STATE OF RHODE ISLAND

AIRPORT SYSTEM PLAN

STATE
GUIDE PLAN
ELEMENT 640
Report
Number
114

STATE
PLANNING
COUNCIL

9/15/2011

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ABSTRACT

TITLE: Element 640 Rhode Island Airport System Plan

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ABSTRACT: This document represents the Rhode Island Airport Corporation's plan for the state airport system (ASP). The plan establishes state goals, objectives, policies and strategies on the development and management of the airports. It includes an overview of system needs through the year 2021. The plan was approved by the State Planning Council as an element of the State Guide Plan and accepted by the Federal Aviation Administration, as the Rhode Island's Airport System for the period 2010-2021.

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EXECUTIVE SUMMARY

Introduction

The Rhode Island State Airport System Plan Guide Plan Element 640 (ASP) is a strategic plan for the six state-owned airports looking forward to the year 2021. It identifies goals, policies, and strategies needed to ensure that Rhode Island maintains an airport system that is capable of meeting the state's long-term transportation and economic needs. It also recognizes that airport operations in some cases will be carried out in densely populated and environmentally sensitive areas. Aviation is a mode of transportation that is critical to a well-balanced transportation network that allows Rhode Island travelers the ease of travel to connect to the country and the world.

Airport System Plan

An airport system plan is a strategic plan for the purposes of implementing a "top-down" planning approach. It examines the airport system as a whole and how its parts, the individual airports, interact with each other. It provides a viable foundation for a balanced and integrated system of airports with clearly defined roles developed in consideration of state, regional and local goals and policies. The plan documents the public use airports, notes their needs, and outlines improvements that are important for the airports to function successfully in their designated roles and to meet the current and forecasted air transportation needs of the state in balance with the surrounding communities. It is also used to study and monitor the performance of the entire aviation system; to understand the interrelationship of the member airports; to provide an overall perspective in capital budgeting; and to assist in maximizing the benefits of investments and alignment of federal priorities with state and local objectives. It is important to understand however, that while airport system planning can broadly define future development objectives, it does not anticipate all projects that might be needed, nor does it design or select individual projects. It can however serve as a foundation for preparing airport master plans for individual airports.

Rhode Island Guide Plan (SGP)

The ASP is a state policy document and as an element of the SGP it has legislated stature which requires both planning and project implementation to be consistent with the other elements of the SGP. In addition, this ASP provides guidance to all state agencies and municipalities in their plans and programs for land use development around the state airports. By the same token this SGP element establishes the aviation policies and implementation program with which community comprehensive plans must be consistent.

Background and Planning Context

The previous ASP, dated 1984, was prepared by the Rhode Island Statewide Planning. In 1992, the responsibility for operating and developing the state-owned airports was

transferred from the Rhode Island DOT to the newly created Rhode Island Airport Corporation (RIAC). Since 1992 RIAC oversaw an explosion of growth at T.F. Green. Except for a 1992 amendment to reflect the terminal expansion at T.F. Green, the planning basically reflects the airport needs of the early 1980's. This update reevaluates the present state airport system and establishes goals, policies, objectives and strategies for strengthening the airport system over the next 10-years.

At the same time, our public planning efforts have become more multi-faceted and better connected. Since 1984 planning in the state has also changed dramatically. The Comprehensive Planning and Land Use Regulation Act (Act) passed in 1988, mandated that all 39 cities and towns prepare a community comprehensive plan (CCP) for State approval. The review process set up by the Act provides for state agency review of the CCP. It also provides that state agencies are bound by the goals and policies of the CCP following state approval.

The Airport System Plan is a single element of the State Guide Plan. The goals and policies of one element cannot be pursued to the exclusion of other applicable elements. There are two elements of the SGP that are particularly relevant to this Airport System Plan:

- Land Use 2025 (2006): It places the State airports within an Urban Services Boundary;
- Transportation 2030 (2008): It focuses on reducing congestion and enhancing mobility through better public transportation and improved intermodal connections.

The General Assembly also enacted airport zoning requirements (RIGL, Title 1, Chapter 3, Airport Zoning). RIAC will formulate airport approach plans for each state airport and municipalities will establish airport hazard areas that are consistent with these approaches.

Planning Process for the ASP

The airport system was examined in the context of aviation service requirements, economy, population, and surface transportation. The fundamental approach was to capture strategic data that would enable RIAC to make informed decisions related to the planning and development of the airport system. The analysis, and ultimately the report, focused on the following:

- Identification of the planning factors
- Inventory of the physical assets
- Forecast of aviation demand
- Exploration of the issues
- Definition of airport roles
- Performance assessment of the airports and system
- Recommendations for airport development
- Development of goals and policies

In addition to the above RIAC, Statewide Planning and airport stakeholders agreed on the following seven general planning factors to help guide the airport system analysis:

- Economic: Ability to support the state economic growth and airport financial self-sufficiency.
- Capacity: Ability to provide airside and landside facilities to meet existing and future needs.
- Air Accessibility: Ability to be accessible from the air.
- Ground Accessibility: Ability 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.

Public coordination for the general aviation airports included the establishment of Local Advisory Groups (LAG) for each airport and a series of public informational meetings. The LAG consisted of staff from RIAC, Landmark Aviation Statewide Planning, local planners, airport users, pilots associations, airport neighbors, Nature Conservancy, Land Trust, police, local elected officials, chambers of commerce, and the National Guard. The LAG met several times during the planning process.

In addition to the efforts of the airport system planning a parallel effort was also underway for T.F. Green that enhanced the analysis for the ASP planning process. That process was the environmental analysis for the T.F. Green Airfield Improvement Program. In recognition of this ongoing process, the role of this ASP is primarily to address the larger policy aspects relative to the safety and efficiency of all state airports and not to supplant the federal Environmental Impact Statement selection of a preferred alternative at TF Green. A Draft Environmental Impact Statement (DEIS) was published by The FAA in July of 2010 and a final Record of Decision is anticipated to be issued in early 2011.

Planning Process for the SGP

This State Guide Plan (SGP) Element 640 brings together the highlights of the 2004 General Aviation System Plan which focused on the five general aviation airports with relevant content from the ongoing EIS process. Because the 2004 General Aviation System Plan used data only as recent as 2001, information was updated where more recent operations data and facility specific master plans were available.

Airport Roles

Ultimately the SGP Element 640 – ASP defined the future airport roles. Essentially they remain unchanged from their previous roles as defined by the 1984 ASP.

- Newport State Airport: General Aviation
- North Central State Airport: General Aviation Reliever
- Quonset State Airport: General Aviation Reliever
- Westerly State Airport: General Aviation/Commercial Service

- Block Island State Airport: General Aviation/Commercial Service
- T.F. Green State Airport: Medium Hub Primary Commercial Service

Airport Goals

Building on the planning factors established, the Rhode Island system goals are identified in Chapter 6. Chapter 6 also identifies the "policies, strategies, and objectives" by which to achieve the stated goals. These goals are as follows:

- Goal 1 – Rhode Island's system of airports will contribute to the State's economic growth while maintaining financial self-sufficiency.
- Goal 2 – Rhode Island will be served by a system of airports whose roles and capacities are sufficient to meet current and projected demand within the context of the natural, social, and economic environment.
- Goal 3 – Rhode Island will be served by a system of airports that is readily accessible from the air.
- Goal 4 – Rhode Island will be served by a system of airports that is readily accessible from the ground.
- Goal 5 – Rhode Island's airports will exist compatibly within their communities while providing air services appropriate to their roles.
- Goal 6 – Rhode Island's system of airports will meet all federal, state, and local environmental regulatory requirements.
- Goal 7 – Rhode Island's airport system will be safe, efficient, and meet applicable FAA design standards and TSA security standards.

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640.01 Introduction and Background

The Rhode Island State Airport System Plan (ASP) is a strategic plan for the six state-owned commercial and general aviation airports looking forward to the year 2021. It identifies goals, policies, and strategies needed to ensure that Rhode Island maintains an airport system that is capable of meeting the state's long-term transportation and economic needs, while recognizing that operations will be carried out in densely populated and environmentally sensitive areas. Aviation, and commercial air service in particular, is a mode of transportation that is critical to a well-balanced network that allows travelers to cover great distances in hours. This ease of travel connects Rhode Island to the country and the world.

Rhode Island's airport system consists of the following airports:

- Block Island Airport in New Shoreham (BID) – *Non Primary Commercial Service*
- Robert F. Wood (UUU) – *General Aviation (also referred to as Newport Airport)*
- North Central Airport in Smithfield (SFZ) – *General Aviation / Reliever*
- Quonset Airport in North Kingstown (OQU) – *General Aviation / Reliever*
- T.F. Green Airport in Warwick (PVD) – *Primary Service, Medium Hub*
- Westerly Airport in Westerly (WST) – *Non-Primary Commercial Service*

The previous State Airport System Plan was developed in 1984 by the Rhode Island Statewide Planning Program and was last amended in 1992 to accommodate the terminal expansion at T.F. Green Airport.

This chapter discusses the planning context, describes the purpose of an airport system plan, describes the planning hierarchy, and then discusses the planning process used in the development of this plan.

01-01 Planning Context

Aviation Industry

Since 1984, the commercial airlines and general aviation have undergone dramatic changes, including the rise of regional air carriers, fractional ownership operators and emergence of successful low-cost carriers, as well as the reemergence of small general aviation. On a regional level, T.F. Green Airport, like Manchester-Boston Regional Airport, has assumed a new role in New England because of its proximity to Boston Logan International Airport.

In 1992, the responsibility for operating, maintaining and developing the state-owned airports was transferred from the Rhode Island Department of Transportation to the newly created Rhode Island Airport Corporation (RIAC). Since 1992 RIAC oversaw an explosion of growth at the state's only primary commercial air service airport. In order to better focus on T.F. Green, the management of the five other state airports was contracted to Landmark Aviation (formerly Hawthorne Piedmont).

The September 11, 2001 attacks have had profound and lasting impacts on the aviation industry. In order to ensure the security of the traveling public and more effectively screen passengers and baggage, the Transportation Security Administration was created as a new agency within the U.S. Department of Transportation and ultimately became part of the new Department of Homeland Security. The economy and the airline industry have both experienced declines in the past and have always rebounded.

While the commercial aviation industry is driven primarily by national and global forces, general aviation can be impacted by the state and local economy. At the state level, and at RIAC's request, the RI General Assembly repealed the sales tax on aircraft and aviation in 2005. Specific positive impacts on general aviation are addressed in Chapter 3.

State Planning Environment

The planning environment in the state has also changed quite dramatically since 1984. The Comprehensive Planning and Land Use Regulation Act (Act), passed in 1988, and amended in 2011 mandates that all 39 cities and towns prepare a community comprehensive plan (CCP) to be submitted to the State for approval. The review process set up by the Act provides for state agency review of CCP's as well as a provision that state agencies are to be bound by the goals and policies of the CCP following state approval provided it is consistent with the State Guide Plan. This is further explained later in this chapter in the section on the State Guide Plan.

