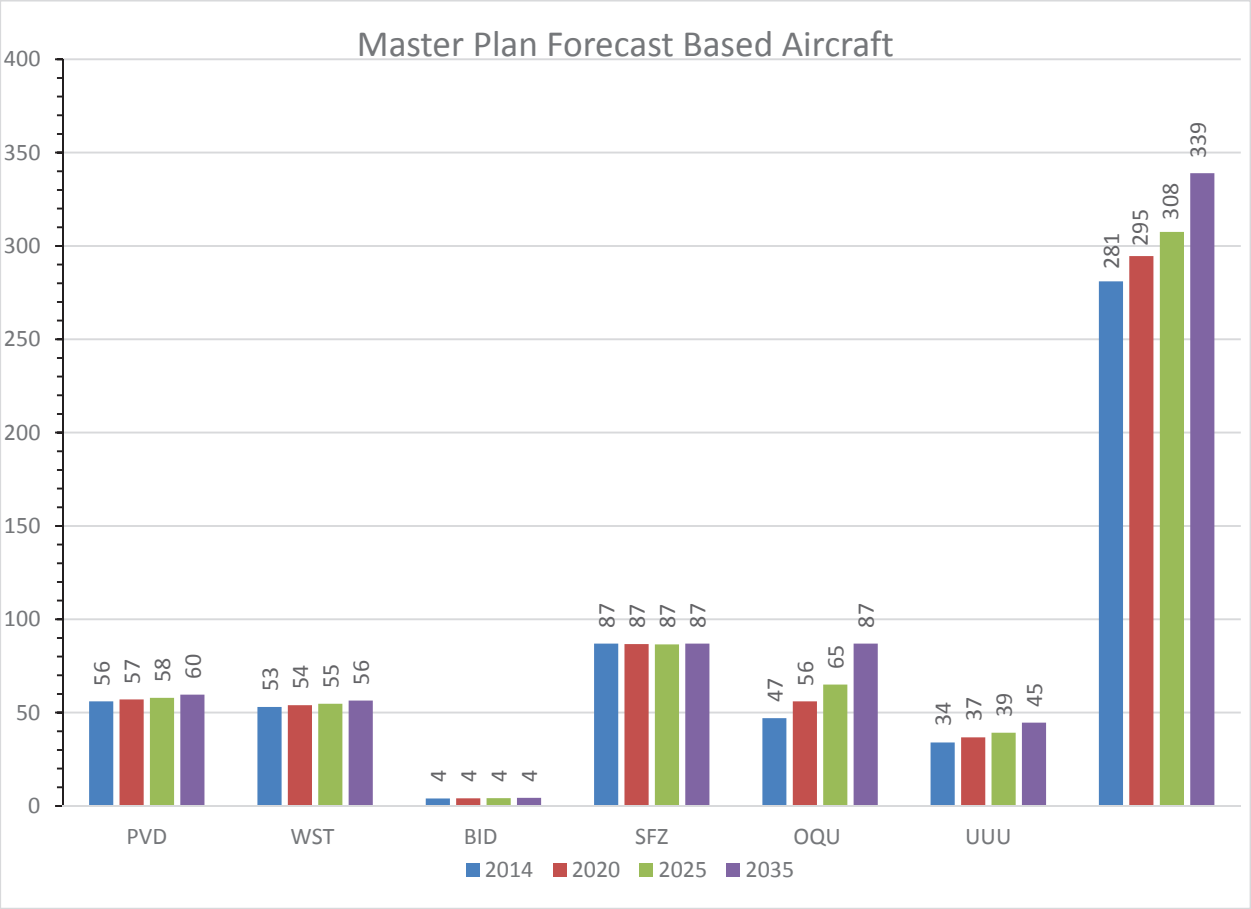
Using the AMP methodology; the based aircraft AAGR for each airport was applied to the 2014 base year and extrapolated to forecast the 5, 10, and 20-year periods. See table in **Figure 3-4** and graph in **Figure 3-5.** Quonset and Newport show some growth, the others are flat-lined over the long-term.

FIGURE 3-4 AMP GROWTH RATES BASED AIRCRAFT FORECAST

Airport Name	AMP Growth Rates	2014	2020	2025	2035
T.F. Green State [PVD]	0.30%	56	57	58	60
Westerly State [WST]	0.30%	53	54	55	56
Block Island [BID]	0.36%	4	4	4	4
North Central State [SFZ]	0.05%	87	87	87	87
Quonset State [OQU]	3.00%	47	56	65	87
Newport State [UUU]	1.30%	34	37	39	45
	Totals:	**281**	**295**	**308**	**339**

Source: AMP's and Louis Berger.

FIGURE 3-5 AMP BASED AIRCRAFT FORECAST



Source: AMP's and Louis Berger

c. Forecast Methodology: 2015-2035 FAA Aerospace Forecast

The third forecast used was the ***"2015-2035 FAA Aerospace Forecasts"***. These national forecasts are published annually by FAA. They are based on forecasts of economic activity. In preparing the GA forecasts, the FAA relies heavily on discussions with industry experts. The FAA cautions the user that there are many assumptions in the economic forecasts and therefore could impact the degree to which these forecasts are realized. Moreover, the forecast is driven, at least in the short-term, by a number of factors including the strength of the economic recovery and any impact resulting from the U.S. government fiscal situation. However, overall they present an optimistic message about the general aviation market. *"General aviation market continues its recovery. In 2014, the turbo jet sector recorded its first increase in deliveries by U.S. manufacturers since 2008. For a third year in a row, single engine piston deliveries have increased. The long term outlook for general aviation is favorable, and near term also looks promising especially for piston aircraft activity which is sensitive to fuel price movements. While it is slightly lower than predicted last year, the growth in business aviation demand over the long term continues. As the fleet grows, the number of general aviation hours flown is projected to increase an average of 1.4 percent per year to 2035."*

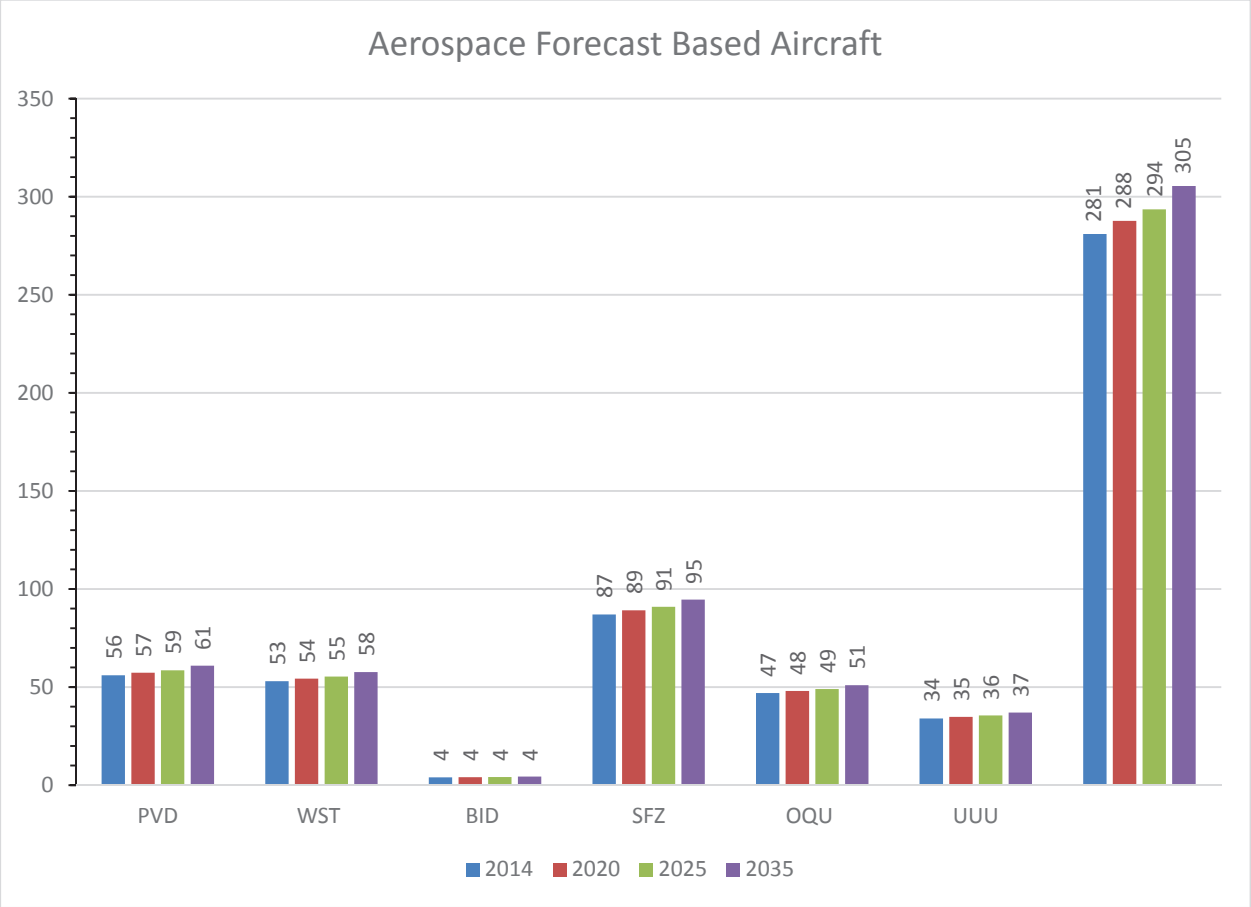
The 2015-2035 FAA Aerospace Forecasts projects the active GA fleet to increase at an average annual rate of 0.4% over the 21-year forecast period. ("Active": flies at least one hour during the year.) The 0.4% AAGR was applied to the 2014 baseline based aircraft for each airport to derive the forecast projections through 2035. See **Figure 3-6** and **Figure 3-7.** There is modest growth from 281 to 305 over 20 years.

FIGURE 3-6 FAA AEROSPACE FORECAST BASED AIRCRAFT

Airport Name	AAGR	2014	2020	2025	2035
T.F. Green State [PVD]	0.4%	56	57	59	61
Westerly State [WST]	0.4%	53	54	55	58
Block Island [BID]	0.4%	4	4	4	4
North Central State [SFZ]	0.4%	87	89	91	95
Quonset State [OQU]	0.4%	47	48	49	51
Newport State [UUU]	0.4%	34	35	36	37
	Totals:	**281**	**288**	**294**	**305**

Source: Louis Berger

FIGURE 3-7 AEROSPACE BASED AIRCRAFT FORECAST (2020-2035)



d. Forecast Methodology: FAA Terminal Area Forecast

The fourth forecast methodology was the ***"2014 – 2040 FAA Terminal Area Forecast"*** (TAF). The TAF is the official FAA forecast of aviation activity for U.S. airports. It is primarily prepared to develop the FAA budget and planning requirements. The information is for users of the National Airspace System (air carrier, air taxi/commuter, general aviation, and military) and state and local authorities. The TAF assumes a demand driven forecast based upon local and national economic conditions as well as conditions within the aviation industry. In other words, the forecast is developed independent of the airport's ability to furnish the capacity required to meet the demand. For non-FAA facilities, (like the RI owned GA airports) historical operations in the TAF are from the FAA Form 5010 "Airport Facility Records" data. Summary statistics presented in the **TAF** differ from the totals in the **FAA Aerospace Forecasts**. The differences are the TAF (a) considers airport and market specific trends, (b) includes facilities not serviced by the FAA and they make up a large share of total GA operations, (c) includes only enplanements at U.S. airports,

whereas the *"FAA Aerospace Forecast"* has U.S. and foreign airports enplanements, (d) provides summaries of historical and forecast statistics on aviation activity at U.S. airports and (e) the summary level forecasts are based on individual airport projections. However, the TAF does consider the forecasts and assumptions in the FAA Aerospace Forecasts, 2015-2035. A significant consideration in utilizing the TAF forecast methodology is the fact that FAA utilizes the TAF projections as a parameter in accepting or rejecting forecasts prepared for an airport master plan or environmental impact statement. Generally; local forecasts must be within 10% of the TAF forecasts.

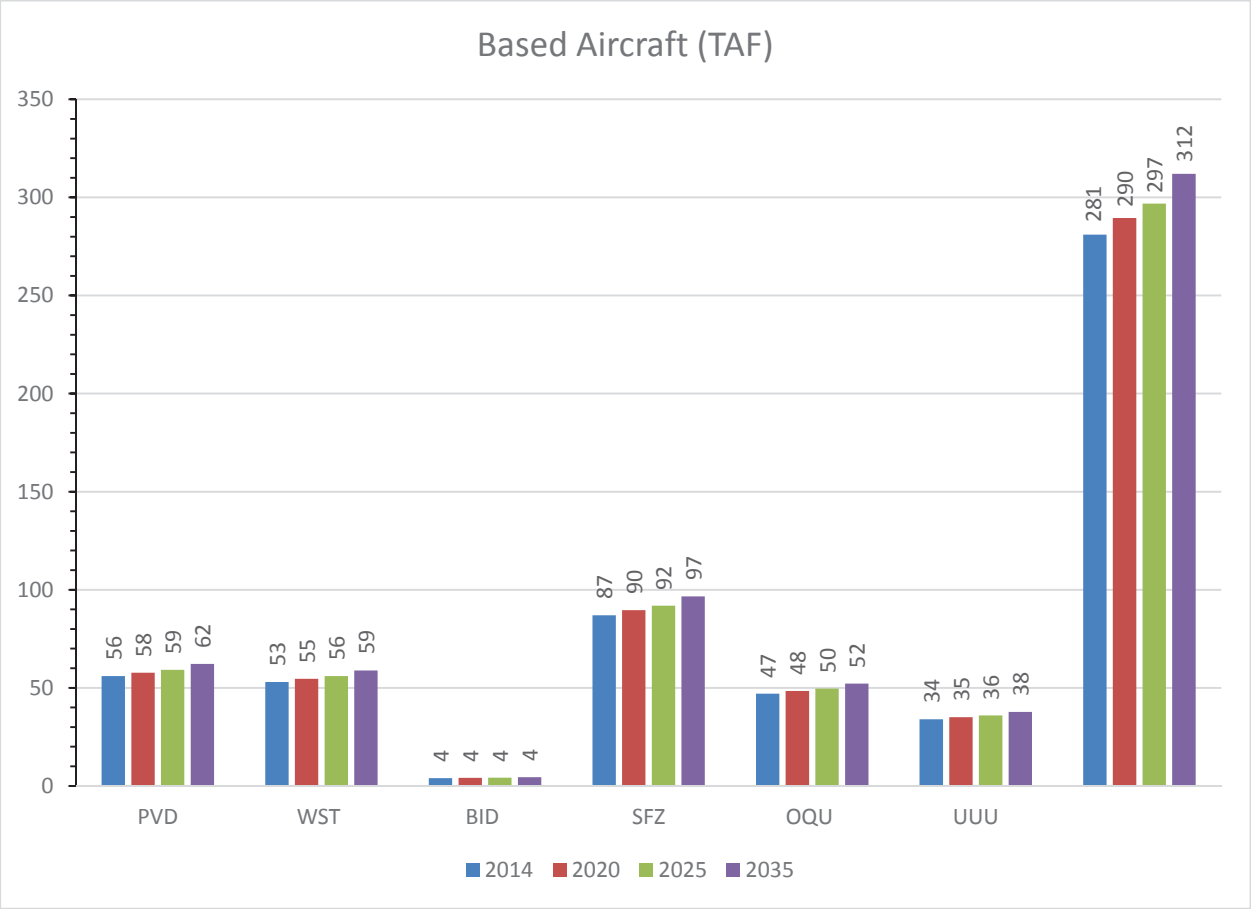
The TAF AAGR of 0.5% was used for the ASP forecasts. It was applied to the 2014 year base aircraft number. The result was the 20-year forecast total growing from 281 to 312. See **Figure 3-8.**

FIGURE 3-8 TERMINAL AREA FORECAST BASED AIRCRAFT (2020-2035)

Airport Name	AAGR	2014	2020	2025	2035
T.F. Green State [PVD]	0.5%	56	58	59	62
Westerly State [WST]	0.5%	53	55	56	59
Block Island [BID]	0.5%	4	4	4	4
North Central State [WST]	0.5%	87	90	92	97
Quonset State [OQU]	0.5%	47	48	50	52
Newport State [UUU]	0.5%	34	35	36	38
	Totals:	**281**	**290**	**297**	**312**

Source: Louis Berger

FIGURE 3-9 TERMINAL AREA FORECAST BASED AIRCRAFT (2020-2035)



Source: Louis Berger

e. Fleet Mix

Fleet mix is the combination of different aircraft types (i.e., single-engine, multi-engine, jet, etc.) that operate at a particular airport. Knowing the fleet mix at each airport is useful. It provides a more comprehensive picture of the airport in terms of understanding the type of activity to plan for. The *2015-2035 FAA Aerospace Forecast* estimates, "*The turbine-powered fleet is projected to grow to a total of 45,905 aircraft at an average rate of 2.4% a year over the forecast period, with the turbine jet portion increasing at 2.8% a year, reaching a total of 20,815 by 2035. Single-engine fixed-wing piston aircraft are projected to decline at a rate of 0.6%, while multi-engine fixed-wing piston aircraft are projected to decline by 0.4% a year.*"

Using the individual growth rates cited above and fleet mix data from the 2011 State Guide Plan (SGP) developed an estimate of the fleet mix for the airport system. The FAA Form 5010 data was used for T.F. Green because GA data was not in the SGP. See **Figure 3-10**.

FIGURE 3-10 AIRCRAFT FLEET MIX

Airport Name	Single Engine	Multi-Engine	Jet	Other[28]	Total
T.F. Green State [PVD]	37	6	11	2	**56**
Westerly State [WST]	45	7	0	1	**53**
Block Island [BID]	3	1	0	0	**4**
North Central State [SFZ]	77	7	0	2	**86**
Quonset State [OQU]	28	2	5	21	**56**
Newport State [UUU]	29	3	0	2	**34**
	219	**26**	**16**	**28**	**289**

Source: Louis Berger

A comparison of the historic and current fleet reveals an overall decrease in total based aircraft. At the same time the system has seen an increase in jets, military aircraft and helicopters. That increase is attributed to the activity at PVD and OQU. They have runways capable of handling jet activity and the overall space available for growth. Single engine aircraft has suffered the greatest loss. This is reflected in the nationally based FAA Aerospace Forecast findings – jet fleet increasing at 2.8% and single-engine fleet declining at 0.6%. That same forecast also says; they expect the greatest increase in business aviation activity fueled by higher corporate growth of the worldwide Gross Domestic Product.

2. GA Aircraft Operations

a. Forecast Methodology: "Extrapolation of Historical Data"

Except PVD and OQU, the 2014 baseline GA operations data used for this methodology was obtained from the recent Economic Impact Study survey. PVD and OQU data was obtained from the Air Traffic Activity Data Systems (ATADS) data base. The PVD air carrier operations and OQU military operations are not included because the primary focus of this ASP study is GA activity.