Since 1984, eighteen State Guide Plan elements have been adopted by the State Planning Council, and eight elements have been updated. There are two elements that are particularly relevant to the ASP: 1) Land Use 2025 (2006) which places all of the State's airports within an Urban Services Boundary; and 2) Transportation 2030 (2008) which focuses on means to reduce congestion and enhance mobility through better public transportation and improved intermodal connections. One major project in support of this goal is the intermodal station at T.F. Green Airport. Recently named "The InterLink", this facility opened in the fall of 2010 and provides commuter rail service to Providence and Boston, and houses a consolidated car rental facility.

In addition to the Act, the General Assembly enacted airport zoning requirements. Specifically, Title 1 - Aeronautics of the Rhode Island General Laws, Chapter 3, Airport Zoning, mandates that RIAC formulate airport approach plans for each state airport and also requires that municipalities establish airport hazard areas that are consistent with these approaches under their police powers.

01-02 Purpose of the State Airport System Plan

The general purpose of the airport system planning process is to provide a viable foundation for a balanced and integrated system of airports with clearly defined roles developed in consideration of state, regional, and local goals and policies. This plan

however has differing specific purposes depending on whether one is looking at it from an aviation or statewide planning perspective. These are discussed further below.

Aviation

The ASP defines the roles of Rhode Island's six airports with respect to each other and in consideration of other airports in the New England region. It serves as a foundation for preparing airport master plans for individual airports. Because of the dynamic nature of aviation planning, the system plan is also integral to a continuous airport planning process. The plan documents the public use airports, notes their needs, and outlines improvements that are important for the airports to function successfully in their designated roles and to meet the current and forecasted air transportation needs of the state in balance with the surrounding communities. It is also used to study and monitor the performance of the entire aviation system; to understand the interrelationship of the member airports; to provide guidance in capital budgeting; and to assist in maximizing the benefits of investments and alignment of federal priorities with state and local objectives. It is important to understand however, that while airport system planning can broadly define future development objectives, it does not anticipate all projects that might be needed, nor does it design or select individual projects.

State Guide Plan

In addition to being a planning document for aviation interest such as RIAC and the FAA, the ASP also serves as an element of the State Guide Plan (SGP). Our state benefits from a tradition of statewide planning, made possible in part because of our small size. In 1964 the Statewide Planning Program was established. It is charged with preparing and maintaining the State Guide Plan, currently consisting of 28 themed elements, and centralizing and integrating long-range goals and policies with short-term plans and projects. There are several other transportation elements within the State Guide Plan that address other modes including surface transportation (highway, bicycle, and transit), freight rail, and waterborne passenger transit.

The State Guide Plan promotes planning coordination in several ways, being used as both a resource and review mechanism for projects and implementation measures, such as:

- Review of local comprehensive plans (RIGL 45-22) (see section below)
- Proposals requesting federal funds (Presidential Executive Order 12372, Governor's Executive order 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 Executive Order 12372, Governor's Executive order 83-11, and CFDA for individual programs)
- Property leases and conveyances proposed before the State Properties Committee (RIGL 37-6 and 37-7)

One of the most important functions of the State Guide Plan is in the review of local comprehensive plans. Under the *Act*, Rhode Island cities and towns must have a locally adopted CCP that must be updated at least once every ten years. The State review process includes state agency goals and policies, and in the same way that local plans and projects must be consistent with the State Guide Plan, state projects and programs must also be consistent with state approved CCP's. In the event of an inconsistency the State Guide Plan prevails. The Airport System Plan is a single element of the State Guide Plan. The goals and policies of one element cannot be pursued to the exclusion of other applicable elements. The State Guide Plan, in its entirety, must be used to ensure a balanced review of projects, plans and proposals.

In planning and carrying out projects, RIAC and all persons dealing with RIAC are entitled to rely upon a written statement of the state planning council that a proposed project conforms to the state guide plan. When RIAC requests such a written determination in accordance with R.I.G.L. § 42-64-14, the state planning council within the statutory time period allotted shall, *inter alia*, seek an advisory comment from the host community's planning department regarding a project's consistency with the community's comprehensive plan and zoning ordinances.

In instances 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:

(a) That the project or facility conforms to the stated goals, findings, and intent of this chapter.
(b) That the project or facility is needed to promote or protect the health, safety, and welfare of the people of Rhode Island.
(c) That the project or facility is in conformance with the relevant sections of the state guide plan.
(d) That the project or size, scope, and design of the facility has been planned to vary as little as possible from the comprehensive plan of the municipality.

01-03 Planning Process

Planning Hierarchy
Aviation planning occurs at many levels from the national level to individual airport master plans. It is important to note, that an "aviation system" can be defined by any number of factors. While the most common factor in defining a system is the state in which the airports are located, aviation systems can also be defined on a national, regional, metropolitan, or operational basis. The FAA provides planning guidance in Advisory Circular 150/5070-7 "The Airport Planning System Process" (2004). This section describes the planning hierarchy in general followed by the planning process used in the RIASP.

Federal law 49 USC 47102(8) defines "integrated airport system planning" as "developing for planning purposes, information, and guidance to decide the extent, kind,

location, and timing of airport development needed in a specific area to establish a viable, balanced, and integrated system of public-use airports."

National Plan of Integrated Airport Systems (NPIAS)
The FAA Advisory Circular (AC) 150-5070-7 *The Airport System Planning Process* states: "The primary purpose of airport system planning is to study the performance and interaction of an entire aviation system to understand the interrelationship of the member airports. The system evaluated in the plan can be the airports of a metropolitan area, a state, or several bordering states. 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 of airports may include all airports, heliports, spaceports (operations involving horizontally-launched reusable vehicles), and seaplane bases in the study area that contribute to the national transportation system, as well as those that serve state and local aviation needs."

"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 or metropolitan area, 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."

The national guidance also states: "*The FAA's National Plan of Integrated Airport Systems (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" to be consolidated 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 developed and maintained by the Federal Aviation Administration (FAA) and has been an active component of airport development since 1971 when the Planning Grant Program was created. The primary inputs for the NPIAS are state level system plans and airport level master plans. An airport must be listed in the NPIAS to be eligible for federal funding. The NPIAS is regularly and continuously updated. The six airports that are the subject of this plan are all contained in the NPIAS as contributors to the national system.

New England Regional Airport System Plan (NERASP)

In the early 1990's Boston Logan was one the nation's major airports contributing significant air traffic delays to the airspace system. A study was conducted to investigate a second major airport for the Boston area. That evaluation, funded jointly by the Massachusetts Aeronautics Commission, Massport and FAA, of 163 potential locations in Massachusetts made it abundantly clear that such an idea was not feasible. If not a new airport, how would the growing demand for air travel in New England be accommodated? A subsequent analysis, entitled, *A Strategic Assessment Report*, funded by the same parties highlighted that the best course of action was to make more effective use of our existing regional airports.

On the basis of those initial studies and the growing impact of Boston Logan on the entire New England regional airport system a unique coalition was formed. Unique in the sense that such a partnership in system planning was unheard of or untried in the airport industry. That coalition included the FAA New England Region, the six state aviation directors and the directors of the eleven primary airports.

In 1995 the first phase of what was to become known as the New England Regional Airport System Plan (NERASP) was completed. The result of this initial effort was an understanding of the travel profile of the New England air passenger and the impact of Boston Logan International Airport on the region as a whole. In essence, their propensity was to utilize Boston 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" ranged from as 25% - 50%. That same study showed that 77% of the people in New Haven preferred to originate their trips at New York airports in lieu of Tweed New Haven Airport.

In 2000 the same coalition began an update of the earlier NERASP. With new and more current data, as well as the impact of the growth that occurred at T.F. Green and Manchester in the late 1990's, the focus was to develop forecast models that better predicted the New England traveler. In addition, because of the impacts of September 11, new security requirements, and the dynamic changes in the airline financial situation, it was important to understand these changes on our regional system. Based on the new

information and new forecasts developed this study, unlike the initial effort set out to describe, in broad terms, the requirements, deficiencies and future direction of the eleven primary airports. The current New England Regional Airport System Plan was issued in the fall of 2006.

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"*[1]
- *"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."*

This plan identifies both Manchester and T.F. Green as having important and substantial roles in the six-state region.

State System Planning

Notwithstanding the NPIAS and NERASP, system planning also occurs at the state level. Federal Aviation Regulation 49 USC 47102 (8) defines "Integrated Airport System Planning" as "developing for planning purposes, information and guidance to decide the extent, kind, location and timing of airport development needed in a specific area to establish a viable, balanced and integrated system of public use airports.

An aviation system plan is fundamentally a strategic plan for the purposes of implementing a "top-down" planning approach. It examines the airport system as a whole and how its parts, the individual airports, interact with each other. It is a high-level, macro analysis that provides a means of checks and balances for local airports as they proceed with their individual development plans. The end goal of the system plan is to help ensure that airports are developed appropriately so as maximize their utilization and, as a result, the overall efficiency of the aviation system. A system plan will typically provide some guidance to a master plan, based on its role, as to what types of facilities should or should not be developed at a particular airport so as to maximize the benefit of the facility development, and hence the overall efficiency of the aviation system. The state airport system plan should also inform the NERASP as to RIAC's ability and timeline in fulfilling its regionally recommended role.

Airport Master Plan

An airport master plan is a "bottom up" planning approach that focuses on a tactical development plan for a specific airport to achieve objectives and fulfill its role as established by a system plan. It examines in greater detail the forecasts and projections,

[1] The region generates 2.5 air passenger trips per year per capita, almost 80% higher than the national rate of 1.4

how those translate into specific facility development requirements, and how those development needs would be designed and funded. Any required environmental studies may follow or run concurrently with a master plan. An Airport Layout Plan (ALP) is usually the result of the master plan, and is the document that is ultimately approved and signed by the FAA for FAA funded projects. It identifies airfield and other improvements deemed necessary through the planning process. It is at this level of planning (i.e., not within airport system planning) that design decisions are made on such items as runway length, building locations, parking layouts, etc.

With that end in mind, RIAC has been systematically preparing new airport master plans and Airport Layout Plans for each of the airports in the system. Table 640-01(01) presents the status of that process for RI's six airports:

Table 640-01(01) Airport Master Plan Status

Airport	AMP[2]	Current FAA Approved ALP	Status of Planning
Newport State (UUU)	Completed[3]	April 2008	The next update will be considered in 2013.
T.F. Green (PVD)	In Progress[4]	Jan 25, 2000	The draft AMP is pending completion of the FEIS. Estimated completion date is in 2011.
Westerly State (WST)	Completed	July 16, 2009	The next update will be considered in 2014.
North Central (SFZ)	Completed	June 16, 2010	The next update will be considered in 2015.
Block Island State (BID)	Completed	March 22, 2006	The next update will be considered in 2011.
Quonset State (OQU)	Completed	June 22, 2006	The next update will be considered in 2011.

01-04 RIASP Planning Process

In an ideal world, planning would occur sequentially within the hierarchy, i.e., the New England Regional Airport System Plan would be followed by the State Airport System Plan, which would be followed by individual airport master plans prepared in coordination with local communities. In reality, however, this is rarely achieved, and planning processes overlap and do not necessarily occur in the desired sequence. Such is the case with the ASP. Nearly simultaneously, the New England Plan, RIAC's System Plan for the five general aviation airports, and master planning for T.F. Green were ongoing. All were impacted by the September 11 terrorist attacks and restarted after the longer term impacts became more apparent. This update to State Guide Plan Element 640, RI Airport System Plan, draws primarily from two planning efforts which are further described below:

- 2004 General Aviation System Plan with T.F. Green supplement
- Ongoing EIS and Master Plan for T.F. Green

[2] Copies of the full Airport Master Plan Report and approved Airport Layout Plan are on file at RIAC.
[3] The Statewide Planning Program staff has representation on the Newport, and North Central AMP Advisory Committees.
[4] The Statewide Planning Program staff has representation on the T.F. Green AMP and EIS Advisory Committee.

Planning Process of the 2004 General Aviation System Plan

The system of five general aviation airports in the State of Rhode Island includes the following airports: North Central, Quonset, Newport, Westerly, and Block Island. The airports were examined in the context of aviation service requirements, economy, population, and surface transportation requirements. The plan was prepared by Edwards and Kelcey through an Airport Improvement Program (AIP) grant from the FAA. The plan contains some information on general aviation activity that occurs at T.F. Green, but not the commercial activity. The report has the following sections:

- Identification of planning factors:
- Preparation of a complete inventory of current system physical assets;
- Preparation of forecasts of system demand;
- Exploration of issues that impact aviation in the study area;
- Definition of airport roles;
- Performance assessment of each airport as it relates to the system, based on the planning factors;
- Recommendations for system changes and airport development; and
- Development of goals and policies, also based on planning factors.

The fundamental approach was to capture strategic data that would enable RIAC to make informed decisions related to the planning and development of the airports it manages. A long-term vision for the Rhode Island Airport System was established, as well as the goals that would ultimately direct the airport system toward its established vision.

Public coordination efforts were undertaken that included the establishment of Local Advisory Groups (LAG) for each of the five general aviation airports, as well as a series of public informational meetings. The LAG's consisted of staff from RIAC, Landmark Aviation (formerly Hawthorne), Statewide Planning, local planners, airport users, pilots associations, airport neighbors, Nature Conservancy, Land Trust, police, local elected officials, chambers of commerce, and the National Guard. LAG's were involved throughout the process and met several times. The input provided by the LAG's on the need for certain improvements, facilities, and services was used in the General Aviation System Plan and is being carried forward in the State Airport System Plan.

RIAC's system plan for the five general aviation airports was essentially completed in 2004, but not submitted for state review because, at that time, it did not include T.F. Green.

Planning Process for T.F. Green

T.F. Green is the primary commercial airport in the state, a major service provider to southeastern Massachusetts and southeastern Connecticut, and as such plays an important role in the New England Regional Airport System. Given this, much has been invested over the past ten years by various stakeholders in completion of the ongoing TF Green Master Plan and associated Environmental Impact Study (EIS) which are being led by RIAC and FAA respectively.

In recognition of this ongoing process, this plan resolves that its role is primarily to address the larger policy concerns relative to the safety and efficiency of the facility and not to supplant the EIS processes' selection of preferred alternatives with its own judgment but rather to defer to the outcomes reached through the federally required process. A Final Environmental Impact Statement (FEIS) was published by The FAA in July of 2011 and a final record of decision regarding recommended improvements is anticipated to be issued in fall of 2011.

2010 Rhode Island State Airport Systems Plan (SGP Element 640)
This State Guide Plan (SGP) Element brings together the highlights of the 2004 General Aviation System Plan which focused on the five general aviation airports with relevant content from the ongoing T.F. Green Master Plan and EIS process. Because the 2004 General Aviation System Plan used data only as recent as 2001, some updating was necessary where more recent operations data and facility specific master plans were available.

Based on discussions between RIAC, the Rhode Island Statewide Planning Program, and other airport stakeholders, seven general planning factors were developed for the general aviation system plan, with the understanding that they would be applicable to T.F. Green as well. These factors were utilized to help define and guide the analysis completed for this study. Those planning factors were identified as follows:

- Economic: Ability to support Rhode Island's economy and airport financial self-sufficiency.
- Capacity: Ability to provide airside and landside facilities to meet existing and future needs.
- Air Accessibility: Ability of Rhode Island's airports to be accessible from the air.
- Ground Accessibility: Ability of Rhode Island's 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.

The following chapters provide an inventory of the state airports, forecast future operations and passenger levels, measure airport performance in terms of the planning factors, analyze issues related to the seven planning factors, discuss current and future airport roles, and provide goals, objectives, policies, and strategies for the airport system.

640-02 Inventory

The key objective of this chapter is to provide a comprehensive summary of currently available airport information and an overview of how the existing state owned airports function within the system. The summary that follows was drawn most heavily from the 2004 General Aviation System Plan prepared for RIAC by Edwards & Kelsey (E&K). Data for T.F. Green Airport was collected from the ongoing Master Plan and EIS process. Other sources used to round out and provide an up-to-date summary included:

- FAA Data (ASIS) / Records / Terminal Area Forecasts (TAF) (2009)
- Airport Master Records (5010) (2009)
- Individual Airport Master Plans / Forecasts (2007 – 2010)
- Rhode Island Airport Corporation Data / Records (2009)
- Rhode Island Department of Statewide Planning Data / Records (2009)
- Rhode Island State Airport System Inventory (October 1969)
- Rhode Island State Airport System Plan (March 1984)
- The 1998 Economic Impact of Rhode Island State Airports Study

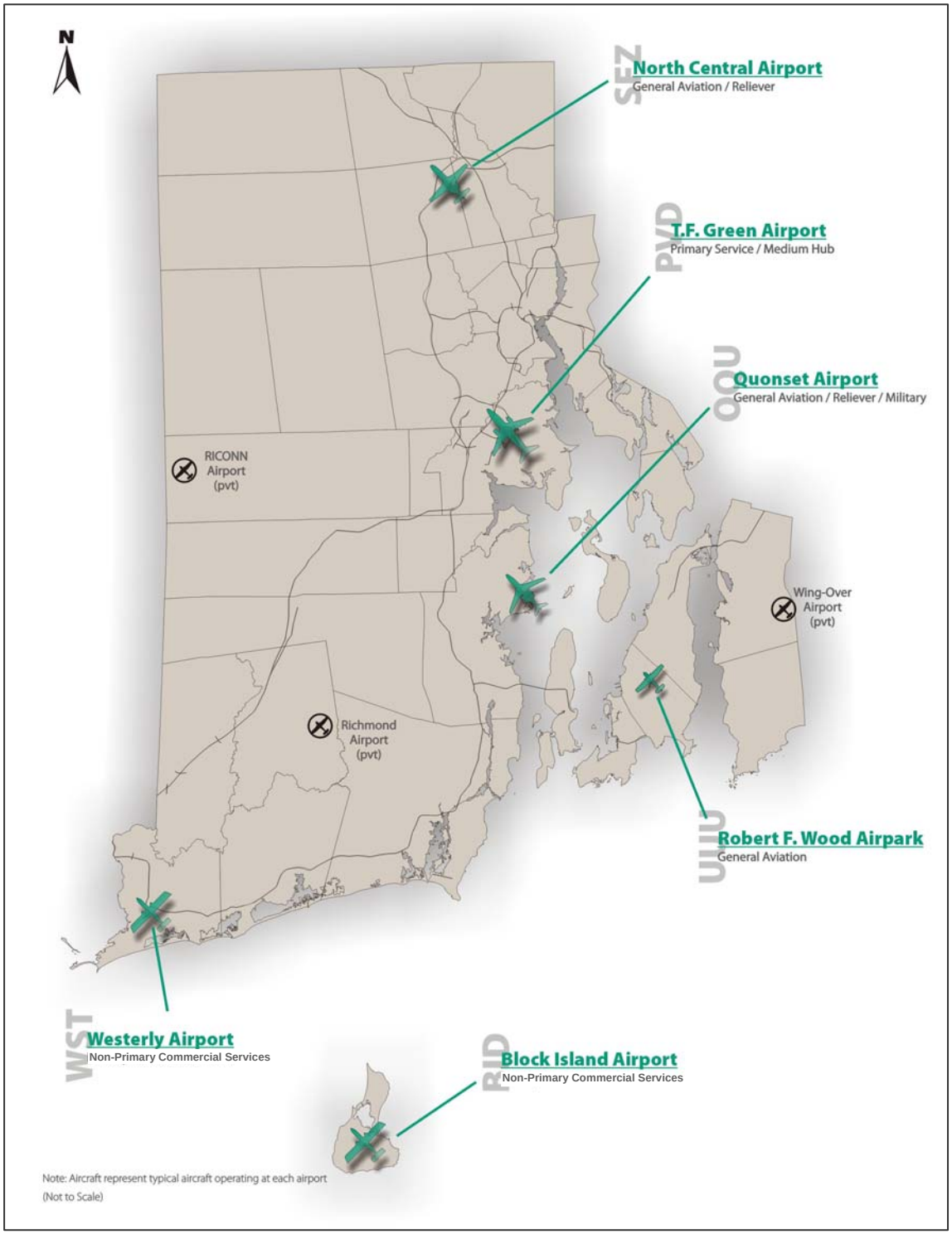
02-01 State Aviation System Overview

The six state airports are currently owned by the Rhode Island Department of Transportation (RIDOT) and are managed by the Rhode Island Airport Corporation (RIAC). RIAC was formed in December 1992 as a semiautonomous subsidiary of the then Rhode Island Port Authority, now the Rhode Island Economic Development Corporation (RIEDC). The powers of RIAC are vested in its seven member board of directors, six of whom are appointed by the governor, and one who is appointed by the mayor of the City of Warwick.

RIAC was formed as a quasi-public state agency in an effort to develop the state aviation system in a more efficient and effective manner. As part of a lease agreement with RIDOT, RIAC is responsible for operating and maintaining the State owned airports and for the planning, design and construction of airport improvements. RIAC does not receive any state tax dollars, but operates as a self-supporting corporation, receiving no government financial support other than capital funding from the FAA Airport Improvement Program. RIAC generates its revenues through tenant leases, boarding fees, aircraft tie-down fees, and fuel sales.

Although there are several privately owned and operated general aviation airports in Rhode Island, they are not included in this assessment as such facilities are generally more susceptible to fluctuating economies and cannot be relied on to support the airport system on an extended basis. This system analysis is also independent of any airports located within the nearby borders of Connecticut and Massachusetts. With the elimination of the state aviation excise tax, it is assumed that aircraft owners are less likely to be influenced to move aircraft to these bordering airports. The locations of the six state airports in Rhode Island are shown in Figure 640-02(1).