Using activity estimates at non-towered airports (WST, BID, UUU and SFZ) is always a challenge. In most cases, the data is based on airport management's best estimation of activity. This can attribute to data sources like the FAA Form 5010 Facility Record and local airport records reporting different operational data. The impact of less than reliable data on a forecast is discussed at the end of the chapter.

A methodology referred to as; "Operations per Based Aircraft" (OPBA), is commonly used at small non-towered GA airports to forecast operations. The methodology relies on an empirical correlation between based aircraft and aircraft operations. The OPBA was determined by using the Average Operations (2005 to 2014) divided by the average Based Aircraft (2005 to 2014). Ten years of data were used to mitigate

[28] "Other": Includes: Helicopters, gliders, military aircraft, ultra-light aircraft, etc.

anomalies in the annual figures. The OPBA per airport is multiplied by the TAF based aircraft forecast for each period. (See **Figure 3-9.**) Existing operations for 2014 is presented for comparison purposes.

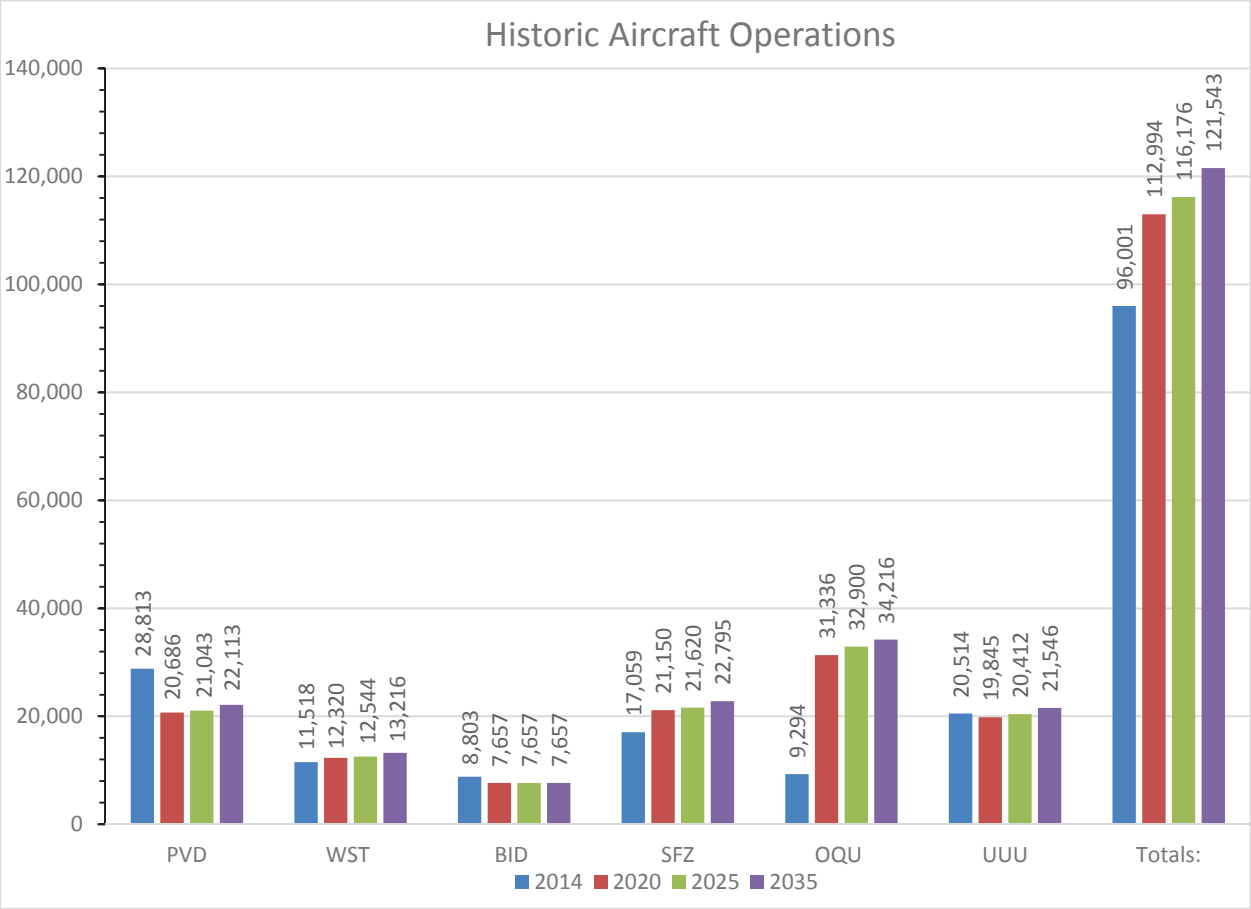
FIGURE 3-11 HISTORICAL FORECAST – GA AIRCRAFT OPERATIONS

Airport Name	Historic Ave. Operations	Historic Ave. Based Aircraft	OPBA	2014	2020	2025	2035
T.F. Green State	23,932	67	357	28,813	20,686	21,043	22,113
Westerly State	13,901	62	224	11,518	12,320	12,544	13,216
Block Island	9,572	5	1,914	8,803	7,657	7,657	7,657
North Central State	23,700	101	235	17,059	21,150	21,620	22,795
Quonset State	23,028	35	658	9,294	31,336	32,900	34,216
Newport State	21,544	38	567	20,514	19,845	20,412	21,546
			Totals:	**96,001**	**112,994**	**116,176**	**121,543**

Source: Louis Berger

Utilizing the OPBA methodology to forecast operations can result in unrealistic activity estimates for some airports. For example; using the calculated Quonset OPBA of 658 resulted in baseline aircraft operations of 9,294. The calculated 2020 projection, only 6 years from the baseline year, resulted in more than 300% increase in annual operations. Block Island that has a very small number of based aircraft results in an abnormally high OPBA also skews the forecast results. In the professional judgment of the study team; the OPBA forecast methodology is unrealistic for making decisions in this ASP update.

FIGURE 3-12 HISTORICAL FORECAST – GA AIRCRAFT OPERATIONS



Source: Louis Berger

b. Forecast Methodology: Airport Master Plan (AMP) Forecast

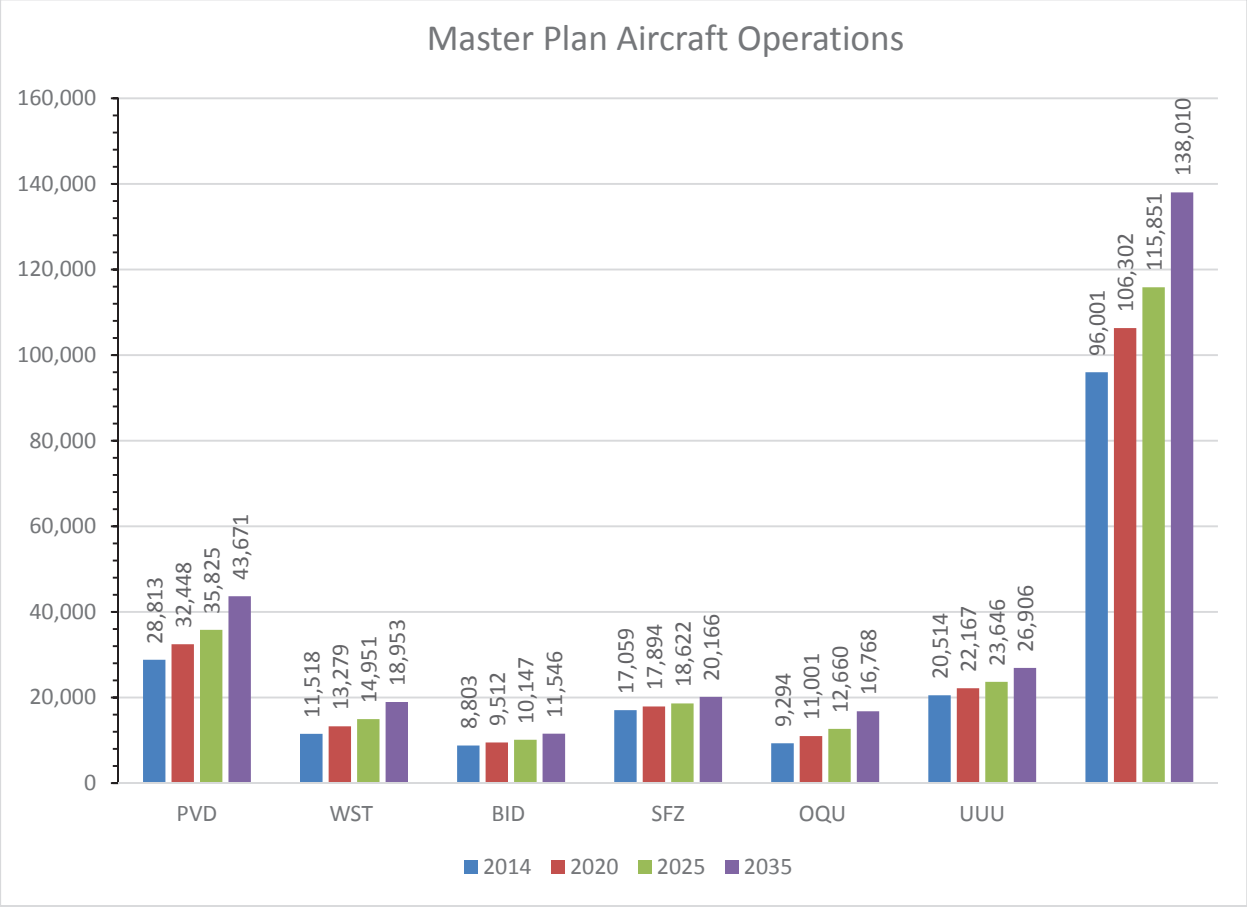
The forecast was developed by applying AMP annual growth rate to 2014 base year operations. The AAGR resulted in modest growth for the forecast periods. See **Figure 3-13** and **Figure 3-14**. The earlier commentary re: "using questionable outdated AMP data and the impact on forecasts" applies here too.

FIGURE 3-13 MASTER PLAN FORECASTS GA OPERATIONS

Airport Name	AMP AAGR	2014	2020	2025	2035
T.F. Green State [PVD]	2.40%	28,813	32,448	35,825	43,671
Westerly State [WST]	2.40%	11,518	13,279	14,951	18,953
Block Island [BID]	1.30%	8,803	9,512	10,147	11,546
North Central State [SFZ]	0.80%	17,059	17,894	18,622	20,166
Quonset State [OQU]	2.85%	9,294	11,001	12,660	16,768
Newport State [UUU]	1.30%	20,514	22,167	23,646	26,906
	Totals:	**96,001**	**106,302**	**115,851**	**138,010**

Source: Louis Berger

FIGURE 3-14 MASTER PLAN FORECAST GA AIRCRAFT OPERATIONS



Source: Louis Berger

c. Forecast Methodology: 2015-2035 FAA Aerospace Forecast

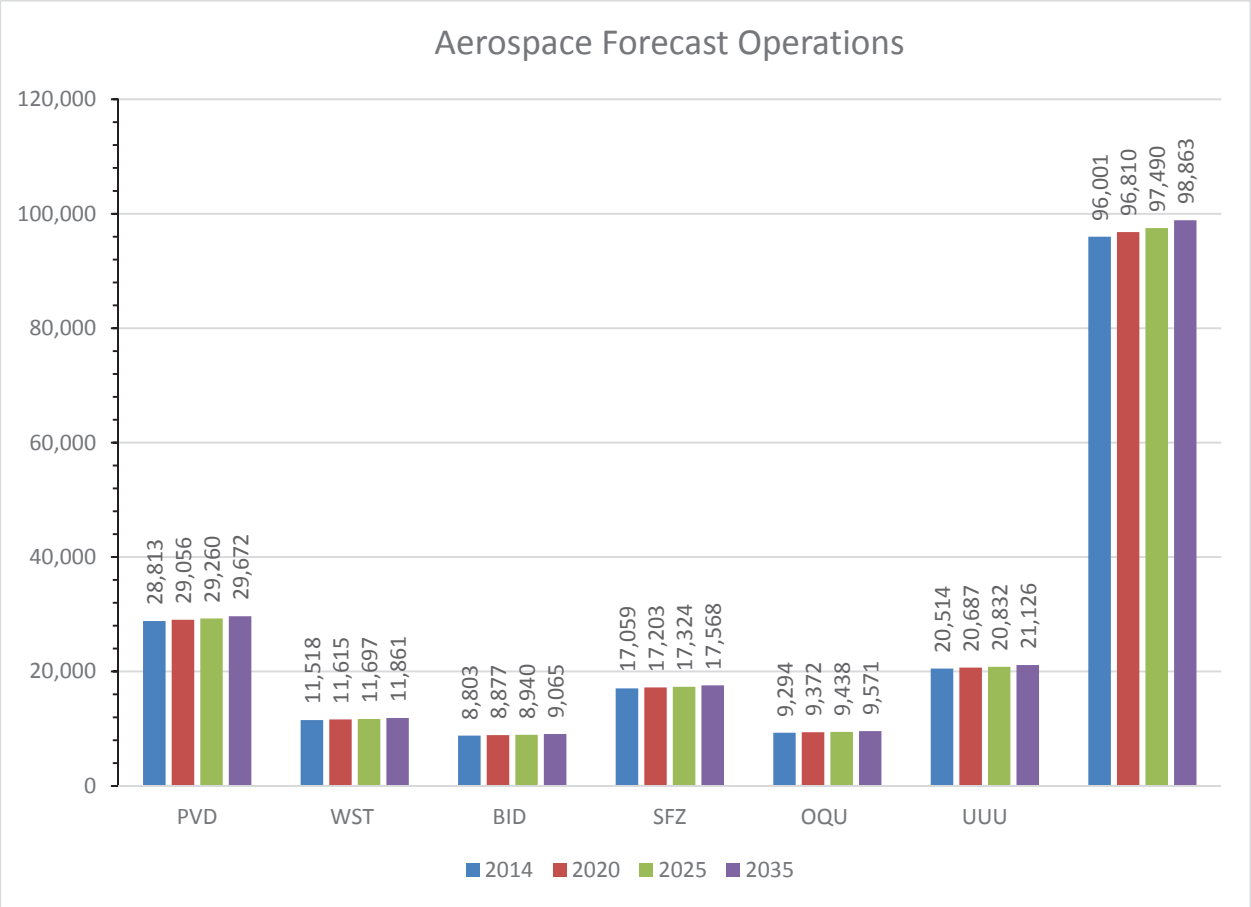
The FAA Aerospace Forecast AAGR of 0.14% for GA operations was applied to the 2014 base year[29] total of GA operations. The forecasting methodology results in a modest growth across the system through 2035. The results are shown in **Figure 3-15** and **Figure 3-16.**

FIGURE 3-15 FAA AEROSPACE FORECAST GA OPERATIONS

Airport Name	AAGR	2014	2020	2025	2035
T.F. Green State [PVD]	0.14%	28,813	29,056	29,260	29,672
Westerly State [WST]	0.14%	11,518	11,615	11,697	11,861
Block Island [BID]	0.14%	8,803	8,877	8,940	9,065
North Central State [SFZ]	0.14%	17,059	17,203	17,324	17,568
Quonset State [OQU]	0.14%	9,294	9,372	9,438	9,571
Newport State [UUU]	0.14%	20,514	20,687	20,832	21,126
	Totals:	**96,001**	**96,810**	**97,490**	**98,863**

[29] Data obtained from the 2015Economic Impact Study

FIGURE 3-16 FAA AEROSPACE FORECAST - GA OPERATIONS



Source: Louis Berger

d. Forecast Methodology: 2015-2035 FAA Terminal Area Forecast (TAF)

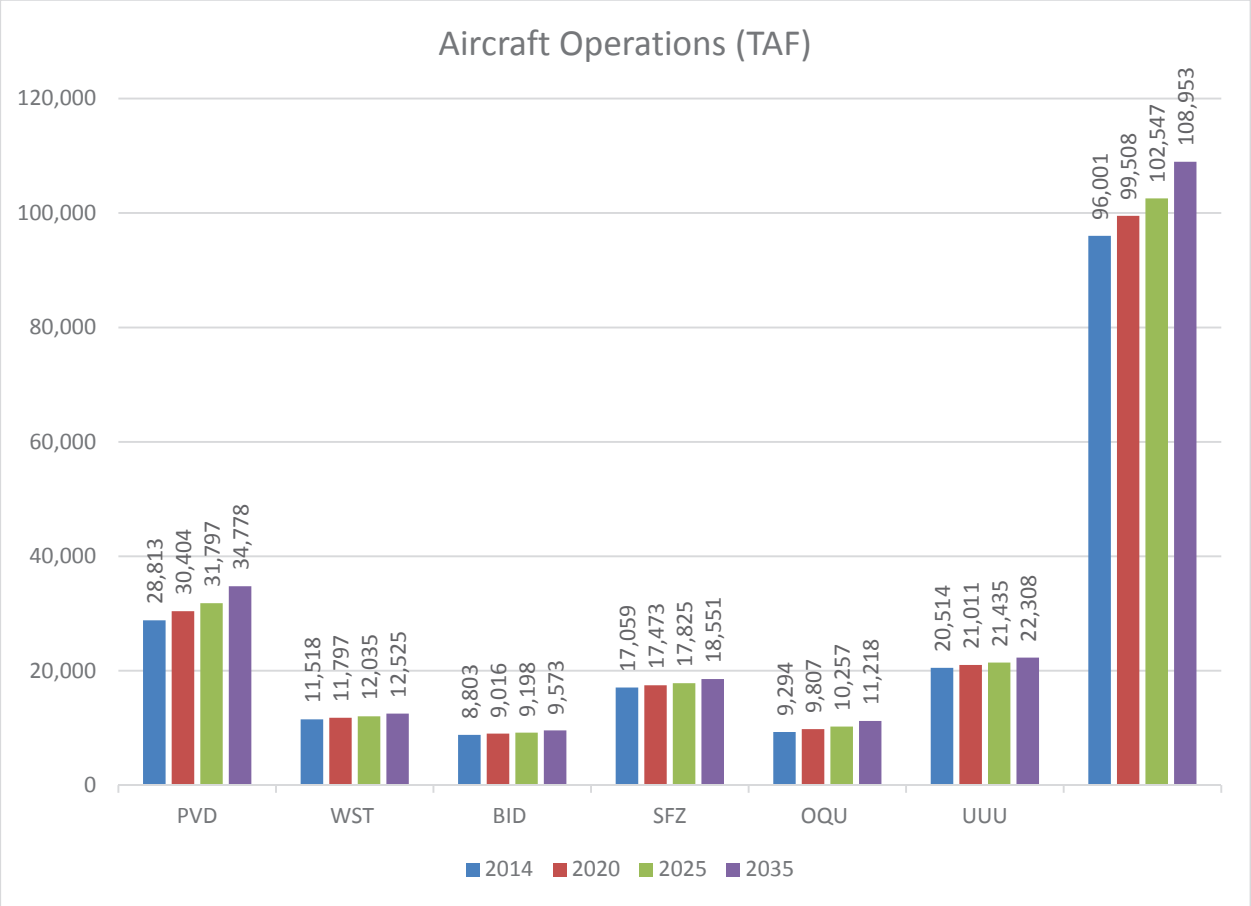
The TAF provides a summary of historical and forecast statistics on aviation activity at U.S. airports. The TAF AAGR of 0.9% for ATCT equipped airports was applied to PVD and OQU. The GA AAGR of 0.4% for non-ATCT was applied to the other 4 airports. See **Figure 3-17** and **Figure 3-18.**[30]

[30] 2014 Quonset AMP data shows 6,587 military operations were conducted in 2011. They are not included in Figure 3-17 or Figure 3-18. The assumption is military activity levels will remain constant for all the planning periods.