Figure 640-02(1) Rhode Island's State and Private Airports



02-02 Airport Background and Terminology

The following provides a brief description of key background information and airport terminology.

A. National Plan of Integrated Airport Systems (NPIAS)

The roles of all state airports are defined by the National Plan of Integrated Airport Systems (NPIAS). The NPIAS is a national airport system plan prepared by FAA to identify the airports that are important to national air transportation. Being identified within NPIAS makes an airport eligible to receive grants for capital improvements under FAA's Airport Improvement Program (AIP). All of Rhode Island's state airports are listed in the NPIAS. The NPIAS defines an airport by its role, which in turn reflects the type of service that a given airport provides for its area and the associated design criteria. The role also defines the funding categories established by Congress to assist in the distribution of funding resources for airport development. These roles are defined as follows:

Commercial Service (CM) – Public use, commercial service airports receiving scheduled airline passenger service, enplaning between 2,500 and 10,000 passengers annually.

Primary Service (PR) – Public use, commercial service airports receiving scheduled airline passenger service, enplaning 10,000 or more passengers annually. The passenger enplanements also define whether an airport is a Large Hub, Medium Hub, Small Hub, and Non Hub. Large, Medium, Small and Non-Hub designation is based on the percent of enplanements that are of the national commercial service enplanement total. This is not to be confused with former designations that defined airports as Short, Medium and Long "Haul".

Reliever (RL) – General Aviation or Commercial Service public use airports, which relieve congestion at a Primary Service airport by providing general aviation and small commercial operators with an alternative point of access.

General Aviation (GA) – Either publicly or privately owned public use airports that serve the needs of the general aviation community. General aviation includes all segments of the aviation industry except commercial air carriers and the military. Activities include pilot training, ratings or certification, sightseeing, movement of large heavy loads by helicopter, flying for personal or business/corporate reasons, and emergency medical services. The aircraft range from the one-seat single-engine piston aircraft to the long-range corporate jet.

B. Airport Reference Code (ARC)

The ARC is a coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. The code has two components relating to the airport design aircraft (defined as the most demanding aircraft that conducts 500 or more annual operations at that airport). The first component

relates to the aircraft approach speed (operational characteristic). The Aircraft Approach Category is a grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. The Category is defined by letters from A to E. The second component is the airplane design group and relates to airplane wingspan (physical characteristic). The Airplane Design Group category is a grouping of airplanes based on wingspan. The groups are defined by the Roman numeral I to VI. Generally, runway standards are related to aircraft approach speed, airplane wingspan, and designated or planned approach visibility minimums.

C. Airport Dimensional Standards

A primary function of the ARC is to determine the design standards for a particular runway that best fits its current and future usage patterns. These standards have been established by the FAA to optimize the safety and efficiency of aeronautical activities. They are detailed in Chapter 7 of FAA Advisory Circular 150/530013 "***Airport Design***". Several key standards worthy of note include Runway Safety Areas, Object Free Areas and Runway Protection Zones.

D. Aviation Activity General Terminology

Runway Safety Area (RSA) – This area is a defined surface surrounding a runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. The RSA is typically a non-paved turf area that cannot be utilized by aircraft during normal landing and takeoff operations. The length and width for an RSA on a given runway is established through a combination of the runway ARC and on its approach visibility minimum.

Object Free Area (OFA) – This is an object free area on the ground that is centered on a runway or taxiway and provided to enhance the safety of aircraft operations. OFA standards of both width and length are derived from the ARC, as well as the approach visibility minimum associated with a specific runway.

Runway Protection Zone (RPZ) – This is an area off the runway end designed to enhance the protection of people and property on the ground and safety of aircraft in the final approach to the runway. FAA states that this enhancement is achieved preferably through airport owner control of the RPZ, and control is preferably exercised through the acquisition of sufficient property interest in the RPZ. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The RPZ dimension for a particular runway end is a function of the ARC and approach visibility minimum associated with that runway end.

Fleet Mix – Describes the type and size of aircraft operating at a given airport.

Design Aircraft – Is defined as the most demanding aircraft that conducts 500 or more annual operations. I t is a factor used to define runway length, width, pavement strength, and minimum separation distance requirements.

Based Aircraft – The aircraft normally stored at a given airport are considered to be "based aircraft." All other aircraft are considered to be "transient" or "itinerant".

Aircraft Operations – An operation is any take-off or landing. These operations are classified either as "local", those performed by aircraft which operate within the local traffic pattern or conduct touch-and-go operations, or as "itinerant", those performed by all other aircraft.

Passenger Enplanements– Enplaning passengers are those who board departing aircraft. Forecasts of future enplanements are useful in determining the existing and future needs for airport facilities.

Airport Role – Airports with enplaning fewer than 2,500 passengers annually are classified as "general aviation" airports. Those enplaning between 2,500 and 9,999 passengers are considered "commercial service – other" airports. Airports with more than 10,000 annual enplanements are classified as "primary commercial service" airports.

Part 77 Surfaces – Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace, defines invisible or "imaginary" surfaces around the airport. The purpose of these imaginary surfaces at an airport is to protect all of the airspace that an aircraft may require to transition safely in either visual or instrument conditions from ground to air, and air to ground.

02-03 RI State Airport Summaries

The purpose of this section is to take a more detailed look at the individual airports of the Rhode Island Aviation System. An overall summary of the six state-owned airports is provided below in Table 640-02 (01).

Table 640-02 (01) State Airport Summary

Airport	Identifier	Location	Municipality	Service Level	Elevation MSL (ft)
Block Island	BID	New Shoreham	Block Island	NP/P[1]	109
Robert F. Wood (Newport)	UUU	Middletown	Newport	GA	172
North Central	SFZ	Smithfield/ Lincoln	Pawtucket	GA / RL	441
Quonset	OQU	North Kingstown	North Kingstown	GA / RL	19
T. F. Green	PVD	Warwick	Providence	PR	55
Westerly	WST	Westerly	Westerly	NP/P[1]	81

[1]BID and WST enplanements fluctuate between more or less than 10,000 causing their Service Level to change between Primary and Nonprimary.

The following presents more detailed descriptions for each facility. Each description contains a general overview of the existing conditions, current operations, an aerial photo, written summaries of the airport's existing airside and landside facilities and other miscellaneous data. Also utilized as input to the summaries are the results of a pavement

evaluation conducted at each of the state airports as part of this System Plan Update effort.

Block Island Airport Summary

Block Island Airport (BID) is located at the center of Block Island, officially known as the Town of New Shoreham, a 10 square mile island located at the mouth of Long Island Sound, 14 miles from the mainland. The airport provides essential commercial, emergency, and general aviation air access to Block Island, and has been defined within FAA's NPIAS as a Primary (and at times non-Primary) Service, Non-Hub airport. BID has a single 2,501-foot runway that provides direct access to and from the island for residents and tourists via New England Airlines, a small commercial passenger FAR Part 135 commuter carrier currently operating between the Westerly Airport (WST) and BID.

Figure 640-02(02) Block Island Airport Aerial Photograph

Operations at BID are seasonal, with the majority of operations occurring during the peak tourism season between Memorial Day and Labor Day. During the peak summer season, New England Airlines has at least one scheduled departure and arrival between BID and WST every hour. The number of these scheduled operations can be increased significantly by New England Airlines through adding flights to meet added passenger demand at the ticket counter. During the off-season, this scheduled service is reduced to at least one scheduled departure to and arrival from WST every other hour. Note that this scheduled commercial service plays a vital role for Block Island in that it is the fastest means of access (15-20 minutes via air vs. 60+ minutes via ferry) and acts as the only means of access to the Island when the ferry service cannot operate, such as during high seas conditions. This commercial service also fills a variety of additional roles for island residents including carrying large volumes of freight year round, such as the shipping of

time sensitive items like newspapers, critical parts repair and machinery maintenance equipment.

The speed of available transportation takes on added importance when related to life care and emergency medical services. Because of the speed of air transportation, the immediacy of its access, and its ability to operate in inclement weather conditions to the degree that its current approaches permit, BID serves as the island's lifeline to the mainland for the emergency evacuation of life-threatened patients. Emergency evacuations that cannot utilize BID due to weather are limited by the schedule of the ferry service, or in emergency cases, a rough ride in a U.S. Coast Guard inflatable boat.

Table 640-02 (02) Block Island Airport Highlights

Three Letter Identifier	BID
Location/Host Community	New Shoreham
Associated City	Block Island
NPIAS Role/Service Level	Primary Service, Non-Hub
Runways	10-28 100' wide by 2,501' long
Taxiways	Partial Parallel
Lowest Approach Minimums	¾ mi VIS, 431' MDH for GPS 10 & VOR DME 10
FBOs & Tenants	5
Based Aircraft (2009)	3
Operations (2009)	14,180
Enplanements (2009)	5,195[1]
Economic Impact	$14.2 million (2006)

[1] Numbers vary annually and have reached over 10,000

As an economic generator, BID produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the magnitude of this economic activity, Block Island Airport's total quantifiable airport economic impacts in 2005 were $4,200,000, according to the Rhode Island Airport Economic Impact Study completed in 2006.

Robert F. Wood Airpark (Newport Airport) Summary
Located in Middletown, the recently renamed Robert F. Wood Airpark (UUU) (formerly Newport State Airport) is approximately .5 miles south of the Town of Portsmouth and 1.5 miles to the north of the City of Newport. The airport provides general aviation air access to the Aquidneck Island towns of Portsmouth, Middletown and Newport, as well as the neighboring towns of Little Compton, Tiverton, Bristol, Warren, and Barrington. It has been defined within FAA's NPIAS as a General Aviation airport. Having a 2,999 foot primary runway and a 2,623 foot crosswind runway, UUU's runway lengths limit the type of aircraft that can use the airport primarily to single and multi-engine pistons, although turboprops, such as Beech King Airs, and small corporate jets, such as Cessna Citations, occasionally use the Airpark.

Robert F. Wood Airpark is regularly used by tourists, by local aviation enthusiasts, and by the Rhode Island Army National Guard. It serves the Island's corporate community, as well as the many visitors to Newport's year-round festivals and attractions. The airport also provides quick access not only for boat owners who harbor vessels in the nearby marinas, but also for the extensive ship building industry on the Island's western shore.

Figure 604-02(03) Robert F. Wood Airpark Aerial Photograph

Additionally, the airport currently meets some of the needs of the local business community who find it advantageous to either, charter a flight or utilize corporate aircraft rather than use commercial service at T.F. Green Airport, located 20 miles away in Warwick. This benefit becomes even more pronounced during the peak summer months

when traffic congestion through Bristol and on the Newport and Jamestown Bridges, can significantly increase driving times to T.F. Green.

Table 640-02 (03) Robert F. Wood Airpark Highlights

Three Letter Identifier	UUU
Location/Host Community	Middletown
Associated City	Newport
NPIAS Role/Service Level	General Aviation
Runways	4-22 75' wide by 2,999' long 16-34 75' wide by 2,623' long
Taxiways	Full Parallel (4-22)
Lowest Approach Minimums	1 mi VIS, 468' MDH for LOC 22
FBOs & Tenants	3
Based Aircraft (2009)	41
Operations (2009)	20,501
Enplanements (2009)	Not Applicable
Economic Impact (2006)	$6.0 million

As an economic generator, UUU produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the magnitude of this economic activity, Robert F. Wood Airpark's total quantifiable airport economic impacts in 2005 were $6,000,000, according to the Rhode Island Airport Economic Impact Study completed in 2006.

North Central Airport Summary

North Central Airport (SFZ) is located in the northeastern RI towns of Lincoln and Smithfield, and serves the greater Blackstone River Valley region of northern RI and southern Massachusetts. Defined within FAA's National Plan of Integrated Airport Systems (NPIAS) as a General Aviation / Reliever airport, SFZ exclusively accommodates general aviation traffic, from single-engine piston aircraft used for recreational and flight training to corporate and business aviation aircraft. SFZ does not accommodate scheduled passenger or cargo service.

Figure 640-02(04) North Central Overhead Aerial

Built in 1951 and having a 5,000-foot primary runway and a 3,210-foot crosswind runway, SFZ is able to accommodate full operations by most small and mid-sized corporate jets, although larger aircraft (such as the Gulfstream G-IV) occasionally do operate there at reduced weights, due to the runway length constraints.

Table 640-02 (04) North Central Airport Highlights

Three Letter Identifier	SFZ
Location/Host Community	Smithfield/Lincoln
Associated City	Pawtucket
NPIAS Role/Service Level	General Aviation / Reliever
Runways	5-23 100’ wide by 5,000’ long 15-33 75’ wide by 3,210’ long
Taxiways	Full Parallel (5-23), Partial Parallel (15-33)
Lowest Approach Minimums	¾ mi VIS, 391’ MDH for LOC 5
FBOs & Tenants	3
Based Aircraft (2009)	111
Operations (2009)	18,630
Enplanements (2009)	NA
Economic Impact (2006)	$9,583,900

As an economic generator, SFZ produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the magnitude of this economic activity, North Central Airport's total quantifiable airport economic impacts in 2005 were $9,583,900, according to the Rhode Island Airport Economic Impact Study completed in 2006.

Quonset Airport Summary

Quonset Airport (OQU) is located in North Kingstown, RI, on a man-made spit of land on the western shore of Narragansett Bay that has seen a 33-year period of federal military use, preceded by 47 years of state military use. The airport is located approximately 16 miles south of downtown Providence, and is less than 9 miles south of T.F. Green Airport (PVD).

It is unique among Rhode Island's airports in that it is a public use facility that combines port, rail, road and air transportation facilities, and an extensive industrial park. It is also the operations, training and maintenance base of the RI Air National Guard (RIANG) (operating C-130 transports) and the RI Army National Guard (the 1/126th Aviation Regiment currently operating UH-60 Blackhawk helicopters). Electric Boat, a large submarine manufacturing facility, operates a large sub-component manufacturing plant within close proximity. Although there are large manufacturing facilities in close proximity to the airport, there is relatively little air cargo at the airport. Most of the cargo (both raw materials and manufactured goods) is trucked, and shipped by rail and barge.

Quonset Airport has been defined within FAA's National Plan of Integrated Airport Systems (NPIAS) as a General Aviation / Reliever airport, and has the longest runway in the state (7,500 feet). As a reliever airport, it serves as an alternative facility for general aviation traffic that would otherwise use T.F. Green Airport (PVD). It is also only one of two airports in the state, having a precision instrument approach and a control tower, with the other being PVD. Both the control tower and precision approach at OQU were installed and are operated by the RIANG to support their base mission. However, both of these facilities are available and are used by civilian operators as well.

Figure 640-02 (05) Quonset Airport Aerial Photograph

Table 640-02 (05) Quonset Airport Highlights

Three Letter Identifier	OQU
Location/host Community	North Kingston
Associated City	North Kingston
NPIAS Role/Service Level	General Aviation – Reliever
Runways	5-23 75’ wide by 4,003’ long, 16-34 150’ wide by 7,500’ long
Taxiways	Full Parallel (16-34), Partial Parallel (5-23
Lowest Approach Minimums	½ mi VIS, 200’ MDH for ILS 16
FBOs & Tenants	4
Based Aircraft (2009)	25
Operations (2009)	31,183
Enplanements (2009)	Not Applicable
Economic Impact (2006)	$102.2 million

Although it has a long runway and precision instrument approach, Quonset does not accommodate the same volume of corporate traffic as PVD, in large part due to its distance from Providence, Warwick, Cranston, Smithfield, etc., as well as its distance from I-95. Additionally, its primary 7,500 foot Runway 16-34 is configured in more of a crosswind orientation to the area's prevailing southwesterly winds, and is preferred for use typically in adverse weather conditions, when winds usually blow from the southeast. Its shorter Runway 5-23 lies in the same orientation as PVD's primary runway, which coincides with the prevailing winds.

As an economic generator, Quonset produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. As an example of the economic activity, Quonset Airport's total quantifiable airport economic impacts in 2005 were $102,200,000, according to the Rhode Island Airport Economic Impact Study completed in 2006.

T.F. Green Airport Summary

As the largest, busiest and only airport in the Rhode Island Aviation System providing scheduled service by major commercial airlines, T.F. Green Airport (PVD) plays an important and influential role within the state and region's aviation system. As such, PVD deserves special consideration within the context of this ASP update. PVD is a key component in providing a more balanced, integrated use of public airports in the New England Region, as reflected in FAA's New England Airport Regional System Plan. The main challenge to PVD's competitive position in the region and its ability to fulfill its regional role is inadequate primary runway length. .

Originally constructed in 1936, the airport resembled more of an airstrip until 1951 when Runway 5-23 was constructed at 5,460' followed by a 1967 extension to 6,466' and a 1983 extension to its current length of 7,166'. PVD's primary runway, Runway 5-23, is currently served by a full-parallel taxiway (Taxiway "M"). PVD's secondary, cross wind runway, Runway 16-34 , is 6081 feet in length and served by partial parallel taxiways. The airport occupies 1,100 acres of land and is accessible via several major regional and national roadways, including Interstate Highways I-95, I-295 and I-195.

PVD's 352,000 square foot passenger terminal building contains ticketing, baggage claim, and surface transportation areas; security services, Federal Inspection Services; concessions areas; two concourses with passenger hold rooms; 22 commercial air service gates with 16 jet bridges; and RIAC's administrative offices. In addition to the terminal, airport facilities include public and corporate hangars, a fuel farm, a de-icer blending facility, air cargo, ground support equipment facilities an aircraft rescue fire fighting facility and an airfield maintenance facility. On airport parking facilities include three

parking garages (Garages A, B and C) and two surface parking lots (short-and long-term) for a total capacity of 8,422 spaces.

Since 1996 when both the new terminal opened and Southwest commenced service, PVD has seen tremendous passenger growth. PVD is currently served by 5 national airlines, 2 commuter airlines, and one international airline. Today the airlines provide nonstop service to 22 destinations with an average of 85 daily departures. The major nonstop destinations are in the northeast, southeast and the Midwest. In addition Southwest Airlines flies to Phoenix and Las Vegas, the furthest nonstop destinations.

The airport provides a full compliment of communications, navigational aids and visual aids. PVD includes an ASOS (automated surface observing system), ATIS (airport terminal information service), ASR (airport surveillance radar), and a LLWAS (low level weather alert system). Navigational and visual aids include an RVR (runway visual range), a VORTAC (very high frequency omni-directional radio with a tactical air navigation system), and VASI (visual approach slope indicator). The RVR is required to provide visibility data and established minimums for landing in Category II and III conditions. The VORTAC provides distance and azimuth information for approaches and also directional information defining intersections in the airspace.

Figure 640-02(6) T.F. Green Overhead Aerial

PVD is defined in FAA's NPIAS as a medium-hub primary commercial service airport. In addition to commercial air service Green provides belly and full cargo operations, as well as, supporting based and itinerant general aviation activities.

In the fall of 2010, a new "InterLink" intermodal facility opened at PVD. This new facility connects the PVD terminal via a bridge and skywalk to a consolidated rental car facility and commuter rail platform. The Interlink houses 10 rental car company counters and operations, including ready return space, fueling, vacuuming and car wash facilities. The 850 foot rail platform, located in the Interlink garage and extending approximately 500 feet south, is served by the Massachusetts Bay Transportation Authority (MBTA) commuter rail service.

Table 640-02(06) T.F. Green Airport Highlights

Three Letter Identifier	PVD
Location/Host Community	Warwick
Associated City	Providence
NPIAS Role/Service Level	Primary Service – Medium Hub
Runways	5-23 150' wide by 7,166' long 16-34 150' wide by 6,081' long
Taxiways	Full Parallel 5-23, Partial Parallel 16-34
Lowest Approach Minimums	0 mi VIS, 0' MDH for CAT IIIC ILS 5R
FBOs & Tenants	92
Based Aircraft (2009)	72
Operations (2009)	83,016
Enplanements (2009)	2,168,146
Economic Impact (2006)	$1.96 billion

T.F. Green is also a major economic generator for the state and region. According to the Rhode Island Airport Economic Impact Study completed in 2006, in 2005 T.F. Green supported 12,706 jobs in the state, and over 21,000 in the region. Additionally, T.F. Green's direct total economic impact on the state was over $1 billion dollars and close to $2 billion dollars for the region as a whole.

Westerly Airport Summary

As an integral element of the region's transportation infrastructure, Westerly Airport's (WST) fundamental purpose is to help meet the aeronautical demands of not only the Washington County area (including Westerly, Charlestown, Hopkinton, Richmond, Exeter, and parts of South Kingstown), but also of elements of southeastern Connecticut. Meeting this demand means providing facilities and services for corporate users and general aviation aircraft; offering extensive aircraft maintenance capabilities; and providing regularly scheduled air passenger service to Block Island Airport (BID).

Specifically, WST has been defined within FAA's NPIAS as a Primary (and at times non-Primary) Service, Non-Hub airport. It has a 4,010-foot primary runway (RW 7-25) and a 3,980-foot crosswind runway (RW 14-32), along with full parallel taxiways. With its two non-precision approaches, WST regularly accommodates mid-sized corporate aircraft (both turboprops and jets), although piston-engine airplanes are the predominant operating type.

Additionally, WST serves as a critical link in the transportation of both passengers and cargo to Block Island. New England Airlines is an FAR Part 135 commuter carrier based at WST and providing the only scheduled air service to BID, currently utilizing both single and multi-engine piston aircraft (i.e. Piper Cherokee Six and B-N Islander).