FIGURE 3-17 FAA TERMINAL AREA FORECAST – GA OPERATIONS

Airport Name	AAGR	2014	2020	2025	2035
T.F. Green State [PVD]	0.9%	28,813	30,404	31,797	34,778
Westerly State [WST]	0.4%	11,518	11,797	12,035	12,525
Block Island [BID]	0.4%	8,803	9,016	9,198	9,573
North Central State [SFZ]	0.4%	17,059	17,473	17,825	18,551
Quonset State [OQU]	0.9%	9,294	9,807	10,257	11,218
Newport State [UUU]	0.4%	20,514	21,011	21,435	22,308
	Totals:	**96,001**	**99,508**	**102,547**	**108,953**

FIGURE 3-18 FAA TERMINAL AREA FORECASTS (TAF) – GA OPERATIONS



Source: Louis Berger

C. Analysis of Forecast Methodology and Activity

Our observations about the GA forecast of activity for the airport system are summarized below. The total system forecasts using the four methodologies are summarized in **Figures 3-19 Based Aircraft** and **Figure 3-21 Operations**. The individual airport forecasts are in **Figure 3-20 Based Aircraft** and **3-22 Operations.**

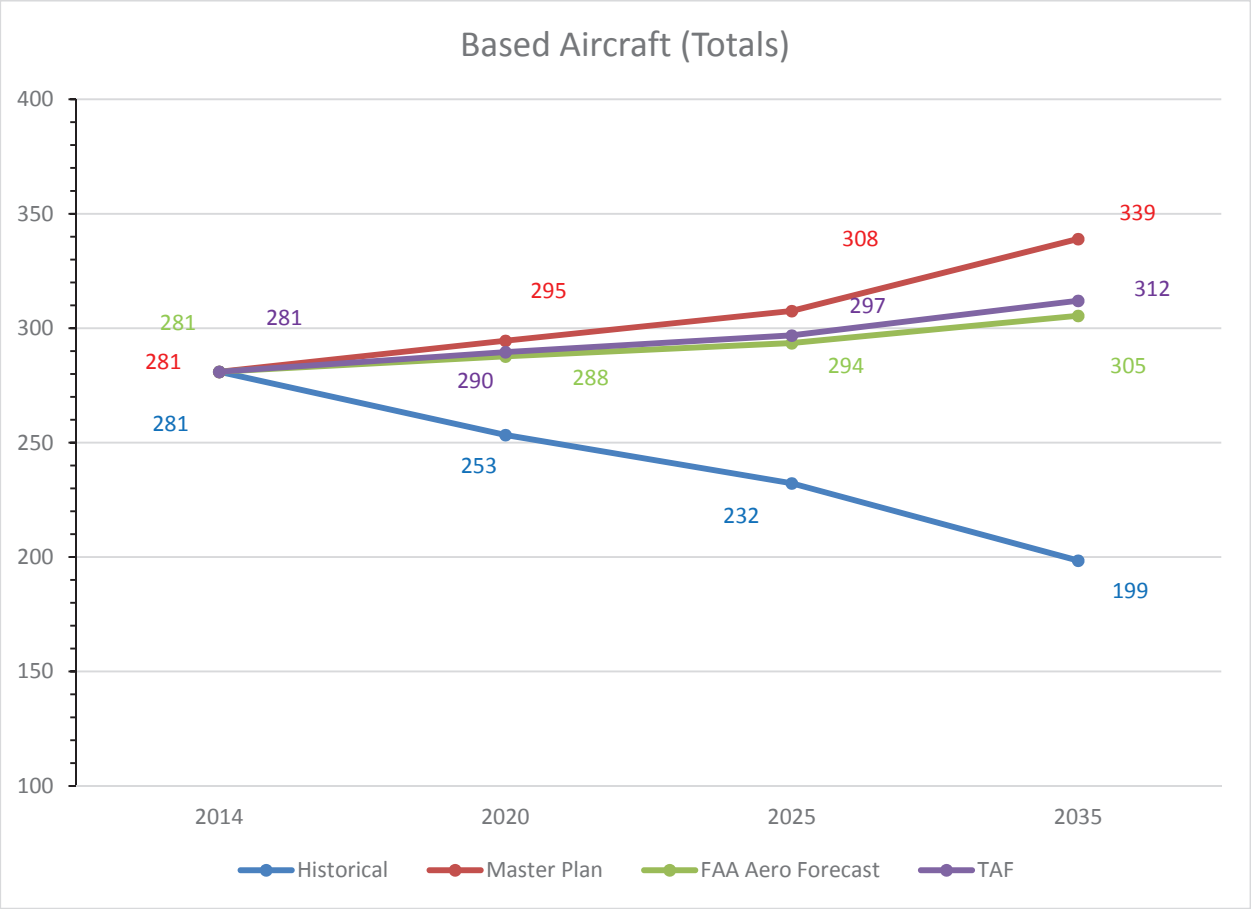
- **Historical Trend Line Forecast**: The downward trend (2009 – 2014) for "Based Aircraft" carries forward through all the forecast periods. The forecast of "Operations" was developed using the relationship with Based Aircraft, therefore Operations will also reflect a downward trend. Based on professional experience, it is unrealistic to assume that using the "historical" trend line forecast for our system planning is a reliable methodology. Moreover the FAA forecasts and our AMP forecasts are not consistent with the Historical trend line forecasts. Therefore the Historical Trend Line forecast is eliminated from further consideration for our system planning.

- **Airport Master Plans Forecast**: The immediate reaction to using the individual AMP forecasts is they are based on airport planning that in most cases is more than 5 years old. It raises the question on the reliability of the AAGR for those airports. A review of **Figure 3-19** shows the AMP Based Aircraft projections very closely track the FAA forecasts and are within the TAF tolerances. On the other hand, viewing **Figure 3-21**, indicates the AMP Operations projections are well above the FAA TAF and Aerospace forecasts. Moreover, for some airports the medium and long range forecasts reflect a difference greater than the FAA 10% tolerance for "reasonable" forecasts. Given the factors involved it is reasonable to assume the AMP forecasts are not the most effective to utilize for our planning.

- **FAA 2015-2035 Aerospace Forecast/FAA 2014-2014 Terminal Area Forecast:** These two FAA forecasts tracks almost identical throughout the planning period for the Based Aircraft projection. However, the **FAA Aerospace Forecast** for "Operations" has a slightly greater divergence through the medium and long-range planning period. It also presents a more conservative growth than the TAF. The FAA Aerospace statistics differ from the totals presented in the TAF can be explained to some extent for the reasons described in Paragraph No. 1 of this Forecast Chapter.

The system forecasts shown in **Figure 3-19** and **Figure 3-21** shows the consistency or divergence between all the forecast methodologies. The TAF reflects the best compromise between them. Therefore the **FAA 2014-2040 Terminal Area Forecast (TAF)** is adopted and utilized for all planning in this ASP update for the reasons expressed above, as well as the importance and confidence FAA places in the TAF for airport planning. See **Figure 3-23** for a summary of the TAF Based Aircraft and Operations forecasts.

FIGURE 3-19 BASED AIRCRAFT FORECAST SYSTEM-WIDE



Source: Louis Berger

FIGURE 3-20 BASED AIRCRAFT FORECAST BY AIRPORT

T.F. Green	2014	2020	2025	2035
Historical	56	(49)[31]	(44)	(35)
AMP	56	57	58	60
Aerospace	56	57	59	61
TAF	56	58	59	62

Westerly	2014	2020	2025	2035
Historical	53	(47)	(43)	(35)
AMP	53	54	55	56
Aerospace	53	54	55	58
TAF	53	55	56	59

Block Island	2014	2020	2025	2035
Historical	4	(3)	(3)	(3)
AMP	4	4	4	4
Aerospace	4	4	4	4
TAF	4	4	4	4

North Central State	2014	2020	2025	2035
Historical	87	(75)	(66)	(52)
AMP	87	87	87	(87)
Aerospace	87	89	91	95
TAF	87	90	92	97

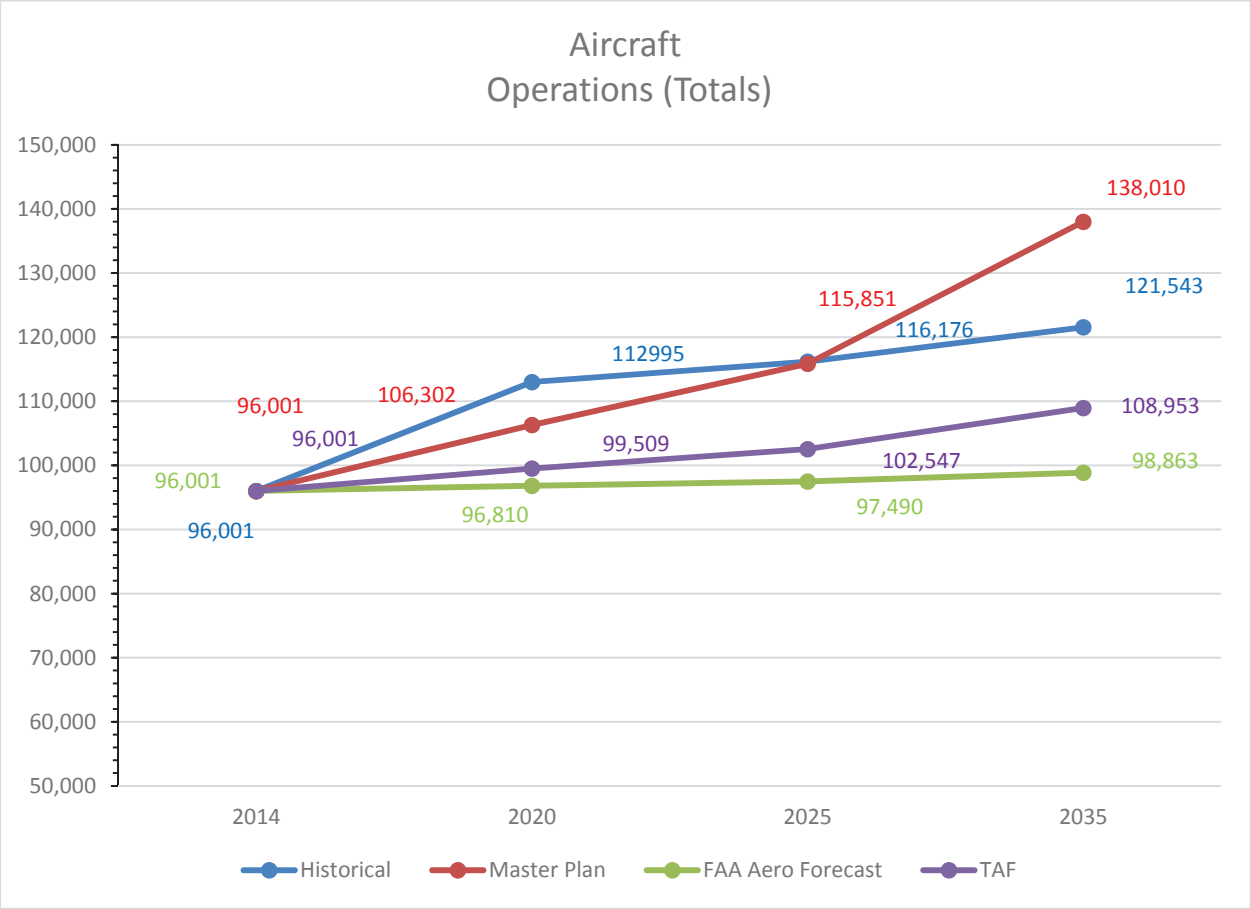
Quonset	2014	2020	2025	2035
Historical	47	48	48	49
AMP	47	(56)	(65)	(87)
Aerospace	47	48	49	51
TAF	47	48	50	52

Newport State	2014	2020	2025	2035
Historical	34	(31)	(29)	(25)
AMP	34	37	39	(45)
Aerospace	34	35	36	37
TAF	34	35	36	38

System Total	2014	2020	2025	2035
Historical	281	(253)	(232)	(199)
AMP	281	295	308	339
Aerospace	281	288	294	305
TAF	281	290	297	312

[31] Forecasts in parenthesis are > 10% tolerance FAA established for a "reasonable" forecast.

FIGURE 3-21 AIRCRAFT OPERATIONS FORECAST SYSTEM-WIDE



Source: Louis Berger

FIGURE 3-22 OF OPERATION FORECAST BY AIRPORT

T.F. Green	2014	2020	2025	2035
Historical	28,813	(20,686)[32]	(21,043)	(22,113)
AMP	28,813	32,448	35,825	43,671
Aerospace	28,813	29,056	29,260	29,672
TAF	28,813	30,404	31,797	34,778
Westerly	**2014**	**2020**	**2025**	**2035**
Historical	11,518	12,320	12,544	13,216
AMP	11,518	(13,279)	(14,951)	(18,953)
Aerospace	11,518	11,615	11,697	11,861
TAF	11,518	11,797	12,035	12,525
Block Island	**2014**	**2020**	**2025**	**2035**
Historical	8,803	(7,657)	(7,657)	(7,657)
AMP	8,803	9,512	(10,147)	(11,546)
Aerospace	8,803	8,877	8,940	9,065
TAF	8,803	9,016	9,198	9,573
North Central State	**2014**	**2020**	**2025**	**2035**
Historical	17,059	(21,150)	(21,620)	(22,795)
AMP	17,059	17,894	18,622	20,166
Aerospace	17,059	17,203	17,324	17,568
TAF	17,059	17,473	17,825	18,551
Quonset	**2014**	**2020**	**2025**	**2035**
Historical	9,294	(31,336)	(32,900)	(34,216)
AMP	9,294	(11,001)	(12,660)	(16,768)
Aerospace	9,294	9,372	9,438	9,571
TAF	9,294	9,807	10,257	11,218
Newport State	**2014**	**2020**	**2025**	**2035**
Historical	20,514	19,845	20,412	21,546
AMP	20,514	22,167	(23,646)	(26,906)
Aerospace	20,514	20,687	20,832	21,126
TAF	20,514	21,011	21,435	22,308
System Total	**2014**	**2020**	**2025**	**2035**
Historical	96,001	(112,995)	(116,176)	(121,543)
AMP	96,001	106,302	(115,851)	(138,010)
Aerospace	96,001	96,810	97,490	98,863
TAF	96,001	99,509	102,547	108,953

[32] See Footnote 31

FIGURE 3-23 SUMMARY OF AIRPORT SYSTEM PLAN FORECAST[33]

Airport Name	2014		2020		2025		2035	
	Based A/C	OPS	Based A/C	OPS	Based A/C	OPS	Based A/C	OPS
T.F Green [PVD]	56	28,813	58	30,404	59	31,797	62	34,778
Westerly [WST]	53	11,518	55	11,797	56	12,035	59	12,525
Block Island [BID]	4	8,803	4	9,016	4	9,198	4	9,573
North Central [SFZ]	87	17,059	90	17,473	92	17,825	97	18,551
Quonset [OQU]	47	9,294	48	9,807	50	10,257	52	11,218
Newport State [UUU]	34	20,514	35	21,011	36	21,435	38	22,308
TOTALS	**281**	**96,001**	**290**	**99,508**	**297**	**102,547**	**312**	**108,953**

Source: Louis Berger

D. The Block Island and Westerly Airport Scheduled Air Service Market

As we have repeatedly stated, the focus of this system plan study is about our five GA airports. However Block Island and Westerly are unique because they serve a dual role in the system. In terms of activity they are viewed by RIAC as primarily GA airports. In terms of a national role (the FAA NPIAS, and the recent FAA ASSET Study) they are identified as a "Primary" airport. That definition is based on the fact that both airports receive scheduled service via New England Air and annually have greater than 10,000 enplanements[34].

The benefits of maintaining that role cannot be under estimated. The FAA's Airport Improvement Program (AIP)[35] establishes a minimum threshold of 10,000 enplanements for the $1 Million entitlement level per airport. The benefits of scheduled service are evident; (a) it generates more airport revenue, (b) it provides a higher level of federal entitlement funding, and (c) it creates a higher FAA priority rating for projects.

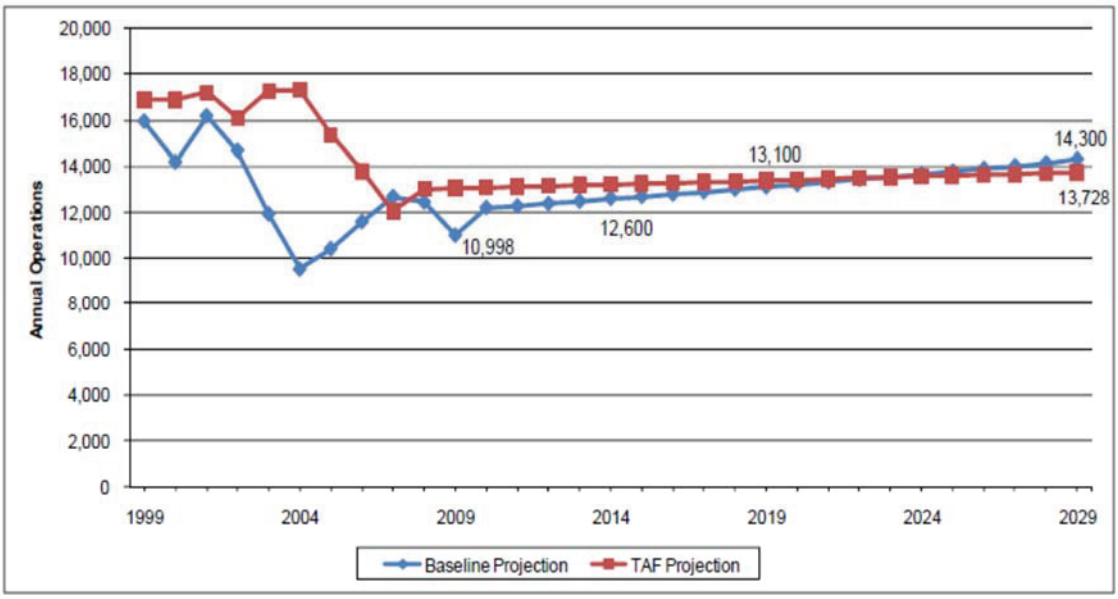
Because the scheduled service provided between BID and WST is an asset an analysis was performed to assess the current and future market. The 2011 Guide Plan was the source of data because it had projections of enplanement activity for both airports. (See **Figure 3-24.)** It is a unique market because the non-stop scheduled service is provided exclusively by New England Airlines (NEA). NEA supports the Island economy by providing flight options for tourists, essential cargo and medical emergencies. NEA is designated by FAA as a FAR Part 135 operator. During the peak summer season the service is hourly and "approximately" every other hour during the off-season. NEA uses (and for this ASP we assumed it will continue using) the multi-engine

[33] The adopted ASP forecasts (Based A/C and Ops) are based on the FAA TAF derived methodology.
[34] The in some years it has dipped below the 10,000 minimum and it can include non-scheduled charter passengers.
[35] That is subject to change when new AIP legislation is passed.

piston "Islander" aircraft to meet current and future demand. The Islander is the critical aircraft because it is capable of safely operating on the 2,501 foot runway at BID. The service has proven successful and adequate for Block Island requirements. There are no plans to extend the runway.

The 2011 SGP analyzed historical enplanement data for the airports and determined that a market share approach was best for forecasting future enplanement activity. An AAGR for both airports is presented as the baseline projection. (See **Figure 3–24**.)

FIGURE 3-24 BLOCK ISLAND AND WESTERLY ENPLANEMENT FORECAST



Source: 2011 State Guide Plan, Wilbur Smith Associates

Block Island's AAGR over the planning period was 2.1%, while Westerly's was at 2.3%. The TAF projection using the AAGR – at the time of the SGP – was 0.3%. Although the enplanement analysis above is slightly dated it provides a reasonable baseline for this analysis.

An updated AAGR was determined using the SGP's annual operations figures and the current, 2014 enplanement information. This analysis revealed considerably higher growth rates than were forecast in the SGP. Block Island had an AAGR of 5.7%, while Westerly came in at 3.8%. Although these higher than forecast figures support the FAA's assumptions and forecast growth provided earlier in this chapter, the continuance of such a robust rate of growth is not a realistic expectation in our judgment. In keeping with this report's preferred methodology, the adoption of the FAA TAF forecasts, and AAGR of 0.4% (for non-towered airports) is applied to Block Island and Westerly Airports. Using that AAGR the forecasted enplanements figures for the planning period, is presented in **Figure 3-25**.

FIGURE 3-25 BLOCK ISLAND AND WESTERLY MARKET ENPLANEMENT FORECAST

Airport City	Airport Name	AAGR	2014	2020	2025	2035
New Shoreham	Block Island	0.4%	11,818	12,104	12,349	12,851
Westerly	Westerly State	0.4%	10,798	11,060	11,283	11,742

Here is an interesting sidebar to this entire discussion about scheduled service between BID and WST. We have always assumed that New England Airlines, which has provided airline service at the airport for 47 years will always provide scheduled service. Well, ***"what if" the owner and operator of New England Airlines decided to cease operations and retire?"*** Or, "***what if the owner and operator of the FBO at WST where all the maintenance service is provided to the NEA aircraft decided to close shop?"*** The other **"*what if*"** question if we are playing that game is; ***how long will the "Islander" aircraft be available for this operation*?"** Can we be assured there will be a replacement to takeover for either of those providers, or the aircraft? Is it unrealistic to believe one of the scenarios could materialize? They provide interesting questions as to the financial and operational impacts on the system. The ASP doesn't attempt to make judgments on the potential issues but they should be an element of the thought process for future planning.

E. GA Business Activity and Instrument Flight Rule (IFR) Activity

The ASP update did not specifically address business activity and the relationship with IFR activity. However it is interesting to highlight some specific findings of the 2015 New England Regional Airport System Plan-General Aviation Phase I (NERASP-GA) report we referred to earlier in this report. The NERASP-GA provided some interesting analysis and information on GA business activity in New England to highlight the important relationship between IFR capabilities and business flying.

The study was sponsored by the six New England states to evaluate the GA airports in New England. One primary task of the study was to develop an in-depth understanding of the nature and characteristics of business GA flying in New England by analyzing available GA activity data and conducting structured surveys and interviews of business GA users. The report notes; *"…the majority of general aviation flights in New England, as well as nationally, are performed under visual flight rules (VFR) without filing a flight plan and are not captured in the TFMSC data."* Therefore, the findings presented in the NERASP-GA study were limited to IFR flights only. The report goes on to state; "…*IFR flights account for a high proportion of business GA and are likely to have the greatest impact on local and regional economic development."* The study measured trends in active aircraft and hours flown for the period 2000 to 2010 and compared it to national trends. The study team conducted surveys and interviews of business GA users in New England. This was done to assess the economic importance of business GA in New England and the airport facilities needed to support current and future business GA.

The results of the study showed business aviation activity in New England, as measured by GA IFR departures, has declined by approximately 15% from 2006 to 2011. This trend is consistent with an overall declining trend

in itinerant GA operations (VFR and IFR) at New England FAA ATCT airports. Over the same period, itinerant GA operations at the towered airports fell by 18%.

This short-term declining trend in business GA in New England mirrors a similar trend in the broader U.S. GA market. Nationally, general aviation activity declined sharply during the 2007-2009 economic recession and financial crisis. Not surprisingly 44% of the region's GA IFR departures were operated with business jet aircraft and almost half occurred at Primary airports. The report statistics developed specifically for RI reveals T.F. Green dominates the GA IFR jet departures in the state with about a 58%.

The issue of IFR capabilities cannot be underestimated as we move forward in this ASP update and measure system performance. At the moment only two RI airports have full ILS (precision) capabilities, Green and Quonset. The others labor to maintain their limited instrument procedures. In fact, Westerly and Newport had night-time approach procedures terminated by FAA because of existing obstructions.

F. Summary Observations About the Forecasts

- RI is not unique in seeing a decline in GA activity for the past 10-years. A similar decline can be observed when tracking the trend for New England and the nation for the same period.

- Going forward the adopted TAF forecast for the RI airport system reveals an extremely modest level of growth over the 20-year period. In terms of based aircraft activity, it grows from 281 to 312 and operations grown from 96,000 to 109,000. For both activities; that is a "growth" of about one-half of 1% over 20-years. In real terms it is virtually "no growth". Even this prospect is highly dependent on the FAA TAF methodology sustaining the growth parameters used to develop the national trends.

- As the previous observation points out; there is essentially a "lack of growth" in RI's GA aviation activity. This is a reason for concern and there should be discussions about maintaining the airport system as we know it today. This is not a RI issue exclusively it is a reality facing all the New England states.

- On a macro level; from the forecasts presented, a reasonable judgment can be made that the airfield capacity of the existing airport system is more than capable of sustaining that projected 20-year growth. It is also likely that the airport roles will not change. That is not saying; "*there are no airport system requirements*". Chapter 4 – System Performance and Chapter 5 – Needs Assessment, evaluates and identifies airport needs.

****

CHAPTER 4 – ASSESSMENT OF SYSTEM PERFORMANCE & NEEDS

A. Introduction

Since the 1984 Airport System Plan (ASP) the roles and the basic runway configuration of the five general aviation (GA) airports have essentially remained unchanged. Yes, there have been modest improvements to the surrounding infrastructure since then, but there is only history to show for it. Have those improvements made a difference to the effectiveness and efficiency of the airport system? Can more be done to enhance the system? What might these improvements be? The 2004 ASP developed a basic concept of, "Planning Factors and Performance Measures" to assess the adequacy of the airport system. The 2011 State Guide Plan (SGP) used similar parameters to develop an assessment for each airport. The feature of this chapter is to examine the findings of the 2004 and 2011 evaluations and show where it has improved and where it is still lacking.

B. Performance Goals and Performance Parameters

Evaluating the performance of the existing system involved multiple steps. Step One: Measure each airport against the basic facility requirements as defined by specific performance measures. Step Two: Using the data collected in *Chapter 2 – System Inventory,* compare the airport facilities provided against those not provided. In assessing the current system performance it was important to determine if specific improvements would actually help the system perform better. In summary, the assessment tool is intended to provide a general understanding of the individual airport's performance. The review of the 2004 ASP "Planning Factors" and "Performance Measures" resulted in a slightly revised set of recommendations that are reflected in **Table 4-1**. The former Planning Factors are now more appropriately referred to as "Performance Goals". Similarly, the Study Team reviewed the 2004 "Criteria" and ultimately modified the airport performance assessment and developed modified "Performance Parameters" – also outlined in **Table 4-1**. The Performance Goals and Performance Parameters as modified provide a more comprehensive assessment and understanding of the specific capabilities of the individual airports and the airport system overall.

C. Parameters by System

Table 4-1 identifies the ten Performance Goals and the associated Performance Parameters by which the Goals are measured. **Tables 4-2** through **Table 4-11** presents the data by which the "airport system" is judged for its ability to achieve the Performance Goal. Each Table provides a "snapshot" of how the **existing *(E)*** system is currently performing and whether **investment** $ are needed to provide the **forecasted *(F)*** improvement. The functional role of the airport, as defined by the NPIAS, was used assign the appropriate airport standards was utilized. After each Table a set of "**Observations**" is provided to highlight specific issues or concerns. The findings are based on: (a) data collected in Chapter 2 – "Inventory", (b) existing airport master plans and (c) professional judgment provided by RIAC and the Louis Berger Group. Finally, it should be understood; this system planning effort is not intended to provide all the specific details

concerning each assessments or how to improve the condition. The airport master plan process is better equipped to address those specifics.

TABLE 4-1: PERFORMANCE GOAL AND PERFORMANCE PARAMETER

Performance Goals	Performance Parameters
1. Design Standards	➢ Runway – Taxiway Separation (R/W – T/W ➢ Runway Pavement Condition (R/W Pavement ➢ Runway Protection Zone (RPZ) ➢ Runway Safety Area (RSA) ➢ Runway Object Free Area (ROFA) ➢ Runway Visibility Zone (RVZ) ➢ FAR Part 77
2. Airport Capacity	➢ Airport Service Volume (ASV) ➢ Primary Runway Length (Critical A/C) ➢ Runway Strength ➢ Taxiways (Full/Partial) ➢ Based Aircraft Apron ➢ Itinerant Aircraft Apron ➢ T-Hangars ➢ Conventional Hangars
3. Airport Access (IFR/VFR)	➢ Precision ➢ Non-Precision ➢ Visual
4. Ground Access	➢ State/Local Road Network ➢ Surface Transportation
5. Compatible Land Use	➢ FAA Compatible Land Use Guidelines ➢ Statewide Planning Program
6. Environmental Compliance	➢ Noise Impact Assessment ➢ Air Quality Assessment ➢ Water Quality Assessment ➢ Wetland Assessment ➢ Wildlife Management
7. Airport Security	➢ Part 139 ➢ Recommended GA Standards
8. Airport Services	➢ 100LL ➢ Jet Fuel ➢ Self-Fueling ➢ Flight Planning/Weather/Pilot Lounge ➢ Food – Restaurant, Concessions or Vending

9. Support Infrastructure	➢ Terminal/Admin. Building ➢ Aircraft Rescue & Fire Fighting (ARFF) Equip. & ➢ Snow Removal Equipment (SRE) & Building
10. Economic & Financial Impact	➢ Revenue $ (+/-) ➢ Revenue Opportunities ➢ State Economic Impact

Source: RIAC

1. Design Standards

The basic design standards for any publically-owned and federally funded airport in the national airport system are specified in FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*. Use of this airport design document is essential in order to maximize safe operations within the airport and airway systems. The key design standards (Performance Parameters) are presented in **Table 4-2** and **Table 4-3**.

TABLE 4-2: DESIGN STANDARDS

Performance Parameter	R/W – T/W Separation	R/W-T/W Pavement Condition	RPZ	RSA	ROFA	RVZ	Part 77
Existing/Forecast	*E / F*	*E / F*	*E / F*	*E / F*	*E / F*	*E / F*	*E / F*
T.F. Green State (PVD)	☒ $$	■ $$	■ ■	■ ■	■ ■	■ ■	☒ ■
Westerly State (WST)	■ ■	■ $$	■ ■	■ ■	■ ■	■ ■	☒ ■
North Central (SFZ)	■ ■	■ $$	■ ■	■ ■	■ ■	■ ■	■ ■
Quonset State (OQU)	☒ $$	■ $$	■ ■	■ ■	■ ■	■ ■	■ ■
Newport State (UUU)	■ ■	■ $$	■ ■	■ ■	■ ■	■ ■	☒ ■
Block Island (BID)	■ ■	■ $$	■ ■	■ ■	■ ■	■ ■	■ ■

■ Meets Requirement ☒ Does Not Meet Requirement $$ Projected Investment ☒ Improvement in Progress

OBSERVATIONS:

a. Runway – Taxiway Separation

- PVD: R/W 34 end has a 300' separation. Doesn't comply with 400' R/W-T/W standard. FAA approved a Modification to Standards[36]. Operations are constrained during IFR conditions.

- OQU: R/W 34 end has a 375' separation. Doesn't comply with 400' R/W-T/W standard. FAA approved a Modification to Standards.

b. R/W Pavement Condition

- See **Table 4-2** for a current inventory of R/W and T/W pavement condition. R/W and T/W rehabilitation is an ongoing situation.[37] The 5-year CIP for each airport by necessity will probably require an annual investment for rehabilitating airfield pavement. Projects of the highest priority will be listed in Chapter 6 *Airport System Improvements*. FAA has long promoted and required an on-going pavement management program. It can contribute to extending the estimated 20-year life-cycle of the pavement.

- Although not runway reconstruction per se, reconstruction of the sea wall at OQU is an infrastructure improvement requiring a significant capital investment. The 2015 AMP included a special section evaluating the condition of the sea wall and options to reconstruct it. The options include phasing the work. The highest priority repairs are needed at the ends of R/W 16, R/W 23 and a section of R/W 16-34 where the wall borders the RSA. Reconstruction of some sections could be needed as early as 5 years. It should be monitored because it is a significant capital investment and could be a factor in efforts to prioritize other projects in the system.

c. RPZ/RSA/ROFA/RVZ

- The standards (current and forecasted) are compliant except at OQU. OQU has RVZ impacts at the aircraft parking apron[38] near the Fuel Farm. The approved ALP shows a proposed preliminary layout to correct the RVZ non-compliance.

d. Part 77

[36] FAA approved a Modification to Standards for PVD and OQU but it is an interim solution. Future AIP funds to rehabilitate R/W or T/W pavement will require FAA to reassess their approval of a Modification to Standards.
[37] A 2014 cost analysis study of New England GA airports cited the 20-year life cycle reconstruction costs for RI airports was $37M to $47M. The message was; *"a pavement maintenance program was of the utmost importance to extend pavement life beyond the 20-year cycle"*. FAA research is investigating other alternatives to extend pavement life as long as 40-years.
[38] The Evergreen Airlines B-747 permanently parked in this area is serious problem to correcting the RVZ

- The system airports have some Part 77penetrations. RIAC continues efforts to eliminate mitigate and/or light obstructions. UUU and WST currently have on-going projects to remove obstructions. If not corrected; FAA will not restore the airport night-time minimums.

- SFZ: The airport is identified in the FAA NPIAS as a "Reliever" airport for T.F. Green. To encourage greater use of reliever airports a precision approach is a desired goal. Either an Instrument Landing System (ILS) or Localizer Performance with Vertical guidance (LPV) could provide: (a) lower decision height/visibility minimums and (b) greater utility. A precision approach for SFZ must to rely on a LPV. However, given the current activity or forecasted levels for SFZ achieving this is not a realistic goal in the next 10 years. A precision approach at SFZ requires an obstruction removal with potential environmental issues. It is premature to consider such an obstruction program at this time. See discussion in **Section 3 – Airport Access**.

- UUU: If it were determined feasible to extend R/W 04-22 (See Table 4-4 below) it will require obstruction removal to ensure a runway displacement is not required. To paraphrase the 2010 AMP; it is not required now but should be re-evaluated in a future master plan effort. At the moment it is an optimistic and very expensive goal, financially and environmentally. See more discussion in **Section 2 – Airport Capacity**.

TABLE 4- 3 INVENTORY OF PAVEMENT CONDITION [39]

Airport	R/W	R/W Length	R/W Condition	T/W Condition
PVD	5-23	7,166[40] X 150	Excellent	Good
	16-34	6,081 x 150	Good	Good
OQU	16/34	7,500[41] x 150	Fair	Fair/Good
	5/23	4,003 x 75	Fair	Fair/Good
UUU	4/22	2,999 x 75	Fair	Fair
	16/34	2,623 x 75	Good	Good
SFZ	5/23	5,000 x 150	Good	Good/Excellent
	15/33	3,210 x 75	Good	Good/Excellent
WST	7/25	4,010 x 100	Good	Good
	14/32	3,980 x 75	Good	Good
BID	10/28	2,501 x 100	Good	Fair/Good

Source: RIAC

[39] This is the latest assessment (Dec 2016) by RIAC's Senior Engineer. It should be noted that the condition reported is an overall assessment of the runway, taxiway or apron pavement. Clearly there may be varying conditions in a specific segment of a particular pavement that is not be reflected in Table 2-10

[40] R/W extension to 8,700' is currently under construction. Estimated completion December 2017

[41] R/W length eligible for AIP funding is 5500'. (Defined by FAA based on most critical **civil** aircraft)

2. Airport Capacity

"Airport capacity" is a term commonly used to express the airfield's ability to handle air traffic operations (arrivals and departures) i.e., "annual service volume" (ASV). The FAA Advisory Circular has a basic methodology to assess runway capacity for GA airports. Besides runway capacity, "capacity" also refers to other components of the airport. See **Table 4-4.**

TABLE 4-4: AIRPORT CAPACITY

Performance Parameter	Annual Service Volume (ASV)	R/W Length (Critical A/C)	R/W Strength	Taxiway (Full/ Partial)	Aircraft Parking			
					Based A/C Apron	Itinerant A/C Apron	T-Hangars	Conventional Hangars
Existing/Forecast	*E / F*	*E / F*	*E / F*	*E / F*	*E / F*	*E / F*	*E / F*	*E / F*
T.F. Green State (PVD)	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
Westerly State (WST)	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	$$ ■	$$ ■
North Central (SFZ)	■ ■	■ ■	■ ■	■ ■	$$ ■	■ ■	$$ ■	$$ ■
Quonset State (OQU)	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	$$ $$	$$ $$
Newport State (UUU)	■ ■	■ ■	■ ■	■ ■	$$ ■	$$ ■	$$ ■	$$ ■
Block Island (BID)[42]	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■

■ Meets Requirement $$ Projected Investment

OBSERVATIONS:

a. Airfield Capacity (Annual Service Volume):

- Based on the existing airfield configurations and type aircraft utilizing the airports it can be concluded; the GA airports can safely accommodate the existing and forecasted annual VFR/IFR demand.[43] The four non-towered GA airports are essentially operated in a single-runway configuration. Even with "touch and go" training operations it is unlikely hourly capacity will be exceeded during the forecast period.