Figure 640-02(7) Westerly Overhead Aerial

Westerly operations are extremely seasonal, with the majority of operations occurring during the peak tourism season between Memorial Day and Labor Day. During this peak activity summer season, New England Airlines has at least one scheduled departure to and arrival from BID every hour. In addition to these scheduled flights, New England Airlines frequently adds more flights in order to accommodate increased ticket counter demand during peak periods.

Table 640-02(07) Westerly Airport Highlights

Three Letter Identifier	WST
Location/Host Community	Westerly
Associated City	Westerly
NPIAS Role/Service Level	Primary Service, Non-Hub
Runways	7-25 100’ wide by 4,010’ long 14-32 75’ wide by 3,980’ long
Taxiways	Full Parallels to both runways
Lowest Approach Minimums	1 mi VIS, 444’ MDH for LOC 7
FBOs & Tenants	13
Based Aircraft (2009)	47
Operations (2009)	20,528
Enplanements (2009)	5,199
Economic Impact (2006)	$8.4 million

As an economic generator, WST produces positive economic benefits for the local and surrounding communities through a variety of avenues. Aviation services provided at the airport and aviation-related industries requiring use of the airport create jobs, which have an immediate and direct impact on the local economy. Additionally, visitors to Rhode Island who utilize the airport spend money for hotels, attractions, goods, and services. Earnings and wages generated through these activities are spent on additional goods and services, creating additional jobs and additional economic impact. According to the Rhode Island Airport Economic Impact Study completed in 2006, Westerly Airport's total quantifiable airport economic impacts in 2005 were $8,400,000,

02-04 Other Rhode Island Aviation Facilities

The Location of the other aviation facilities in Rhode Island that are not owned by the state but are listed by FAA is provided in the following figure. Inventories and site inspections of these facilities have not been conducted as part of this Study. Note that these facilities are important in that they do relieve some congestion at the state airports, or fulfill an otherwise unmet need, as is the case with the Tiverton Seaplane Base.

02-05 Other Regional Aviation Facilities

In addition to those airports located in Rhode Island, there are also a number of airports located in Connecticut and Massachusetts whose service areas extend into Rhode Island, and that compete for aviation activity and revenue generated at RIAC's airports. The locations of most of these airports are shown below in Figure 640-02(9). Inventories and site inspections of these facilities have not been conducted as part of this Study.

Figure 640-02(8) Rhode Island's Other Aviation Facilities (non-state)

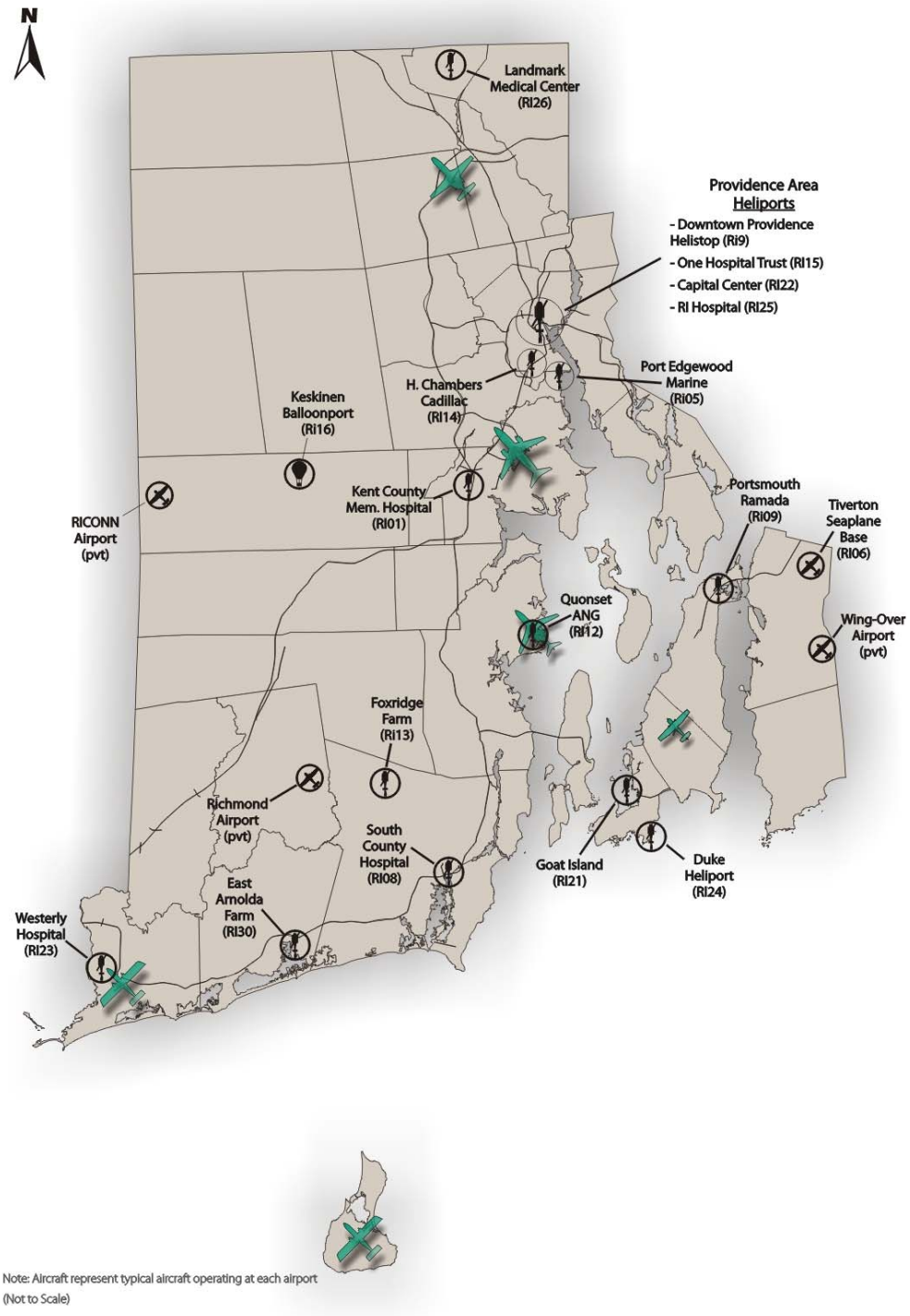
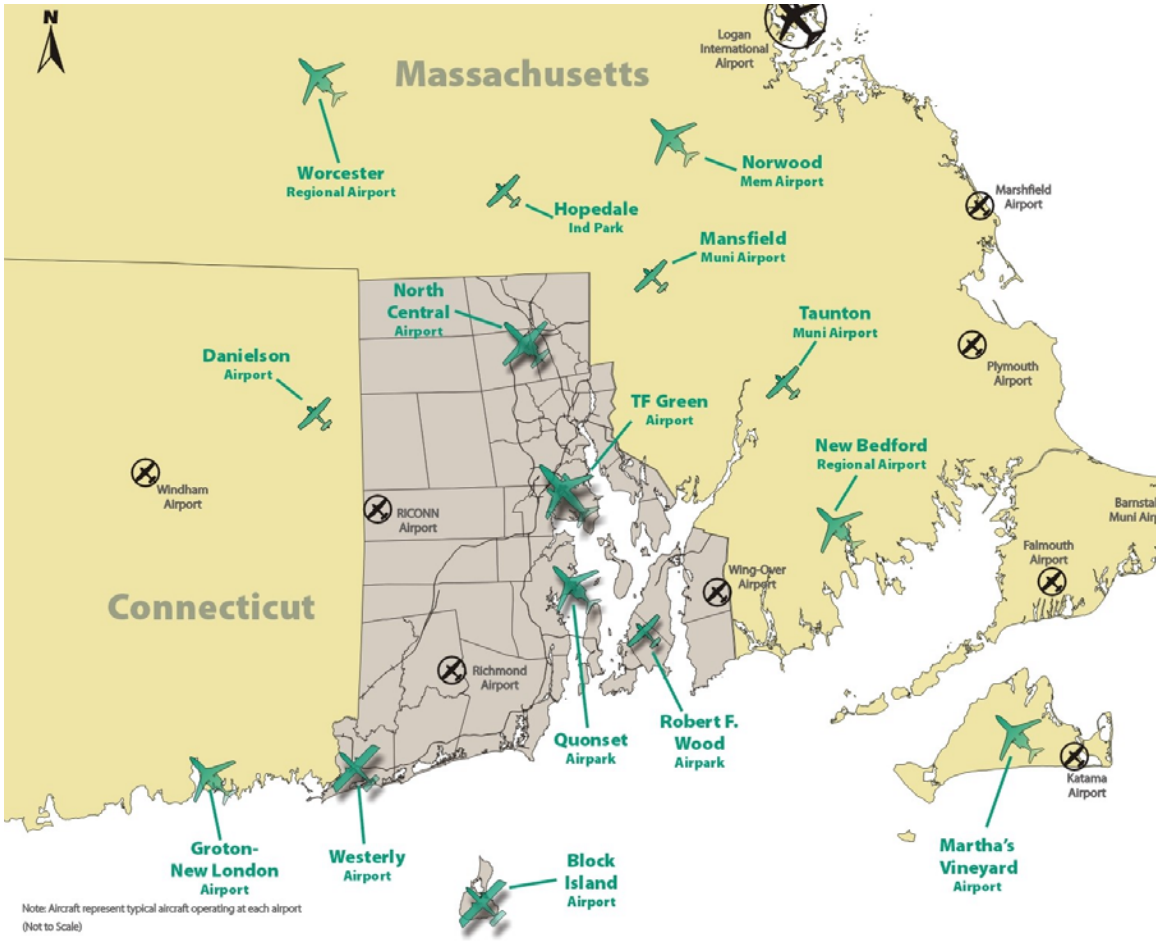


Figure 640-02(9) Other Regional Aviation Facilities



640.03 Forecasts of Aviation Demand

Forecasts of aviation demand for the publicly owned airports in Rhode Island are used in this plan to help in determining if system facilities are adequate to meet current and future demand. The data provided has been extrapolated and summarized primarily from: the RI 2004 Aviation System Plan (ASP), updated with the latest (2009) activity data and projections for Block Island, North Central, Newport, Westerly and Quonset State airports; from the Federal Aviation Administration's (FAA) 2010-2015 national forecast trends for the general aviation system; and from the July 2011 Final Environmental Impact Statement (FEIS) for T.F. Green Airport.

Aviation forecasts are based on a variety of factors, including historic trends, examination of existing and future economic, technological, and other operating considerations, and reflect an expertise and informed context for projecting future demand levels in order to conduct appropriate mid-and long-term facility improvement planning and development. The aviation industry is rapidly changing however, with legacy carriers merging or restructuring, air carriers moving into new airports and offering new services, and future growth in air travel demand dependent on national and global economic conditions. The airline industry is and will remain volatile and unpredictable. The manner in which airlines provide services may also change, with different types of aircraft being operated, and choices between hub-and-spoke versus point-to-point networks. These factors complicate the planning process, although they in no way negate the need to plan for the future.