[42] Assumes the BID turf area continues to be available to meet aircraft parking during peak periods of the summer or special events.

[43] Assumes no actions will be taken to alter (shorten or close) the runway configurations during the forecast period.

- Based on the EIS forecasts, T.F. Green is in a similar position – runway capacity should not be an issue for the foreseeable future. Given the mix of small and large aircraft this may be an issue in the future – at least on a peak period or IFR basis.[44]

b. Runway Length (Critical Aircraft):

- With the completion of the R/W 5-23 runway extension in December 2017 PVD will have sufficient runway length to service the existing and forecasted activity during the planning period.

- Each GA airport has at least one runway of sufficient length to accommodate the existing or forecasted critical (design) aircraft. There are several notable concerns that ultimately need to be evaluated more closely.

- Runway 4-22 at UUU is 2,999 foot.[45] The current runway adequately handles the single-engine aircraft which fortunately is the dominant (>95%) airport activity. However it severely limits the twin-engine piston aircraft that could more effectively service Newport's tourist activity. A remote option is to consider a 200 – 300 foot extension. It was briefly considered in the 2010 AMP but ultimately the AMP recommended re-evaluation in the future. The financial, and environmental challenges are significant.

- OQU has more than enough length on runway 16-34 to accommodate all the civil use piston and jet aircraft. However the 4,003 foot Runway 5-23, offers a more favorable wind component for the smaller GA aircraft. Before any entertaining any proposals to shorten or close the runway a thorough planning examination should be conducted and coordinated with FAA.

- BID with a 2,501foot runway has adequately accommodated the New England Airline "Islander" which provides passenger service to Block Island. They are currently the only provider of air service As long as they continue to use this aircraft (or equivalent) the runway length should meet the requirements.[46]

c. Partial/Full Taxiway

- For the most part the existing taxiway configurations are adequate to accommodate the level of demand at each airport. The AMP for SFZ and UUU did evaluate the extension of the existing partial parallel taxiways. However, constructing full length parallel taxiways creates environmental challenges at both airports. To avoid wetlands the AMP's recommended partial taxiway extensions. Partial extensions could be constructed as shown on their ALP's. However, the level of activity at

[44] The proposed 2017 AMP will re-examine the forecasts and do a more comprehensive capacity evaluation – particularly for peak hour and IFR conditions.
[45] Historically speaking it was a 3,000 foot runway but it "lost 1 foot" when it was resurfaced. The next resurfacing project should correct that 1 foot to restore it to original 3,000 foot length.
[46] See additional commentary on this issue in the Forecast Chapter under "BID enplanements".

both airports is so low that even though recommended it is not a current high priority improvement. This ASPU update agrees with the AMP recommendation. Parallel taxiways provide an additional level of operational safety, especially at non-towered airports.

d. Aircraft Parking

- From **Table 4-4** it is clear that the present and future investments at the GA airports should be for "Aircraft Parking", both in terms of apron and hangar facilities. Apron improvements rest with RIAC utilizing the AIP program. Hangars will continue to rely on private investment similar to those developed at UUU and OQU. Effective apron and hangar development ultimately has a positive impact on airport income. The respective airport master plans identify the most suitable development areas. If these facilities are not developed consistent with the ALP the potential for reducing the GA parking capacity on the system overall becomes an issue.

3. Airport Access

This section focuses on the navigation systems that are important for aircraft owners and operators. The regulations governing civilian aircraft operations are; instrument flight rules (IFR) and visual flight rules (VFR). During IFR conditions, the pilot relies primarily on the instruments because visual references are hindered by meteorological conditions, (i.e. clouds, fog) and therefore not dependable. The instrumentation could be an ILS, which is a ground based system that enables a precision approach. The latest technology is LPV approaches which are satellite based navigation and provide precision or non-precision approach capabilities, depending on resources and physical constraints (natural and man-made obstructions). Other options include IFR approaches using existing facilities such as VOR, Localizer, etc. In conjunction with the electronic systems the precision and non-precisions approaches are complemented by visual aids such as approach lighting systems, PAPI and REILS. Whether it is precision or non-precision, approaches with the proper instrumentation provides the pilot with a greater degree of safety. This is particularly important where there are scheduled flights servicing passenger activity. The key message is: airports with IFR capabilities are more effective and equally important, enhances the safety of the airport for the user. Given the ever changing New England weather having IFR approaches is critical. Absent these instrument capabilities the airport is reduced to VFR[47] operations and used only when a pilot can rely on outside visual references for safe operations (i.e. basically clear skies). VFR approaches can be aided by the visual cues provided by REILS and PAPI systems.

[47] It should be noted; even airports with instrument approaches may be designated as Visual approaches because the minimums are too high to qualify for FAA non-precision standards.

TABLE 4-5: AIRPORT ACCESS

Performance Parameter	Precision Approach	Non-Precision Approach	Visual Approach[48]
Existing/Forecast	*E / F*	*E / F*	*E / F*
T.F. Green State (PVD)	■ ■	■ ■	■ ■
Westerly State (WST)	DNQ DNQ	⊠ ■	■ $$
North Central (SFZ)	DNQ DNQ	■ ■	■ $$
Quonset State (OQU)	■ ■	■ ■	■ ■
Newport State (UUU)	DNQ DNQ	⊠ ■	■ $$
Block Island (BID)	DNQ DNQ	■ ■	$$ ■

■ Meets Requirement DNQ Does Not Qualify $$ Projected Investment ⊠ Improvements in Progress

OBSERVATIONS:

In considering airport access (IFR/VFR) one very reasonable and valuable policy to adopt is: ***"Before we consider expanding our IFR capabilities, maintain and maximize what we have in place now."***

a. Precision

- PVD and OQU are the two airports currently equipped with ILS precision approaches. They allow aircraft to descend below 300 feet AGL. Moreover obstructions which could impact the approach minimums are reasonable to control. OQU is a military owned and maintained system. Both ILS approaches are complemented by an "approach lighting system"

- SFZ is a "Reliever Airport". Using FAA NPIAS planning standards it should project a precision approach in the forecast period. The idea being; a reliever airport should have facilities to encourage GA activity away from the relieved airport (PVD). Before moving in that direction the factors to consider are:

  - The FAA policy is to move away from installing new ILS (except at the major primary airports) in favor of LPV approaches.

  - An LPV (localizer performance with vertical guidance)[49] requires RIAC to conduct an environmental assessment (EA) and likely implement a costly obstruction removal program.

[48] See **Table 4-6** for specific recommendations on visual aids
[49] The RI system currently has seven (7) LPV approaches.

- SFZ "actual instrument approaches" (AIA) activity, existing or projected, are well below requirements to qualify for ILS precision equipment.

- Finally, SFZ already has a Localizer approach which provides a decision height altitude of 600 feet AGL.

- Based on these factors, and numerous other system priorities, protecting the current SFZ Localizer approach may be the most prudent program. If airport activity begins to show growth the policy could be revisited. This is consistent with the AMP recommendation.

- BID/WST/UUU: Do not currently have, or are forecasted to qualify, for precision approaches.

b. Non-Precision

- BID/WST/UUU: They have navigational aids that provide them with non-precision approaches. They effectively serve their current and projected role and activity level.

- BID has a new VOR approach being developed. It may provide added capabilities in the future.

- UUU/WST: They have obstruction issues which has forced FAA to suspend night time procedures. The obstruction removal program being funded by FAA should help create obstructions free surfaces at both airports.

Considering factors such as airport role, activity levels (current and forecasted), development costs, environmental impact and FAA policy to promote and implement LPV we should consider an approach that states:

- Maintain what we have and work towards a stronger obstruction management program;
- Each GA airport should have a solid non-precision approach with reasonable Minimum Descent Altitudes (MDAs) available day or night;
- Rather than expand the number or types of approaches, we should seek to lower the MDA's through an effective obstruction management program; and,
- When our airport obstructions are under control, it will improve our standing to seek opportunities for developing the GPS technology to establish better approaches.

c. Visual Aids and Runway/Taxiway Lighting

- See Table 4-6 for the visual aids and runway/taxiway lighting in the system.

TABLE 4-6 VISUAL AIDS/ RUNWAY & TAXIWAY LIGHTING

Performance Parameter	VISUAL AIDS AND RUNWAY & TAXIWAY LIGHTING									
	R/W	MALSR	MALS/F	MALS	PAPI VASI	REILS	HIRLS	HITLS	MIRLS	MITLS
T.F. Green State (PVD)	5/23	Y	X	X	Y	X	Y	Y	X	X
	16/34	Y	X	X	Y	Y	Y	Y	X	X
Westerly State (WST)	7/25	X	Y	X	Y	Y	X	X	Y	Y
	14/32	X	X	X	Y	Y Y	X	X	Y	Y
North Central (SFZ)	5/23	X	$$	Y	Y	N	Y	N	N	Y
	15/33	X	X	X	Y	Y	X	X	Y	Y
Quonset State (OQU)	5/23	X	X	X	Y	Y	X	X	Y	Y
	16/34	Y	X	X	Y	X	Y	X	X	Y
Newport State (UUU)	4/22	X	X	$$	Y	Y	X	X	Y	Y
	16/34	X	X	X	Y	$$	X	X	Y	Y
Block Island (BID)	10/28	X	X	X	$$	Y	X	X	Y	Y

Y: Meets Requirement X: Not Existing and None Required $$ **Projected Investment**

OBSERVATIONS

a. PVD: Has all the required lighting to serve its functional role.

b. WST: Has adequate lighting for its functional role and activity level. Consider REILS to complement PAPI. Consider PAPI to replace VASI on R/W25.

c. SFZ: Consider Upgrade MALS to MALS/F.

d. OQU: Has all the required lighting for its functional role and activity level.

e. UUU: Has adequate lighting for its functional role and activity level. Consider (a) REILS to complement PAPI and (b) MALS to complement the LOC approach.

f. BID: Has adequate lighting for its functional role and activity level. REILS were installed after MALS was removed because of its deteriorating condition. Environmental conditions preclude installing a new MALS. In lieu of the MALS, REILS were installed. A PAPI is recommended in the AMP to supplement REILS.

4. Ground Access

TABLE 4-7: GROUND ACCESS

Performance Parameter	State/Local Road Network	Surface Transportation
Existing/Forecast	E / F	E / F
T.F. Green State (PVD)	$$ ■	■ ■
Westerly State (WST)	■ ■	■ ☒
North Central (SFZ)	■ ■	■ ☒
Quonset State (OQU)	■ ■	■ ☒
Newport State (UUU)	☒ $$	■ ☒
Block Island (BID)	■ ■	■ ☒

■ : Meets Requirement ☒ : Does Not Meet Requirement $$ Projected Investment

OBSERVATIONS

a. T.F. Green

- It is accessible via auto, taxi, limousine service, Metro Rail or RIPTA bus. In addition several of the Providence and local hotels offer free shuttle service. Overall the access to the airport via public or private transportation is very good. There is no question the direct highway link to I-95 and the Interlink rail service can contribute to promoting the future growth of the air service area. Additional train service will be a step to make it more attractive to the Boston service area.

- Planned improvements in the internal roadway circulation will assist in the auto and bus circulation for arrival and departures.

- Parking capacity at the airport is excellent for the short and long term traveler.

b. GA Airports

- Access to the GA airports is primarily via personal auto. (a) OQU, WST and SFZ: The primary road network for airports is very good. For the most part they are accessed via major highway routes such as US-1, I-95 and I-295. (b) UUU: requires knowledge of the local neighborhood streets to access the airport. Better signage would help that situation. (c) BID: is all via secondary Island roads.

- The access situation is not expected change in the forecast period. The GA airport activity is so low improving auto access or initiating surface transportation is not a prudent investment.[50]

5. Compatible Land Use

Land use compatibility is a universal challenge for airports – it is not exclusive to the airports in Rhode Island. FAA and RIAC recognize that "compatibility" is essential to protect the public investment in the airport. They also recognize that it is essential to ensure local land use (existing and future) are a consideration in the equation to achieve compatibility. The challenge is created, in part, by the parochial objectives of the various stakeholders. It is also complicated by the fact that we are not starting with a "clean sheet of paper". Airports, at least in Rhode Island and the New England, have been around for a very long time and over that time development (some compatible, some not) has slowly surrounded them. To expect all these years later to achieve compatibility is not easily within anyone's grasp. The opportunities for mutual improvements can only be one step at a time. The objective is to preclude proposed development that is neither good for the airport nor the municipality.

Therefore as a starting point, successful airport land use compatibility requires "continuous coordination and communication" between RIAC and local government. The goal is to develop effective and realistic land-use compatibility guidelines that satisfy local zoning ordinances and protects the safe and effective operation of the airport.

RIAC and the Towns are governed by specific state regulations. Rhode Island General Law (RIGL) Chapter 1-3 Airport Zoning, basically dictates to RIAC to formulate and adopt an "airspace plan" for each publically owned airport. It goes on to state; the Town "adopting, administering any airport zoning regulations … shall consider the airport airspace plan…" In addition it shall "consider the regulations or standards promulgated by FAA in zoning the use of land".

Working with the Town Planners and Statewide Planning Program RIAC developed a set of land use guidelines and defined "Airport Hazard Areas". In April 2013 each Town was provided a RI Airport Land Use Compatibility Guidebook. In December 2013 those same towns were provided with a "site plan" which overlaid the local zoning within the Airport Hazard Areas.

The other component of compatible land use and zoning is influenced by Town Comprehensive Plans. The Statewide Planning Program mandates each Town to develop and periodically update their Plan. Statewide Planning approval of those plans is conditioned on assuring consistency between all elements of the State Guide Plan. Hence the planning and development in the Airport System Plan must be consistent with Town Comprehensive Plans and vice versa. Working with Statewide Planning Program RIAC has been effectively kept informed on all the Town Comprehensive Plans. RIAC provided recommendations to all the updates conducted.

[50] Auto rental and similar services are discussed under "Airport Services" Section "H"

In making a judgment on how well the airport system is developing compatible land use the following two performance parameters were identified (see **Table 4-8)**.

TABLE 4-8: COMPATIBLE LAND USE

Performance Parameter	Compatible Land Use Guidelines	Town Comprehensive Plan
Existing/Forecast	**E / F**	**E / F**
T.F. Green State (PVD)	■ ■	☒ ■
Westerly State (WST)	■ ■	☒ ■
North Central (SFZ)	■ ■	☒ ■
Quonset State (OQU)	■ ■	☒ ■
Newport State (UUU)	■ ■	☒ ■
Block Island (BID)	■ ■	☒ ■

■ Meets Requirement ☒ Does Not Meet Requirement ☒ Updates in Progress

OBSERVATIONS

a. Compatible Land Use Guidelines

- Pursuant to RIGL, RIAC has developed and distributed the RI Airport Land Use Compatibility Guidebook and Airport Hazard Area Maps to the Towns. From a RIAC perspective, it is our initial step to develop better zoning and land use around airports.

- RIAC has formally advised each Town they are willing to offer guidance to assist in development of zoning plans and private development proposals. In one situation RIAC provided assistance to an effort to construct zoning requirements. By some accounts RIAC was viewed as manipulating the process. It is necessary to repeat; that simply isn't the case. All our airport master planning, and now this airport system plan, has made the effort to express our intentions as they are at the time of the planning.

- FAA has also offered to assist Towns in specific development proposals that impact the FAA Part 77 airspace regulations.

b. Town Comprehensive Plans

- RIAC has reviewed Town Comprehensive Plans for each Town hosting an airport. Our general consensus is; "there are modest, but optimistic indications that some Towns are attempting to recognize the existence of the airport as a transportation component and economic generator".

- There are also disappointments when a draft a Comprehensive Plan recommends restricting aircraft operations. Or zoning approvals that potentially allow private development in the approach to a runway.

- There is no assurance all Town Comprehensive Plans will, in the forecast period, meet the expectations of a "perfect world". But with "continuous coordination and communication" RIAC and Towns' can share mutual success stories.

- RIAC concerns are not always based on a Town Comprehensive Plan. A more immediate concern is a development proposal that offers an enticing economic opportunity. Our best efforts are not always very successful and if the development moves forward it could prove to be a "clear and present threat" to the airport. That is why we encourage communication and coordination between the Towns and RIAC so there are no surprises and we can work with the Town.

- As the primary airport T.F. Green obviously draws the most attention. In keeping with the land use challenges it presents RIAC has developed an on-going relationship with the City of Warwick Planning office. Warwick has a major update of their Comprehensive Plan in progress and RIAC is represented on the working group. Because some areas around the airport include a "dense" residential population they have been the focus of our attention in recent years. The runway extension has accentuated RIAC's interest to mitigate aircraft noise. To assist that objective residential sound mitigation and acquisition programs are funded by FAA and RIAC.

- While there are specific areas where land use and zoning improvements can be implemented it will always be a difficult task to achieve 100% compatibility. The FAA funded Part 150 Noise Compatibility Program has identified it will require more than land use and zoning to maintain compatible neighborhoods.

Conclusion: Proper zoning and land-use is critical to the airport and the municipality and the effort to achieve it is forever the challenge. To that end relationships are important. Therefore; wherever possible opportunities for "win-win" must be explored and examined to create the best environment.

6. Environmental Compliance

In coordination with the Environmental staff it is clear that to measure the environmental output of our airports it was essential to capture how they respond to the measures identified in **Table 4-9**. In some cases they have plans (SWPPP, SPCC etc) that define how to address specific environmental; constraints but the plans unto themselves are not measures of performance. The Observations below clarifies for the reader the limitations and awareness necessary to understand the rating provided in **Table 4-9**.

TABLE 4-9: ENVIRONMENTAL COMPLIANCE

Performance Parameter	Noise Mitigation	Air Quality Assessment	Water Quality Assessment	Wetland Assessment	Hazardous Waste & Material Management	Wildlife Management
Existing/Forecast	E / F	E / F	E / F	E / F	E / F	E / F
T.F. Green State (PVD)	$$ ■	$$ $$	■ ■	■ ■	■ ■	■ ■
Westerly State (WST)	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
North Central (SFZ)	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
Quonset State (OQU)	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
Newport State (UUU)	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
Block Island (BID)	■ ■	■ ■	■ ■	■ ■	☒ ■	■ ■

■ : Meets Requirement ☒ : Does Not Meet Requirement $$ Projected Investment

OBSERVATIONS:

a. Noise Assessment

- The fact that the chart indicates "Meets Requirements" one should not conclude there are no noise complaints arising from aircraft activities. Clearly we can expect individual complaints which need to be monitored and addressed. When it is appropriate RIAC will consider and implement changes to improve the compatibility in airport neighborhoods. RIAC already has an active noise response program in place and is diligent in responding to individual complaints.

- The Noise Mitigation "parameter" in **Table 4.9** is saying; based on the level of GA activity and aircraft type the 65DNL contour is essentially on airport property. A 2009 noise compatibility study conducted at WST, and similar evaluations of GA airports on a national basis indicate this to be a reasonable assumption. The 65 DNL is a standard used by FAA and EPA as a level where noise complaints can be expected.

- PVD: There is an active Part 150 Noise Compatibility Program, which includes a home acquisition and noise attenuation program for homes in the 70 - 65 DNL. This program is on-going and requires an annual investment until it is completed in the 4th quarter 2018.

b. Air Quality Assessment

- PVD: There is an active Air Quality Monitoring Program financed by RIAC and administered by DEM. It is forecasted to be an on-going program requiring financing.

- GA: National studies have confirmed aircraft activity levels at the five GA airports, existing and forecasted, are not expected to introduce air quality issues.

c. Water Quality Assessment

- All the airports have Storm Water Management Plans (formerly known as SWPPP)

d. Wetland Assessment

- Wetland issues are not an existing issue but could become an issue if obstruction removal or airport development is implemented in the future at SFZ or UUU.

e. Hazardous Waste & Material Management

- BID: Does not have either a Hazardous Waste Contingency Plan or a Spill Prevention Control and Countermeasures Plan (SPCC)

f. Wildlife Management

- Wildlife is not an existing issue if security fencing is completed where noted on the "Recommended CIP" list.

7. Airport Security

GA airports do not have specific requirements like the FAA Part 139 and TSA requirements in place for PVD. They operate more on the basis of industry recommendations. That being said; all the GA airports have a security plan. It provides guidance to all tenants to ensure their facilities and aircraft are locked and secure at all times if they are unoccupied. The GA airport security is limited to perimeter fencing, and secure gate systems, electronic and personal surveillance, CCTV, security lighting as well as public information or posting notices to identify restricted areas. The level of security is often dictated by the type and size of the GA airport. Overall it is designed to ensure public protection from entering restricted airport areas.

TABLE 4-10: AIRPORT SECURITY

Performance Parameter	Part 139	Security Fencing
Existing/Forecast	E / F	E / F
T.F. Green State (PVD)	■ ■	■ ■
Westerly State (WST)	NA	■ $$
North Central (SFZ)	NA	■ $$
Quonset State (OQU)	NA	■ ■
Newport State (UUU)	NA	■ $$
Block Island (BID)	NA	■ ■

■ Meets Requirement NA Not Applicable $$ Projected Investment

OBSERVATIONS:

a. PVD is a Part 139 Airport and it meets all the security requirements. Security fencing exists around the entire airport perimeter.

b. GA Airports

- BID has security fencing around the entire airport perimeter.
- OQU is fully fenced, except along the sea wall.
- WST, SFZ, UUU have partial security fencing. There are "No Trespass" signs where no fencing. (Forested areas around the airport perimeter make it difficult to install fencing around the entire airport). Regardless, improving perimeter fencing should be an objective for these airports.
- Other components of the GA Security Plan include:

  - All tenants have RIAC Police phone # to report suspicious persons or activity,
  - Proximity card readers installed in airport owned buildings and
  - Electronic vehicle gates to control airport access 24/7,
  - CCTV camera system installed in all airports providing security coverage of buildings, aircraft ramps and vehicle parking areas

- Tenant photo ID card to gain access to airport "authorized areas".

- Promote policy; "***See Something, Say Something***".

8. Airport Services

a. PVD:

- T.F. Green is operated by RIAC staffed airport professionals who are trained in their respective roles and responsibilities. The primary role of PVD is to provide scheduled air carrier service for domestic and some foreign destinations. It also services air cargo carriers and GA operations. Like most large and hub medium airports the GA component is at times limited by the focus placed on air passenger service requirements.

- Another GA issue is how it impacts airport capacity as it relates to ground space needs. Although airspace capacity is not an issue for PVD the location of GA on the airport and the space to grow is a potential issue.

b. GA:

- The willingness of pilots and their patrons to utilize a GA airport as a transient or permanent user can be a function of the availability and quality of airport services. The basic services included are listed in **Table 4-11**. Through contract with AvPorts, a national airport service provider, each GA airports has a professional airport manager to provide day-to-day management of the airport operation.

TABLE 4-11: AIRPORT SERVICES

Performance Parameter	AvGas	Jet Fuel	Self-Fueling [51]	AC Maintenance Flt. Training Sky Diving Banner Tow	Flight Planning Weather Pilot Lounge	Food – Restaurant Concession or Vending	Car Rental or Taxi Services
Existing/Forecast	E / F	E / F	E / F	E / F	E / F	E / F	E/F
T.F. Green State (PVD)	■ ■	■ ■	☒ ☒	■ ■	■ ■	■ ■	■ ■
Westerly State (WST)[52]	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
North Central (SFZ)	■ ■	■ ■	☒ $$	■ ■	■ ■	■ ■	■ ■
Quonset State (OQU)	■ ■	■ ■	☒ $$	■ ■	■ ■	■ ■	■ ■
Newport State (UUU)	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
Block Island (BID)	☒ ☒	☒ ☒	☒ ☒	☒ ☒	☒ ☒	■ ■	■ ■

■ Provided ☒ Not Provided $$ Projected Investment

OBSERVATIONS:

a. PVD:

- GA activity and related space is an issue that will be evaluated as part of the anticipated AMP project in 2017. Encouraging the corporate fleet to use SFZ or OQU is an option.

b. GA:

- The GA airports have their pro and con with respect to attracting the GA users. Some like OQU has more space and greater potential to develop than the others. But each provides a primary level of pilot services, to meet the basic needs. The goal should be to continue to improve these services. Listening to the GA family through our quarterly GA Listening meetings is a good step and should be continued. Clearly there is room for improvement in terms of developing current services. Example; GA airports (except BID) don't have restaurants and rely on vending machines. Unfortunately it is a "catch 22" situation – the current level of activity hardly provides the demand for food services via an on airport restaurant.

[51] Self-fueling applies to Avgas only.
[52] Jet fuel is available only from the "thru-the-fence" FBO.

9. Support Infrastructure

The basic support infrastructure and safety elements are presented in **Table 4-12**. At an airport like T.F. Green there are other support components, such as glycol treatment facilities, cargo facilities etc. They are not included in this ASPU assessment but are elements of a proposed master plan for PVD.

TABLE 4-12: SUPPORT INFRASTRUCTURE

Performance Parameter	Terminal Building	AARF Equipment	AARF Building	SRE Equipment	SRE Building
Existing/Forecast	E / F	E / F	E / F	E / F	E / F
T.F. Green State (PVD)	■ $$	■ $$	■ ■	■ $$	■ ■
Westerly State (WST)	■ ■	NA/NA	NA/NA	■ ■	☒ ☒
North Central (SFZ)	■ ■	NA/NA	NA/NA	■ ■	☒ ☒
Quonset State (OQU)	■ ■	■ ■	NA/NA	■ ■	$$ ■
Newport State (UUU)	■ $$	NA/NA	NA/NA	■ ■	■ ■
Block Island (BID)	■ ■	NA/NA	NA/NA	■ ■	☒ ☒

■ : Meets Requirement ☒ : Very Low Priority NA: Not Applicable $$ Projected Investment

OBSERVATIONS:

a. PVD currently meets all the basic performance parameters for a Index "C" Primary airport. However in the future there are some capital investments that need to be considered.

- Terminal Building: If the anticipated growth of the passenger market is achieved it is reasonable to assume that a re-evaluation of the terminal requirements will be a consideration. The proposed AMP in 2017 will evaluate that consideration in more depth.

- AARF and Snow Removal equipment have to be replaced on a recurring basis and these life-cycle costs need to be factored into future capital investments.

b. GA Airports

- Snow Removal Equipment (SRE): All the GA airports have some SRE to accommodate their basic needs. Clearly some of the equipment is old but "good enough" to get the job done. It is assumed the system can continue the process of recycling the functional SRE to survive. It is also assumed this will occur through the "Ops" budget and not involve capital investment.

- SRE Building: Except when performing routine maintenance the equipment is routinely exposed to the elements. That obviously takes its toll on the equipment and certainly shortens the

replacement cycle. For this ASPU the assumption is that construction of any SRE building will require AIP funding. However, given the low priority rating FAA places on this GA investment it is unlikely that funding will be available for any SRE building now or in the forecast period. It therefore remains a "nice to have" but unlikely improvement. The one exception is OQU. The present facility is part of the "old terminal building" that is planned for demolition in 2017. A new SRE facility is in the planning stage. UUU has an SRE facility "of sorts". The maintenance garages at SFZ, OQU and WST do not have adequate space to serve as an SRE Building.

- Terminal Building: All the GA airports have buildings that are "reasonably new" – meaning constructed in the last 15 years. They all provide adequate space for the level of GA activity that occurs at the respective airports, including the passenger service between BID and WST. UUU, although recently renovated to improve the interior space, remains a question at the end of the forecast period.

- ARFF Equipment: At OQU the Air National Guard has ARFF equipment for their C-130 military aircraft. The added benefit is they also provide ARFF support for RIAC activity when required.

10. Economic & Financial Impact

An airport's ability to successfully generate revenue from a variety of sources relates directly to that facility's financial stability and economic impact. The Rhode Island system of airports' economic and financial impact is presented in **Table 4-13**.

TABLE 4-13: ECONOMIC & FINANCIAL IMPACT

Performance Parameter	Revenue $ (+/-)	Revenue Opportunities	State Economic Impact
Existing/Forecast	E / F	E / F	E / F
T.F. Green State (PVD)	■ ■	■ ■	■ ■
Westerly State (WST)	☒ ☒	☒ ■	■ ■
North Central (SFZ)	☒ ☒	☒ ■	■ ■
Quonset State (OQU)	■ ■	■ ■	■ ■
Newport State (UUU)	☒ ☒	☒ ■	■ ■
Block Island (BID)	☒ ☒	☒ ☒	■ ■

■ : Sustainable ☒ : Not Sustainable

OBSERVATIONS:

a. PVD

- No surprise here. PVD continues to be the "work horse" in the system in terms of developing revenue and profitability. It continues to generate the capital to sustain its own operation and the GA system overall.

- The economic impact of PVD has declined since the results of the 2006 airport economic impact study were published. This can be attributed to the overall decline in the national and state economy and dynamic changes in the airline industry.

- Going forward it can be stated with optimism that:

  - The new runway length will encourage airlines to improve their long distance service and attract additional routes as predicted in the EIS;

  - The PVD service market will grow; and,

  - The "capacity" issues at Boston-Logan could encourage passengers to return PVD and see it return to its former status as an attractive alternative to Boston-Logan

- These opportunities if fully developed will create resurgence in the enplaned passenger numbers and all the ancillary benefits of that growth. In short; PVD can realize the financial and economic potential seen when PVD was at its former peak.

b. GA Airports

- OQU is the most promising airport in the GA system. Discounting depreciation, OQU would be able to sustain its operation in terms of revenue and expenses. It is also the airport with greatest upside for developing revenue based on the available aeronautical and non-aeronautical developable land. All this is predicated on the judicious development of the property. There are several promising areas identified on the ALP for private investment. Fuel sales, especially jet fuel, play a big part in contributing to the revenue source. On the negative side there are some major infrastructure costs (repair sea wall) projected in the medium to long range.

- Although BID and WST operate in the "red" as primary airports they still, generate $1 million each in AIP entitlement[53]. It is a boost for supplementing the otherwise meager FAA GA State apportionment dollars ($350,000)[54] received from the for use at UUU and SFZ. Fortunately

[53] Generate >10,000 enplanements annually
[54] Total Program A and Program B in FY-2016

because RIAC is responsible for operating all the airports there is flexibility to intermingle the federal monies provided by FAA to accomplish AIP projects.

- It is clear that the management of the system will continue to rely on a delicate balance of revenue from various FAA and RIAC funding sources. In the meantime Capital Improvement Program (CIP) projects need to be carefully managed. **Chapter 7** provides a list of critical projects, in order of priority, for the forecasted period 2016 – 2035. Other opportunities for creating revenue sources or improving operating costs are identified in **Section IV** below.

c. **Financial Overview of the Airport System Overall**

This is a broad and rather subjective overview of how the system is performing financially. In the context of airport system planning this is a unique – it is not a typical exercise to evaluate financial performance. It is probably attributable to the fact that; (a) most states do not own and operate all the GA airports in their state, (b) most states have far too many GA airports and (c) it introduces too many variables and therefore brings into question the credibility of the results. This is not true for the RIAC managed and state owned airport system. It makes it an interesting and credible assessment. In fact there was a 2009 and 2014 assessment[55] conducted for RIAC on the management options for cost cutting measures at the GA airports. The 2014 assessment on the "financial stability of the GA system" suggested cutting operating costs by reducing pavement, i.e., selectively closing runways and taxiways. Yes, a dramatic and expedient solution. But to the user it is not encouraging to know that reducing the infrastructure is progress in creating an efficient and effective airport system. This is especially true for the private investor who has, or is considering investing at the airport. From a legal perspective it also has implications on the commitments made in the FAA grants issued to develop the airports. In summary; based on the efforts of this airport system update it is reasonable to assume that the character of the system, at least financially speaking, is not likely to change any time soon.

Accepting a status quo for the foreseeable future means the GA airport system will continue to rely on the revenue generated by T.F. Green airport. Based on current and projected levels of activity at the GA airports, all, except perhaps Quonset, will be hard pressed to become financially self-sustaining. Moreover the typical revenue opportunities, such as fuel sales, hangar and apron rental, building leases, are a function of operational activity and therefore reliant on the extremely modest forecast of activity. To create a positive revenue stream at the GA airports is projected to be extremely limited. This pessimistic outlook on activity also has an impact on the willingness for private investment in airport infrastructure such as hangars. Successful private hangar developed at Newport seems to be an argument against such thinking. Alternative revenue sources, like leasing "excess" airport land for non-aeronautical purposes, although doable is difficult to bring to fruition.

[55] "Management & Operation of the GA System of RIAC" by Aviation Consultant – 2009
"RIAC GA System – Management and Ownership Options" by Aviation Consultant - 2014

From a management perspective, the idea of returning the operation back to the Rhode Island Department of Transportation always surfaces. But we know from history that was not the most effective system of governance. Even critics would acknowledge; since RIAC assumed operation of the GA system the airports have realized a resurgence of infrastructure improvements. This option offers no assurance that it would create any financial benefits in operating the system.

Another unlikely option; turn over the ownership and operation of the GA airports to local government. That hardly seems to be a solution given that in Rhode Island the local towns have their own financial constraints and adding an airport to their already over burden budget is not high on their financial priority list. Therefore maintaining "status quo" appears to be the most reasonable approach to sustain operation of the Rhode Island GA airport system. It provides assurance that:

- Organizational stability is maintained.
- Airport operational and development standards are applied consistently.
- Airport management is provided by experienced airport professionals.
- The user and public have a focal point to address business and/or community concerns.
- It eliminates the political implications of making a substantial governance change.

Assuming: (a) RIAC continues to be the organizational entity to operate the system, (b) the revenue outlook remains constant at current levels over the short term, (c) the GA airports retain their existing runway/taxiway infrastructure (to effectively service their respective roles), and (d) AIP funding sustains its current levels and participation rates, then operationally speaking costs can be moderated in the short term.

The key is to keep it **"BASIC"**. That means:

- Maintain the airfield infrastructure with an on-going pavement management program.
- Improve the approaches to the condition that enables FAA to restore former minimums.
- Ensure the vegetation management program can maintain obstruction free approaches.
- Maintain a GA Airport CIP that accomplishes only the highest priority AIP projects.
- Encourage private investment to develop hangars at selective airports.
- Utilize airport property for land-use that is consistent with the ALP recommendations.
- Pursue alternative revenue sources.

Employing these "Basic" practices may not entirely result in weaning RIAC from reliance on the T.F. Green revenue source but these best efforts to control costs could lessen the burden imposed on it.

d. **Economic Impact of Airport System**

A 2016 Economic Impact Study of the airport system (based on 2014 airport activity) revealed, not surprisingly, that; the overall economic impact of the airport system declined from the 2006 Economic

Impact study. Nonetheless; the results are promising with respect to showing how the airport system is essential to the overall economy.

TABLE 4-14: ECONOMIC IMPACT OF AIRPORT SYSTEM

Airport	Economic Impact ($)
T.F. Green State (PVD)	$1.2 Billion
Westerly State (WST)	$16.0 Million
North Central (SFZ)	$9.5 Million
Quonset State (OQU)	$151.9 Million
Newport State (UUU)	$12.3 Million
Block Island (BID)	$24.2 Million

e. Developing New Opportunities

The aviation industry is cyclical in nature and reacts quickly to changes in the national economy. This elasticity has a direct effect on many revenue sources utilized, and relied on, to maintain the operation of any airport. The creation of revenue sources not directly related to aviation enables an airport to offset some of the lulls inherent in the aviation industry. A mix of aviation and non-aviation related revenue sources is ideal for airport management to provide the most reliable and consistent income. Key opportunities for RIAC to implement (on a permanent or temporary basis) to increase revenue includes:

- **Hangars**: This development is a consistent revenue source directly related to aviation. Three of the RI airports have a need for additional hangar space. In fact, some have a wait list of registered aircraft owners. Presently hangar development is by private developers.
- **Special Events**: The National Guard Air Show at OQU continues to be annual attraction. Hosting special events helps to generate revenue and acts as a form of public outreach. Other events include fly-in, safety days, truck pulls, car shows, etc. where the public is invited to attend a special event at the airport helping to improve community relations.
- **Local Government Use**: Utilize airports as staging areas to fight fires, hold police training exercises, respond to emergencies, test equipment and carry out training sessions.

D. Summary

The Chapter reveals the airport deficiencies (some more important than others) that need correcting. In the Study Team's judgment deficiencies related to Airport Capacity, Airport Design Standards and Airport Access (Approach Capability) are weighted higher because they directly influence performance and safety.

"REPORT CARD" ON SYSTEM PERFORMANCE			
Goal	**Rating**	**Remarks**	**Improve**
Runway Capacity	**Excellent**	Adequate R/W capacity for existing and forecasted activity	**No**
Aircraft Parking Capacity	**Good**	Potential issues at SFZ,UUU & OQU if not developed per ALP	**Yes**
Design Standards	**Good**	Few non-std. conditions. "Modification to Std." issued by FAA	**Yes**
Air Access (Approaches)	**Fair**	#1Priority: Clear WST & UUU approaches to restore minima	**Yes**
Airport Security	**Good**	Complete fencing at GA airports to improve security	**Yes**
Environmental Compliance	**Good**	Basically okay except for on-going noise reports at PVD	**Yes**
Airport Compatibility	**Fair**	The challenge is the RIAC effort relies on Town cooperation	**Yes**
Support Infrastructure	**Good**	Effective pavm't mg't program is key- major project in 5+ years[56]	**Yes**
Financial Stability	**Poor**	GA system relies too heavily on PVD	**Yes**
Eco. Impact	**Good**	Good; but definitely could do better especially at PVD	**Yes**
Airport Services	**Fair**	To improve amenities, like food and car rental are limited.	**Yes**
Ground Access	**Good**	Except UUU and BID where geography and $$$ makes it difficult	**No**
AIRPORT SYSTEM	**GOOD**	**SEE REMARKS ABOVE**	**YES**

[56] Major project refers to the rehabilitation of the sea wall in certain sections.