03-01 General Aviation Forecasts

The following sections include the forecast trends, based aircraft and operations projections, commercial service, and military service for Rhode Island's five public use, dedicated general aviation airports Block Island, Newport State, North Central, Quonset and Westerly, and airports. Note that although Section 03-01 includes historic general aviation information for all six public airports (including T.F. Green) projections for T.F. Green are discussed separately in Section 03-02.

03-01-01 General Aviation Industry Trends

National trends provide insight for the development of aviation activity projections for the airports in the Rhode Island Aviation System. Some trends in the aviation industry will undoubtedly have a greater impact on Rhode Island than others; and it is possible that some trends that are anticipated and discussed in this chapter may not have a pronounced impact on the state's aviation environment.

A. General Aviation Activity and Outlook in the U.S.

General aviation includes all aviation except scheduled passenger, air cargo and military operations. It includes personal transportation, business and corporate flights, air taxi, and helicopter operations. In Rhode Island, general aviation aircraft are flown for a wide variety of purposes including: business travel, flight instruction, emergency access, medical evacuation, and recreation, among others. In 2009, there were 483 aircraft registered in Rhode Island with 967 active pilots[1]. These aircraft primarily included single and multi-engine piston aircraft.

Each year, the FAA and the General Aviation Manufacturers Association (GAMA) review the state of the industry with respect to current economic considerations and prevailing trends in order to produce a projection for the general aviation industry. The purpose of the FAA's projection (the most recent titled *FAA Aerospace Forecast, Fiscal Years 2010-2030*) is primarily to assess workloads at airports with FAA air traffic control towers and contract towers, airspace congestion, and changes in the U.S. fleet mix. GAMA, as an industry manufacturing trade group, focuses on tracking aircraft billings and shipments in order to assist its members in assessing the current state of the market. The following list of the general aviation activity trends in the U.S. was developed based on information gathered in the ASP for Rhode Island and on information provided by FAA and GAMA .[2]:

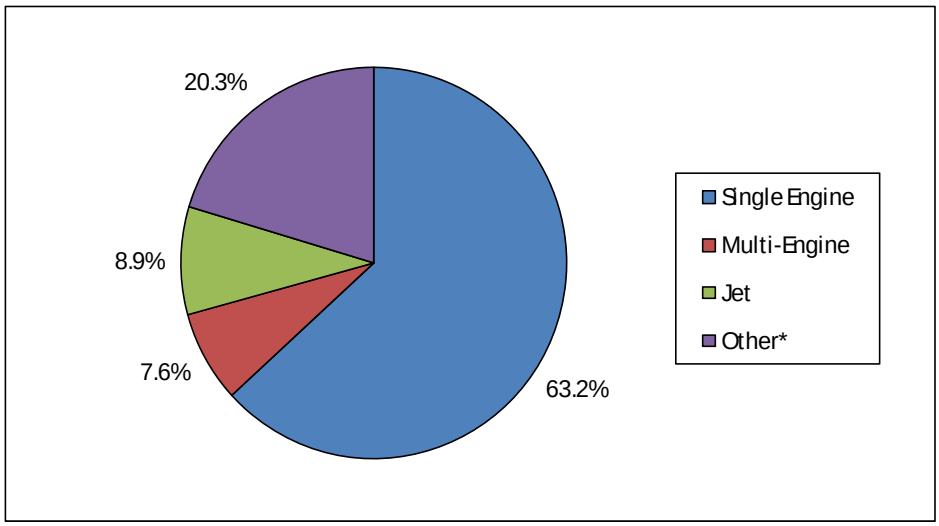
- There are over 228,000 general aviation aircraft registered in the U.S.; 483 are registered in Rhode Island.
- General aviation aircraft fly over 26 million hours in the U.S. and carry 166 million passengers annually.
- Over two-thirds of the hours flown on general aviation aircraft are for business purposes.
- In 2009, U.S. general aviation aircraft shipments totaled 1,587 aircraft, a decrease of 48.5 percent from 2008, representing the lowest demand for general aviation aircraft since 1997. The global economic downturn in 2009 led directly to the overall decline in general aviation airplane shipments.
- In 2009, U.S. general aviation aircraft billings totaled $9.1 billion, a decrease of 32.0 percent from the 2008 total of $13.4 billion.
- Fractional ownership of aircraft is on the rise. In 2009, 1,037 aircraft were operated in fractional ownership programs. This is a growing, but relatively small portion of the U.S. fleet.
- Single-engine piston aircraft are the most popular and numerous aircraft in the United States. In 2009, 772 single-engine aircraft were shipped, down from 1,700 in 2008.

[1] Federal Aviation Administration
[2] 2009 GAMA Statistical Databook & Industry Outlook

- Turboprop airplanes are a much smaller segment of the market. In 2009, 269 units were shipped, down from 333 in 2008.
- Since 2003, business jets have been a progressively growing segment of the market in terms of units shipped. However, in 2009, 514 units were shipped compared to a high of 955 units shipped in 2008. The FAA now identifies twin-engine micro jets as part of their annual forecasts. The FAA continues to maintain that these aircraft have the highest potential for long-term growth.

Figure 640-03(1) shows a breakdown of the most recent fleet mix of general aviation aircraft in the U.S.

Figure 640-03(1) U.S. General Aviation Fleet Mix, 2009 Estimate



Note: * Includes helicopters, experimental aircraft, sport aircraft, and others
Source: FAA Aerospace Forecast, Fiscal Years 2010-2030

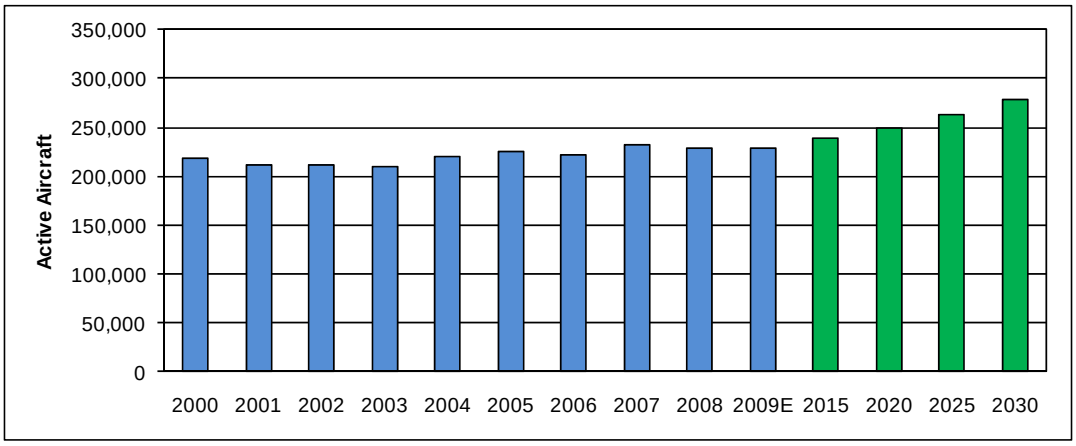
B. FAA National General Aviation Forecasts

As part of its annual forecast, the FAA prepares national forecasts of active general aviation aircraft, fleet mix, and general aircraft operations. The FAA active aircraft forecast is presented below in Figure 640-03(2); and the fleet mix forecast is shown in Table 640-03(1).

Overall, the total general aviation aircraft fleet is projected to grow at an average annual rate of 0.9 percent through 2030. However, there is a significant amount of variation both with respect to the mix of aircraft and the growth rates within various aircraft sub-categories. Specifically, the largest individual category, single-engine piston aircraft, is expected to experience a very modest average annual growth rate of 0.2 percent, while twin-engine piston aircraft are expected to decline at 0.8 percent annually. However, the FAA is also projecting average annual growth of 3.9 percent for "light sport" aircraft that are single engine piston aircraft and that was added as a registration category by the FAA

in 2005. The largest growth area is projected to be for turbo jet or business jet aviation which is forecasted to grow at 4.2 percent annually through 2030. Other growth areas are the twin-engine micro jets and piston helicopters.

Figure 640-03(2) Active General Aviation and Air Taxi Aircraft



Note: E=estimate Source: FAA Aerospace Forecasts, Fiscal Years 2009-2025 and 2010-2030

Table 640-03(1) U.S. Active General Aviation Aircraft, Actual and Forecast

	Fixed Wing									
	Piston		Turbine		Rotorcraft					
Year	Single-Engine	Multi-Engine	Turbo Prop	Turbo Jet	Piston	Turbine	Experimental	Sport	Other	Total Fleet
2000	149,422	21,091	5,762	7,001	2,680	4,470	20,407	NA	6,700	217,533
2005	148,102	19,504	7,942	9,823	3,039	5,689	23,627	170	6,454	224,350
2009E	144,745	17,351	9,010	11,418	3,666	6,540	23,435	7,311	5,673	229,149
2015	141,955	16,520	9,799	14,466	4,755	7,795	26,965	11,611	5,657	239,522
2020	142,052	15,815	10,516	17,925	5,625	8,800	29,770	13,311	5,625	249,440
2025	145,323	15,176	11,259	22,069	6,495	9,800	32,245	14,811	5,594	262,772
2030	150,646	14,597	12,023	27,035	7,370	10,825	34,350	16,311	5,565	278,723
CAGR 2009-2030	**0.2%**	**-0.8%**	**1.4%**	**4.2%**	**3.4%**	**2.4%**	**1.8%**	**3.9%**	**-0.1%**	**0.9%**

Note: E=estimate

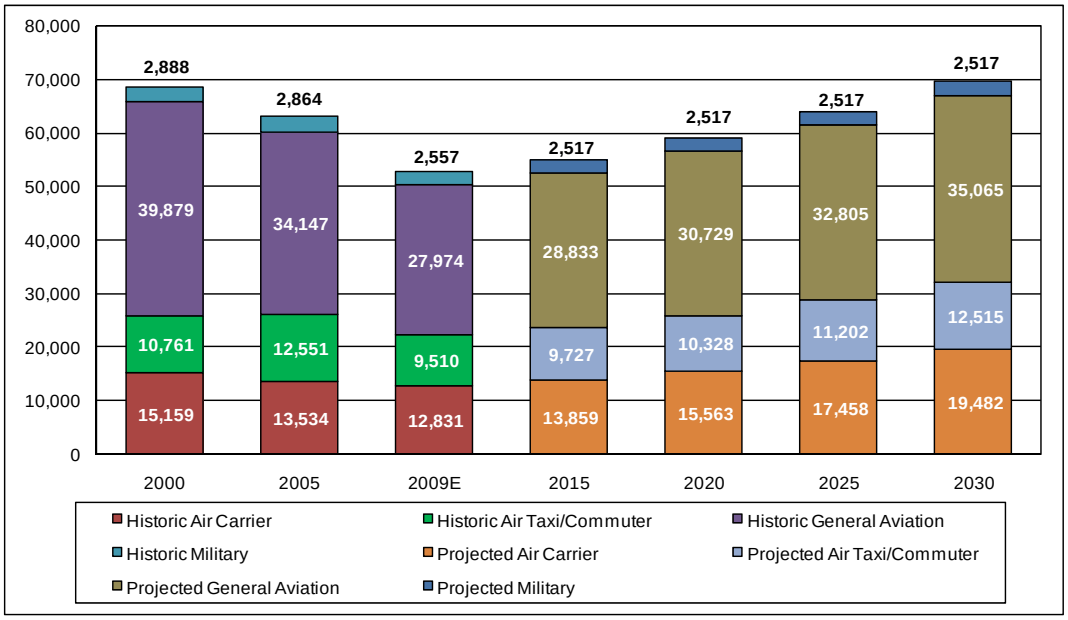
CGAR – Center of Excellence for General Aviation Research
Source: FAA Aerospace Forecast, Fiscal Years 2010-2030

Figure 640-03(3) provides the historic and forecasted operations for all aircraft at U.S. airports with an air traffic control tower. Commercial and air taxi/commuter operations are projected to experience an annual growth of 2.0 and 1.3 percent, respectively. General aviation operations are projected to grow 1.1 percent per year and military operations are expected to stay flat.