CHAPTER 5 – GOALS & ACTION PLAN

I. Introduction

In developing this chapter the objective was to simplify the "Goals" format used in the 2004 ASP and adopted by the 2011 State Guide Plan (SGP). The 2004 ASP/SGP created seven basic Goals and for each goal identified a series of "*Policies, Objectives and Strategies"*. Our study team viewed the "*Policies, Objectives and Strategies"* as far too many steps to get to the individual action essential to improve the system. Moreover, it took focus off the basic target.

The 2016 ASPU started by developing ten[57] planning goals as defined in Chapter 4, "*System Performance & Needs Assessment" (***Table 4.1**). The ten goals became the framework for developing the individual "Action Items" related to improving system performance. It was understood that pursuing a specific "Action" related to the Goal could have it challenged or influenced by such factors as: (a) availability of funds, (b) environmental issues, (c) engineering requirements, (d) jurisdictional matters, (e), organizational difficulties, (f) cost-benefit, etc. The details to resolve or mitigate these issues are typically addressed in airport master plans.

[57] The 2011 State Guide Plan had seven Goals. "**Support Infrastructure**", "**Airport Security**", and "**Airport Services**" were not included as Goals but rather as elements within the seven goals. In this ASPU they are identified as individual goals, thereby highlighting their importance and the priority to achieve them.

AIRPORT SYSTEM GOALS	
I.	*Design Standards [STD] – Maintain compliance with FAA airport design standards.*
A.	*Capacity [CAP] – Provide improvements to meet current and future aviation demand.*
B.	*Air Access [AA] – Ensure system is accessible to the user in IFR/VFR conditions.*
C.	*Airport Security [SEC] – Ensure PVD complies with FAA Part 139 requirements and the GA airport security is consistent with the GA industry standards.*
D.	*Environmental Compliance [ENV] – Maintain federal and state environmental requirements.*
E.	*Airport Compatible Land Use [COMP] – Promote actions to enhance compatibility of surrounding land use and local zoning.*
F.	*Support Infrastructure [SUP] – Ensure that PVD and the GA airports are provided with the essential infrastructure to support their roles.*
G.	*Economic Impact [ECO] & Financial Stability [FIN] – Develop system to support the Rhode Island's economy, while striving toward their financial self-sufficiency.*
H.	*Airport Services [SER] – Improve user services and amenities to encourage greater use of GA airports.*
I.	*Ground Access [GA] – Encourage programs to improve auto/taxi and public transportation.*

GOAL I: ***DESIGN STANDARDS [STD]: MAINTAIN COMPLIANCE WITH FAA AIRPORT DESIGN STANDARDS***

ACTION PLAN	
A.	***Maintain a current Airport Master Plan and Airport Layout Plan.*** • Review the AMP and ALP on an annual basis to ensure it is current. • Implement airport projects to correct non-standard conditions or, • Work with FAA to obtain approval of "Modification to Standards".
B.	***Maintain an annual 5-Year Capital Improvement Program (CIP).*** • Highlight "design standards" projects in the CIP. • Identify funds for "design standards" projects. • Identify schedule for environmental and design requirements.
C.	***Prevent obstructions from penetrating the critical Part 77 airspace surfaces***. • Seek ownership or easements of R/W imaginary surfaces to keep free of obstructions. • Seek ownership or easements of RPZ to keep area free of people and objects. • Work with town officials to promote awareness of FAA's Part 77 requirements • Assist town planner to assess development proposals in the proximity of airport. • Review Town Comp. Plan for land use/zoning proposals in vicinity of airport

GOAL II: ***CAPACITY [CAP]: PROVIDE IMPROVEMENTS TO MEET CURRENT AND FUTURE AVIATION DEMAND***

	ACTION PLAN
A.	***Maximize effectiveness of existing system and ensure airport achieves its role.*** • PVD: (Primary Commercial Service/Medium Hub) – Complete the extension of Runway 05 (Est. 2017) – Promote the Boston Regional service area (See "E" below) – Initiate policies to encourage business jets to use our reliever airports – Provide facilities to promote air cargo and charter demand – Plan terminal/landside facilities to serve peak hour passengers demand – Promote LCC service to gateway destinations in Europe and Latin America • BID: (Primary CS Non Hub) – Promote the BID to WST commercial service – Install helicopter parking pad to reduce use of existing apron • WST: (Primary CS Non Hub) – Clear obstructions and restore the former IFR capabilities • SFZ: GA (Reliever) – Develop new apron and hangar designated areas – Evaluate LPV minimums to improve reliever status • OQU: GA (Reliever) – Develop new apron and hangar designated areas – Promote revenue producing opportunities in concert with QDC – Provide capacity for RIANG/ANG to serve their national defense mission – Create a viable financial plan to phase repair of the Sea Wall • UUU: GA – Develop apron and hangar space – Clear obstruction and restore the former IFR capabilities – Install helicopter parking pad to reduce use of existing apron
B.	***Maintain the existing runway configuration and runway length.*** • Recommendations to change the layout must be coordinated within RIAC • Any change to the layout must be approved by the RIAC CEO
C.	***Maintain a current Airport Master Plan and Airport Layout Plan.*** • Evaluate and update the AMP and ALP on an "as-needed" basis
D.	***Maintain an annual 5-Year Capital Improvement Program (CIP).*** • Implement ALP projects and highlight priority projects for the CIP • Identify schedule for environmental and design requirements • Ensure timely submission of Grant applications • Maximize AIP discretionary funding opportunities
E.	***Develop role of PVD defined by New England Regional Airport System Plan*** • Promote PVD to complement the Boston air service market area (Southeastern MA and Southwestern CT) • Seek opportunities to work with Massport on alternatives to develop Boston Region service area • Highlight the environmental improvements that can be achieved in region
F.	***Maintain the infrastructure as needed to extend the useful life of the facility.*** • Maintain an annual pavement management program • Clear approaches consistent with the VMP • Perform maintenance on ARFF and SRE equipment on scheduled basis

GOAL III: *AIR ACCESS [AA]: ENSURE SYSTEM IS ACCESSIBLE TO THE USER IN IFR/VFR CONDITIONS*

ACTION PLAN	
A.	*Maintain a program to improve and protect our IFR access:* • *Complete obstruction removal at UUU & WST to restore night time procedure.* • *Support our obstruction management program.* • *Ensure that the existing precision and non-precision approaches are protected*
B.	*When obstructions are under control improve accessibility using GPS technology.*
C.	*Maintain on-site weather reporting equipment at all airports.*
D.	*Maintain, and enhance airfield lighting and visual aids.*

GOAL IV: *AIRPORT SECURITY [SEC]: ENSURE PVD COMPLIES WITH FAA PART 139 REQUIREMENTS AND THE GA AIRPORT SECURITY IS CONSISTENT WITH THE GA INDUSTRY STANDARDS*

ACTION PLAN	
A.	*Continue to meet the FAA Part 139 standards at PVD*
B.	*Continue to provide the law enforcement staff to monitor security at PVD airport.*
C.	*Complete the security fencing around the GA airports (SFZ/UUU/WST/OQU)*
D.	*Continue to promote policy; "See Something, Say Something",*

GOAL V: *ENVIRONMENTAL COMPLIANCE [ENV]: MAINTAIN FEDERAL & STATE ENVIRONMENTAL REQUIREMENTS*

ACTION PLAN	
A.	*Maintain a current Airport Layout Plan to evaluate changing conditions and demand.*
B.	*Implement mitigation requirements identified in approved FONSI's and ROD's.*
C.	*Maintain current Spill Prevention Control Countermeasures (SPCC) plans.*
D.	*Protect quality of groundwater. Meet requirements for Underground Storage Tanks.*
E.	*Protect airport from intrusion of wildlife; maintain current Wildlife Management Plan*
F.	*Protect water quality; maintain the current Storm Water Pollution Prevention Plans (SWPPP).*
G.	*Protect groundwater; meet the requirements for Underground Injection Control (UIC).*
H.	*Protect runway approaches in an environmentally compatible manner; maintain Vegetation Management Plans (VMPs).*
I.	*Protect wetlands and sensitive breeding and nesting areas; avoid repeated disturbances*
J.	*If practicable use CNG powered ground support equipment or cleaner fuel vehicles.*
K.	*To improve surrounding water quality; use best management practices and new technologies to effectively managing stormwater runoff.*
L.	*Effectively manage RIGL 1-7, the "Permanent Air Quality Monitoring Act"; continue to coordinate with RI Dept. of Health and DEM.*
M.	*Maintain compliance with environmental regulations; update environmental plans and obtain permits as needed.*
N.	*Mitigate congestion and air pollution at PVD; implement plans that can minimize vehicle trips that contribute to the problem.*
O.	*Minimize emissions of air pollutants and greenhouse gasses from aircraft operations and ground support equipment RIAC and the airlines should; implement plans that can alleviate the condition.*
P.	*Protect airport employees, host communities, and the environment; identify and properly manage hazardous materials.*

GOAL VI: *AIRPORT COMPATIBLE LAND USE [COMP]: PROMOTE ACTIONS TO ENHANCE COMPATIBILITY OF SURROUNDING LAND USE AND LOCAL ZONING*

ACTION PLAN	
A.	***Maintain a current Airport Layout Plan to evaluate changing conditions and demand.***
B.	***Maintain continuing and cooperative planning with host communities and encourage responsible land use practices around the airports.***
C.	***Identify Part 77 airspace around airport and work with host communities to adopt appropriate zoning, consistent with RIGL § 1-3-5.***
D.	***Maintain current ASP/AMP/ALP. Encourage host communities to participate in airport master planning and airport system planning process.***
E.	***Work with host communities and Statewide Planning on Town Comprehensive Plans.***
F.	***Inform local planning officials on the proper use of FAA's Form 7460-1, Notice of Proposed Construction or Alteration. Include form on local development checklist.***
G.	***Implement approved recommendations of PVD Part 150 Airport Noise Study***
H.	***Work with the host communities and FAA to identify noise sensitive areas and flight patterns. Utilize data to promote flight operations that minimize impacts and resolve deviations to flight patterns that are not related to safety or weather.***
I.	***Continue to implement home acquisition and sound insulation program at PVD. Work with Warwick for responsible redevelopment of land from noise acquisitions.***
J.	***Update the PVD Noise Exposure Map as aircraft operations and type warrant.***
K.	***Comply with RIGL 1-5 Permanent Noise Monitoring Act.***
L.	***Ensure that airport landside plans and projects are consistent with state approved local comprehensive plans and the State Guide Plan.***
M.	***Maintain adequate height zoning and Part 77 Surfaces with no penetrations.***
N.	***The RIAC chairperson, will submit a written request to the Secretary of State Planning Council (§ 42-64-14) when RIAC implements a project that converts the use of land to determine if the project conforms to the State Guide Plan.***

NOTE	*The following are recommendations of the State Planning Council made at the time the 2011 SGP was adopted. They remain a consideration for future RIAC action.*
A.	*The State Planning Council recommends State establish non-airport revenue based funding mechanism to assist replacing low or moderate income housing units (R.I.G.L. 45-53) lost as a result of airport expansion or noise related acquisition.*
B.	*The State Planning Council recommends the State review the Airport Impact Aid Formula contained in Article 1 of the annual Budget Appropriations Act to determine if the applicable communities are being appropriately compensated for hosting the associated facilities.*

GOAL VII: *SUPPORT INFRASTRUCTURE [SUP]: ENSURE THAT PVD AND THE GA AIRPORTS ARE PROVIDED WITH THE ESSENTIAL INFRASTRUCTURE TO SUPPORT THEIR ROLES*

ACTION PLAN	
A.	*Monitor activity at PVD to ensure the PVD terminal facility needs are anticipated and upgraded to meet the future demand.*
B.	*Evaluate AARF and SRE equipment at PVD annually to ensure replacement is planned and provided for when needed.*
C.	*Provide an SRE Building at OQU in the short-term.*
D.	*Plan for and provide an expanded GA Terminal building in the long-range.*
E.	*Monitor the SRE equipment available to the GA airports and ensure they are adequate to properly perform when needed.*
F.	*Establish a program to design and repair the Sea Wall @ OQU*

GOAL VIII: *ECONOMIC IMPACT [ECO] & FINANCIAL STABILITY [FIN]: DEVELOP SYSTEM TO SUPPORT THE RI ECONOMY, WHILE STRIVING TOWARD THEIR FINANCIAL SELF-SUFFICIENCY*

ACTION PLAN	
A.	***Pursue funding for projects that generate revenue for the airport system.***
B.	***Promote the development of aviation related industries on or near airport property in cooperation with host communities.***
C.	***Use best management practices to maintain and operate facilities and equipment in acceptable condition and protect infrastructure investments.***
D.	***Employ current industry standards to establish and maintain reasonable rates, charges, and lease agreements for airport tenants.***
E.	***Provide services and amenities to encourage GA business aircraft activity.***
F.	***Provide basic or enhanced FBO services to support the role of the airport.***
G.	***Ensure sufficient fuel is available for each airport depending on the role of the airport and based on feasibility.***
H.	***Provide food service at all terminals from vending machines to full service restaurants.***
I.	***Plan and phase improvements that is consistent with the current ALP. Maximize AIP funding through a continuous and effective CIP process.***
J.	***Plan and phase non-AIP funded improvements. Ensure they are consistent with industry "best management practices".***
K.	***Work with the Dept. Defense and Air National Guard Bureau to ensure their maximum participation in funding improvements at Quonset Airport.***
L.	***Periodically conduct and publicize airport economic impact studies.***
M.	***Establish reasonable and relevant minimum standards at each airport to maintain a professional level of service and ensure consistent revenue streams.***
N.	***Host public events that promote airport and aircraft activity (e.g. Quonset Air Show).***
O.	***Promote the airports through local community groups and chambers of commerce.***
P.	***Use marketing and advertising to promote the state airport system.***

GOAL IX: *AIRPORT SERVICES [SER]: IMPROVE USER SERVICES TO ENCOURAGE GREATER USE OF THE GA AIRPORTS.*

ACTION PLAN	
A.	*Continue the quarterly GA Pilots Listening sessions to hear out their needs*
B.	*Based on recommendations from AvPorts* • *OQU and SFZ: Provide self-fueling* • *OQU and UUU: Attract Part 135 Operator* • *OQU: Create floating dock to service boating community owners who use airport* • *OQU: Add jet MRO to FBO services* • *SFZ: Encourage private development of T-Hangars to free up jet storage in large hangar*

GOAL X: *GROUND ACCESS [GA]: ENCOURAGE PROGRAMS TO IMPROVE AUTO/TAXI & PUBLIC TRANSPORTATION*

ACTION PLAN	
A.	*Participate in coordinated planning efforts with local and state officials for landside facilities and intermodal surface transportation connections.*
B.	*Provide a system of airports with adequate and efficient ground transportation, circulation and access roads, and parking.*
C.	*Encourage frequent and effective transit service to reduce congestion and parking requirements, especially at T.F. Green.*
D.	*Maintain eligibility of primary access roads for federal funding through inclusion in the Highway Functional Classification System.*
E.	*Work with RIPTA, MBTA, AMTRAK and others to provide and enhance regularly scheduled transit service to TF Green and some level of transit (e.g. Flex-Service) to other commercial service airports.*
F.	*Provide adequate automobile parking based on the number of passengers, based aircraft, employees, visitors, and other airport businesses such as rental cars.*
G.	*Provide access to rental or courtesy cars for passengers and pilots.*
H.	*Provide proper signage for easy identification and access to aviation facilities.*
I.	*Provide proper signage and information within airports for easy identification and access to transit and ground transportation.*
J.	*Provide for sufficient medical transport capabilities.*

CHAPTER 6 – AIRPORT SYSTEM IMPROVEMENT PLAN

I. Introduction

"Chapter 6 – *Airport System Improvement Plan*" has evolved from the analysis conducted in the previous two chapters. Chapter 6 recommends specific improvements to the airports in the system.[58] The airport improvements are for the most part infrastructure projects requiring capital investment. They are a result of a "system analysis" and therefore only provide an overall recognition of a future needs. We must also remain cognizant that airport system improvements are constantly evolving. Because of FAA and RIAC priorities and funding revisions we are presented with new challenges. The following questions were part of the equation in defining the recommended improvements. Is it

- Identified in the latest 5-Year Capital Improvement Program (CIP)?
- Analyzed in the current Airport Master Plan (AMP)?
- Identified on the approved Airport Layout Plan (ALP)?
- Identified in Statewide Planning Program "State Guide Plan"?
- Identified as a mid-term (5-10 year) or long term (>10-year) project?
- Identified as essential to improve system performance (See Chapter 4)?
- Identified as essential to achieve a Goal and Action (See Chapter 5)?
- Eligible for AIP funding, if so, how strong is the FAA priority rating for the project?

The projects listed in the CIP are short-term (0 – 5 year) projects and are reasonably well defined from an engineering and financial perspective. They are also likely to receive the highest FAA priority rating if discretionary funding is essential for the project. Notwithstanding those parameters, it is also important to address mid-term needs as they approach the 5-year horizon. It is imperative to evaluate the specific requirements and costs of new projects before becoming an element of the CIP or annual RIAC budget. Maintaining a current AMP and ALP is the best approach to justify a timely and reasonable project in the CIP. It will also ensure to FAA and others that the project has received an appropriate level of analysis.

A. System Improvements

This section brings together the improvements determined by various plans and studies for each airport. **Table 6-1a** reiterates the 10 goals that were established in *Chapter 4 – Existing System Performance and Needs Assessment*. **Table 6-1b** defines the time frame and calendar years identified with the projects. **Tables 6-2** to **Table 6-7** identifies the recommended improvement for each airport, the cost (expressed in 2016 dollars) and the associated "Goal" to help understand the category the improvement is achieving. Finally, the development is presented in terms of specific time periods. It should be understood recommendations in the medium to long

[58] The improvements in some cases are similar as those recommended in the 2011 State Guide Plan. The SGP recommendations have been revised to remove those completed since 2011 or added to because of this 2016 update.

range period represent a better than "50-50" chance of being revised as the time frame gets closer. Therefore to maintain the validity of the planning recommendations need to be re-assessed on an annual basis.

TABLE 6-1A – GOAL AND ABBREVIATION

Design Standards	**STD**	Environmental Compliance	**ENV**
Airport Capacity	**CAP**	Airport Security	**SEC**
Airport Access (IFR/VFR)	**AA**	Airport Services	**SERV**
Ground Access	**GA**	Support Infrastructure	**INFR**
Compatible Land Use	**COMP**	Economic & Financial Impact	**ECO**

TABLE 6-1B – TIME FRAME

Term	Period	Years
Short Term	0 – 5 years	2017 – 2021
Medium Term	6 – 10 years	2022 – 2026
Long Range	11 – 20 years	2027 – 2035

TABLE 6-2: IMPROVEMENTS – T.F. GREEN AIRPORT (PVD)

T.F. Green State Airport (PVD) [59]					
Project	CAT	Short (0-5 year)	Medium (6-10 year)	Long (11-20 year)	Remarks
R/W 34 End (15% Grant Overage)	STD	$2,593,677			
R/W 34 End (15% Grant Overage)	STD	$1,687,966			
R/W 5/23 – RPZ	STD	$7,620,287			
Noise (Sound Insulation-PH4)	ENV	$9,373,283			
Noise (Sound Insulation-PH5)	ENV	$9,300,051			
Noise (Land Acquisition-PH6)	ENV	$6,141,756			
Easements for Obst. (R/W 16/34)	STD	$1,750,000			
Airfield Geometry Improvements	STD	$5,000,000			
T/W T Revise Signage	STD	$200,000			
Update AMP/ALP	STD	$1,000,000			
R/W 16/34 Reconstruction	STD		$16,500,000		
T/W C Improvements	STD		$20,000,000		
Apron and T/W Reconfiguration	CAP		$30,800,000		
Develop New South Service Area	CAP		$23,800,000		
Internal Roadway Improvements	CAP		$36,000,000		
New Integrated Cargo Building	CAP		$10,700,000		
Expand Auto Parking	CAP		$40,000,000		
Expand Terminal	CAP		$85,000,000		
New Fuel Farm	CAP		$63,300,000		
Improve Hangar #2	CAP		-		Private Investment

[59] Items in the Medium and Long Range subject to re-evaluation in the Airport Master Plan anticipated to begin 2017

HIGHLIGHT:

"Update the AMP/ALP": A project consultant has been selected and a Draft scope of work prepared. The project is anticipated to start in 2017. It is the single most important project remaining as the current airport improvement program comes to completion in December 2017. The outcome of this 12 – 18 month planning study will be recommendations that bring greater clarity to the investment for the medium range projects listed above. It will create a "vision" for the long range period (not shown in Table 6-2). The planning process will provide a critical examination of the airport's future service role in a regional context".

TABLE 6-3: IMPROVEMENTS – WESTERLY STATE AIRPORT (WST)

Westerly State Airport (WST)					
Project	**CAT**	**Short (0-5 yr.)**	**Medium (6-10 yr.)**	**Long (11-20 yr.)**	**Remarks**
Obstruction Removal	STD				Under AIP Grant
Complete Fencing	STD		$250,000		
Update Master Plan	STD	$200,000			See highlights below
SRE Building	CAP			$750,000	Very low priority
Rehabilitate Pavement	STD			$1,000,000	Reassess in AMPU
Construct Hangars	CAP	-			Private Investment

Source: RIAC and Louis Berger

HIGHLIGHT:

- Obstruction Removal: The project has FAA funding.
- The project is suspended pending RIAC decision to appeal the Court ordered injunction to stop work.
- The obstructions must be removed for FAA to restore the night time procedure minimums.
- AMP Update: The last AMP was completed in 2009. The focus of the effort was an evaluation of the GA noise environment. The airport planning was limited to updating the ALP. The community has renewed its concerns about the "growth" of the airport. They have renewed a momentum to suggest limiting operational activity. Although "limiting operations" is precluded by FAA requirements, there is a thought that an updated AMP could provide new and more detailed information on airport "growth" and mitigate public concerns about airport expansion.

TABLE 6-4: IMPROVEMENTS – NORTH CENTRAL STATE AIRPORT (SFZ)

North Central State Airport (SFZ)					
Project	CAT	Short (0-5 yr.)	Medium (6-10 yr.)	Long (11-20 yr.)	Remarks
Electric Vault	INFRA	$800,000			
Install Security Fencing	SEC	$600,000			
Construct Based A/C Apron	CAP		$1,000,000		
AMP Update & Prepare EA	STD		$500,000		Evaluate Precision LPV
Obstruction Removal for LPV	AA			TBD	Subject to AMPU/EA
Improve LPV Minimums R/W 5	AA			TBD	Subject to AMPU/EA
Upgrade MALS/F	AA			TBD	Subject to AMPU/EA
Rehabilitate Pavement	STD		$3,000,000	$3,000,000	R/W, T/W, Aprons (TBD)
Construct SRE Building	STD			$1,000,000	Low Priority
Construct Partial Ext. T/W A	CAP			$750,000	Low Priority
Upgrade Wastewater System	INFRA			$400,000	Low Priority
Construct T/W for T-Hanger Dev.	CAP		$750,000		Improve Revenue
Construct T-Hangars (PH1)	CAP		-		Reevaluate ALP location
Construct T-Hangars (PH2)	CAP			-	Reevaluate ALP location

HIGHLIGHT:

- Short term recommendations – They are not high on the priority list of system improvements.
- Self-fueling: Recommendation at GA User meetings. Not economically feasible given the distance from Fuel Farm to the aircraft apron.
- Terminal Road was AMP recommendation to mitigate lack of auto parking at "new" terminal.
- Improve approach minimums to R/W 05 – critical to improve SFZ stature as a "Reliever". Key is to understand the amount of obstruction removal required and the environment issues (social and physical) that will challenge the merits of proceeding with the improvements.
- AMPU/EA – A critical project if there is intent to improve the approach minima to R/W 05.
- New T-Hangar area – Recommended by the AMP and shown on ALP. Development promotes new hangars and new RIAC revenue source. Requires private investment to prime the development. Current ALP recommended location is subject to change. Recent project revealed ledge rock in the proposed development area. Re-evaluation is needed in next AMPU

TABLE 6-5: IMPROVEMENTS – QUONSET STATE AIRPORT (OQU)

Quonset State Airport (OQU)					
Project	CAT	Short (0-5 yr.)	Medium (6-10 yr.)	Long (11-20 yr.)	Remarks
Demolish Old Terminal Building	CAP	$1,500,000			In progress (Design)
Construct SRE Building	INFR	$2,900,000			In progress (Design)
Relocation of Fuel Farm	STD	$1,000,000			Existing RVZ Incursion
Rehabilitate Runway 5-23	STD	$5,700,000			
Extend T/W "W"	STD	$2,300,000			
Seawall Reconstruction (EA Only)	INFR		$447,100		
Reconst. Seawall R/W 5/23 PH I	INFR		$12,500,000		
Construct Corporate Hangar	CAP		$3,000,000		
Install REILs on R/W 34	AA		$90,000		Replace PAPI w/FAA Std.
Develop a VMP	ENV		$50,000		
Rehabilitate R/W 16/34	STD			$13,000,000	
Reconst Seawall R/W 5/23 PH II	INFR			$8,500,000	
Extend T/W "W" to R/W 23	CAP			$1,700,000	
Reconstruct Parking Apron	STD			TBD	
Reconstruct Perimeter Road	STD			$100,000	
Update ALP	STD			$250,000	
Relocate T/W A	STD			$4,600,000	Request Mod. to Std
Develop Land on East Side Airpt.	ECO	-	-	-	Private Investment
Construct T-Hangars Phase 1	ECO	-			Private Investment
Construct T-Hangars Phase 2	ECO		-		Private Investment
Relocate Air Museum	ECO		-		Private Investment
Reconst Seawall R/W5/23 PH III	INFR				> 15 years $25,000,000

Source: RIAC and Louis Berger

HIGHLIGHTS:

- It has the runway and capacity to service aircraft large and small, piston and jet. It is the keystone of the GA system and the airport with greatest upside. It is also the one with the greatest investment requirement. The master plan highlighted the absolute necessity for the judicious use of available airport land to protect for the future (<10 years) needs for apron (transient and based aircraft) and hangar (T-hangar and conventional hangar) development.
- The RVZ runs through a significant portion of the transient parking apron. Demolishing the old terminal is critical because it occupies space needed for a 2nd corporate hangar and transient parking. Clearing the area resolves the RVZ issue and is a step in providing the needed transient parking space. The development of much needed GA hangars is highly dependent on private investment.
- The 2nd critical project is the phased rehabilitation of the sea wall. The figures above show this is a financially large investment that is on horizon (<10 years). Phase I includes the end of R/W 23 and R/W 34 and a section of R/W 16-34 where it coincides with the Primary Surface. The 2015 AMPU has a full report on the construction options and order of magnitude cost.

TABLE 6-6: IMPROVEMENTS – NEWPORT STATE AIRPORT (UUU)

Newport State Airport (UUU)					
Project	CAT	Short (0-5 yr.)	Medium (6-10 yr.)	Long (11-20 yr.)	Remarks
Complete Obstruction Removal	STD				Under AIP Grant
AMP Update	STD	$250,000			
Extend Transient A/C Parking Apron, Construct Based A/C, Realign-Rehab T/W A.	CAP	$3,800,000			In Design Phase
Install Perimeter Fencing	SEC	$100,000			
Rehabilitate R/W 4/22	STD		$4,000,000		
Update SRE Equipment	STD			$250,000	
Construct Partial T/W to R/W 16	STD			$1,675,000	Low Priority
T-Hangars/Conventional Hangars	CAP	-			Private Investment

Source: RIAC and Louis Berger

HIGHLIGHT:

- The most critical project remains the removal of the obstructions. The existing obstructions forced FAA to suspend the night time approach. It is essential to resolve easement issues and move forward with removing the obstructions and restoring the previously existing night time minimums.
- Over the past several years a sizable investment has been made in public and private sector funds to rehabilitate the overall condition of pavement and terminal building.
- The current AMP was completed in 2007 and an update is appropriate.

TABLE 6-7: IMPROVEMENTS – BLOCK ISLAND STATE AIRPORT (BID)

Block Island State Airport (BID)					
Project	CAT	Short (0-5 yr.)	Medium (6-10 yr.)	Long (11-20 yr.)	Remarks
Install PAPI on R/W 10	AA	$50,000			Complement the REILS
AMP/ALP Update	STD		$150,000		
Rehabilitate R/W 10 - 28	STD			$2,000,000	

Source: RIAC and Louis Berger

HIGHLIGHT:

- The current AMP was completed in June 2005 and is already over 10-years old. However most of the activity has remained unchanged. Except for the "what if" scenario presented in this ASP (see Chapter 5) there are not many planning reasons to update AMP – at least in the short-term.

B. Funding Sources

Under the *Airport and Airways Improvement Act*, the Secretary of Transportation is required to develop a national plan for the development of public-use airports. The plan is published as the National Plan of Integrated Airport Systems, or as it is more commonly known "the NPIAS". It currently identifies over 3,300 airports that are significant to the nation's air transportation system and therefore eligible to receive federal grants under the Airport Improvement Program (AIP). Federal funding for capital improvement projects at eligible public-use airports is based on the airport's role in the NPIAS and the project priority rating. The AIP provides airport entitlement, state apportionment and discretionary funds. The source of these federal monies is the Airport Trust Fund which is essentially the revenue generated by various taxes identified in the legislation that created the trust fund.

For large and medium primary hub airports, AIP grants cover 75 percent of eligible costs (80 percent for the noise program). Small primary hub, reliever, and general aviation airports currently receive 90 percent of the eligible costs. Entitlement funding to the hub airports is based on the annual enplaned passengers recorded for the airport. Unfortunately the PVD passenger enplanement levels as a percent of the national total change just enough and therefore T.F. Green fluctuates between a Small and Medium Hub. "Primary non-hub" airports (BID and WST) that have enplanements >10,000 passengers receive $1 million each. When the reported passenger enplanements fall to < 10,000 that distribution of funding is not available. Like PVD, BID and/or WST are subject to the same passenger fluctuation and fall in and out of the eligibility criteria. For RIAC that potential $2 million entitlement is significant in managing the capital development program for the system.

Apportionments to each state for the GA airports are based on the area and NPIAS airports in the state. Needless to say that doesn't result in a very large allocation of funds (usually < $1 million) to Rhode Island. Besides the distribution of "entitlement" and "apportionment" funding FAA has a third source, referred to as "discretionary" funds. It is limited resource and traditionally the nation's airports compete for discretionary funding based on a national priority system established by FAA. T.F. Green however has been successful in receiving FAA discretionary funding on an on-going basis for the home acquisition and residential noise insulation program.

States like Rhode Island which operate a system of airports must make up the remaining share (10% – 25%) of capital costs. Because Rhode Island airport system is a state run system, funding and revenue, with certain limitations, can interchange monies between airports in the system. This creates more flexibility in developing a capital improvement program.

In addition to the traditional AIP funds capital development at T.F. Green, with project approval by FAA, also has access to the Passenger Facility Charge (PFC) and General Airport Revenue Bonds (GARB). The PFC funds can be used to pay off GARB. Private investors/developers can also be a funding source for development such as; T-hangars and corporate hangars are not eligible for AIP funds.

C. Capital Improvement Plan

The Capital Improvement Plan (CIP) is a planning tool required by FAA for identifying and prioritizing airport planning and development needs over a 5-year interval, as well as recognizing funding sources for those needs. The CIP is an on-going coordination process between the airport sponsor (in this case RIAC) and FAA. The coordination effort between FAA and the sponsor is intended to (a) maintain the focus on critical (current year AIP funded) projects and (b) ensure the sponsor is on track (maintaining a project schedule) for year-two AIP projects. Typically, the 3rd, 4th, and 5th year projects are flexible but they present an opportunity for the sponsor to develop a project in preparation to it ultimately becoming an AIP funded project. The FAA priority rating system is the best indicator whether there is an opportunity for future AIP funding. A high priority rating is critical to projects requiring discretionary funding.

In short the CIP can be an effective tool to obtain AIP funding if the sponsor is motivated to provide a "ready" project. FAA is encouraged to support a CIP project if it meets some basic parameters, specifically; (a) on the approved ALP, (b) no engineering shortcomings, (c) meets environmental requirements and (d) no "compliance" issues. From the FAA's perspective the CIP is not a wish list of airport needs.

In concluding this system planning process, the ASPU has identified two priority lists, one for T.F. Green Airport – **Table 6-8,** and one for the GA airport system **Table 6-9.** The projects on both these lists are presented in order of priority. **Table 6-9** reflects a list of the GA "Short-term" projects assembled from the airport improvements shown for each GA airport (See **Tables 6-3 to 6-7)**.

TABLE 6-8: T.F. STATE AIRPORT PRIORITY PROJECTS

T.F. Green State Airport Priority Projects [60]			
PRIORITY	**PROJECT**	**CAT**	**$**
1.	Extend R/W 05-23 [In progress}	STD	$7,600,000
2.	Noise – Sound Insulation (PH- V)	ENV	$9,300,000
3.	Noise – Voluntary Land Acquisition	ENV	$6,200,000
4.	Obtain Easements – R/W 16/34	STD	$1,750,000
5.	Improve Airfield Geometry	STD	$5,000,000
6.	Improve Signage for T/W "T"	STD	$200,000
7.	Reconstruct R/W 16-34	STD	$16,500,000
8.	Improve T/W "C"	STD	$20,000,000

[60] Priority items 5 – 8 will be evaluated as part of the AMP proposed in 2017.

TABLE 6-9: GA SYSTEM PRIORITY PROJECTS [61]

General Aviation System Priority Projects				
PRIORITY	ARPT	PROJECT	CAT	$
1.	WST	Easement Acquisition	STD	NA
2.	WST	Obstruction Removal [62]	STD	NA
3.	UUU	Easement Acquisition	STD	NA
4.	UUU	Obstruction Removal [63]	STD	NA
5.	UUU	Rehab/Expand Apron [64]	CAP	$3,800,000
6.	OQU	Demolish Old Terminal [65]	CAP	$1,500,000
7.	OQU	Relocate Fuel Farm	STD	$1,000,000
8.	OQU	Construct SRE Building	INFRA	$2,900,000
9.	SFZ	Electric Vault	INFRA	$800,000
10.	UUU	Electric Vault	INFRA	$800,000
11.	WST	Complete Fencing	SEC	$60,000
12.	OQU	EA/Design Reconst. Wall	STD	$1,500,000
13.	BID	Install PAPI on R/W 10	AA	$50,000
14.	SFZ	Install Security Fencing	SEC	$600,000
15.	UUU	Install Security Fencing	SEC	$100,000
16.	OQU	Rehab R/W 16-34	STD	$12,950,000
17.	UUU	Rehab R/W 04-22	STD	$4,000,000
18.	OQU	Reconst. Sea Wall (PH I)	STD	$4,500,000
19.	OQU	Rehab R/W 05-23	STD	$5,700,000
20.	OQU	Extend T/W "W"	CAP	$2,300,000

The capital improvements recommended in **Table 6-8** and **Table 6-9** are consistent with the overall objective to; "focus on projects that represent an absolute need". It is also clear from the projects identified the funding is; "directed at maintaining the existing infrastructure". In spite of that "minimalist" approach, the total estimated project costs still exceed our most optimistic expectations for AIP dollars over the next 5-years. To compensate some of these projects will need to be deferred and completed over a longer period.

D. 2016 AIRPORT SYSTEM PLAN FINDINGS

On the basis of this overall assessment of the airport system it can be generally stated;

1. ***The overall "Report Card" rating for the airport system is; "GOOD".***
2. ***The forecasts developed reveal***
    a. ***The airfield (runway/taxiway) capacity of the existing airport system is capable of sustaining the 20-year growth and,***

[61] The GA projects are identified in priority order.
[62] WST Project #1 & #2 provided FAA AIP Grant. Work suspended – Appeal Court injunction stopped work.
[63] UUU Project #3 & #4 provided FAA AIP Grant. Work suspended – Pending negotiations with landowner.
[64] Project 5 is in "Design" phase.
[65] Projects 6, 7, 8 and 9 are in "Design" phase.

b. It is not likely that the individual airport roles will change. (That is not saying; "there are no airport system requirements". Chapter 4 clearly points out otherwise).

3. The primary "Goals" for the airport system are to:

a. Maintain the existing runway/taxiway/apron pavement in good condition;

b. Maintain the existing runway approaches to protect and retain existing approach minima and only then improve approach minimums if practicable at select airports;

c. Meet FAA airport design standards where practicable;

d. Ensure airport development is consistent with Federal and State environmental requirements;

e. Encourage private and public development at GA airports to create revenue producing opportunities; and,

f. Maintain efforts to assist host Towns develop zoning and land-use compatibility.

4. The ultimate goal, but not a mutually exclusive one is: "We must create opportunities for T.F. Green to play a greater role in servicing the Boston regional system as defined in the New England Regional Airport System Plan."

****