C. General Aviation Industry Trends Summary

The trend analysis sets a stage for understanding how general aviation activity in Rhode Island compares to that within the U.S. as a whole. By extension, it also establishes a basis for predicting how general aviation may be expected to grow and change in the U.S. and Rhode Island. This frame of reference is used to develop reasonable projections of aviation demand and to identify viable alternatives for improving Rhode Island's Airport System.

Figure 640-03(3) Commercial and General Aviation Operations at U.S. Airports with FAA or Contract Towers, 2000-2030



Note: E=estimate
Source: FAA Aerospace Forecast, Fiscal Years 2010-2030

It is important to understand the sensitivity of the ultimate forecast numbers on the role and development needs of the individual airports. In many situations a substantive change in the national forecasts may not trigger a change in the GA airport role or development requirements because of the low number of operations (10,000 +/- in 2029). The forecast for GA airports in the RI system remains reasonably stable throughout the planning horizon.

Areas that may require more detailed analyses are typically examined more extensively at the airport master plan level or through some other more detailed planning analysis. For example, the T.F. Green section of this ASP utilizes the forecast analysis from the ongoing EIS because it is more comprehensive than the modest effort in the ASP and relies heavily on national and regional trends. Generally, the master plan process also addresses alternative scenarios with respect to the role of the airport.

As the system changes the data and forecasts need to be examined to ensure that the performance of the system is being maintained.

03-01-02 General Aviation Forecast Considerations

General aviation activity represents all facets of civil aviation, except activity by certificated route air carriers, commuters, and the military. Projections of based aircraft, fleet mix, and general aviation operations were prepared for all GA system airports in the State of Rhode Island. The following demand indicators are indicative of each airport's future activity levels.

Based Aircraft - The total number of active general aviation aircraft that are either in hangars or based on a parking apron at the airport on a permanent basis.
Fleet Mix - The types of aircraft that operate or are based at an airport (i.e. single-engine, multi-engine, jet, etc.)
Operations - A single aircraft operation is defined as either an aircraft landing, or an aircraft takeoff. A landing and a takeoff performed in combination, such as a touch-and-go, account for two operations.

General aviation activity is influenced by factors such as local population, employment, income levels, the cost of flying, and the number of based aircraft at an airport. Several methodologies were considered in order to develop the projections presented in this chapter. These methodologies included trend analysis, market share, and methodologies based on socioeconomic factors. Preferred baseline projections, presented in this chapter, are based on the following considerations:

The historic and current condition of Rhode Island's airports
The historic and current aircraft sales and use tax in Rhode Island
Historic record keeping at Rhode Island's airports

Each of these considerations is discussed below. Based on changes to the 20-year forecast period and the airport user needs survey conducted in 2004, this chapter explains how baseline projections presented below could be impacted.

A. Condition of Rhode Island's Airports

The Rhode Island Department of Transportation (RIDOT) owns the five public-use general aviation airports in Rhode Island, as well as the lone commercial service airport in the state, T.F. Green. Throughout much of the 1980's and into the 1990's, RIDOT made minimal investments in the general aviation airports. During this time, RIDOT put nearly all its resources into developing T.F. Green. As a result, the condition of the general aviation airports in Rhode Island deteriorated over this time period.

In 1992, Rhode Island Airport Corporation (RIAC), a quasi-public state agency was formed to assume the responsibility of operating Rhode Island's six publicly owned airports, which includes T.F. Green. RIAC had adopted a system of general aviation

airports that did not meet many of the FAA airport design standards. However, since that time, RIAC has been steadily rehabilitating and improving the airports. Through these efforts, RIAC has worked closely with Landmark Aviation Services, the FBO and manager of the general aviation airports to improve the GA airports' financial self-sufficiency.

Due to the initial condition of the general aviation airports, RIAC has not been able to fully market the airports to corporate and leisure users. Unfortunately, many of the airport facilities and services required by such users are not currently in place. This places the Rhode Island airports in a challenging position when trying to compete effectively with airports in neighboring states. The facilities and services desired for each airport as determined by the user needs survey are discussed later in this chapter. Until many of these facilities and services are improved it is assumed that Rhode Island's general aviation airports growth will be limited by existing facilities.

B. Rhode Island Aircraft Sales and Use Tax

An important consideration in the forecast is the repeal of the state aircraft sales and use tax. The repeal, effective January 1, 2005, exempts the sale, storage, use or other consumption of new or used aircraft and aircraft parts from taxation and places Rhode Island on par with its neighboring states (Massachusetts and Connecticut) providing equitable tax treatment for aircraft owners. Prior to the repeal, many aircraft purchasers chose to base their aircraft in Massachusetts or Connecticut to avoid the seven (7) percent sales tax. Additionally, the seven (7) percent tax on aircraft parts and services, payable only in Rhode Island, may have influenced aircraft owners to service their aircraft outside the state. Consequently, Rhode Island's ability to attract aircraft likely was negatively influenced by competition from adjacent states for based aircraft and aircraft maintenance. As a result, the GA market in terms of growth was fairly stagnant or on the decline.

Rhode Island based aircraft populations actually began to decline in 1994 as part of an industry-wide decline in general aviation aircraft numbers. However, it is also believed that a tax increase to seven (7) percent from six (6) percent imposed on July 1, 1992 contributed in the decline of based aircraft from 1994 through 1997. This tax increase also put Rhode Island at a disadvantage with neighboring states since both Connecticut and Massachusetts were decreasing their aircraft tax rates on both aircraft sales and utilization at the time, ultimately repealing them in 1997 and 2001, respectively. Prior to their repeals, Connecticut imposed a six (6) percent aviation tax, while Massachusetts imposed a five (5) percent tax, compared to seven (7) percent in Rhode Island.

Rhode Island experienced a six (6) percent increase in based aircraft within the first several years after the tax repeal until recent economic conditions undermined those gains. The Rhode Island aircraft population has fluctuated over the last 15 years. Since 2001 the based aircraft population data generally reflected limited positive growth up to the point of the economic downturn. A limited positive growth is expected when the economy improves if the aviation tax repeal is maintained. However, Rhode Island

aircraft population will only increase to the extent allowed by supporting infrastructure. For example, if facilities such as tie-downs and hangars are not available or developed to meet associated levels of demand, aircraft population growth may be limited due to those physical constraints. Therefore, it is important for RIAC to be diligent in monitoring market trends for planning to develop future airport facilities to absorb potential new based aircraft.

C. Historic Airport Activity

Historic general aviation data is neither readily available nor verifiable for all activity indicators. Since all general aviation airports in Rhode Island are non-towered (with the exception of Quonset), annual aircraft operational totals for each airport are the operator's "best estimate" of the takeoffs and landings each year. (Quonset has a tower operated by the military and its operational numbers are not published by the FAA.) Based aircraft data, numbers are the most reliable since based aircraft can be more easily counted than operations through a review of leases. However, based aircraft counts vary seasonally at each airport so the numbers will vary depending on when the count is taken. Another explanation for past inconsistencies in based aircraft and operations is the change in airport management in the 1990s and counting methods used by RIDOT versus those used by RIAC. In 2001, RIAC, together with Landmark Aviation Services, outlined appropriate counting procedures for the publicly owned airports in the state. However, because of the historic counting inconsistencies, It is difficult to derive statistically valid historic trends from which to project general aviation activity.

Historic statewide based aircraft are presented in Table 640-03(2). This does not include military aircraft or aircraft based at privately owned airports. As shown in Figure 640-03(4), according to the data reported by Landmark Aviation Services and the FAA's *Terminal Area Forecasts*, the number of based aircraft in Rhode Island has fluctuated. The greatest confidence can be placed in the 2009 based aircraft counts.

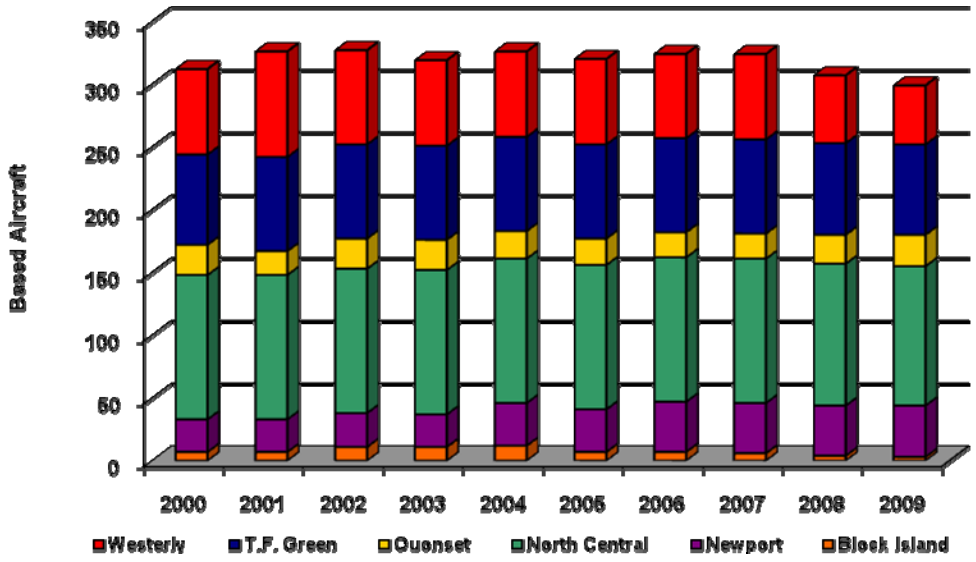
Table 640-03(2) Historic Based Aircraft in Rhode Island (Excluding Military)

Year	Block Island	Newport	North Central	Quonset	T.F. Green	Westerly	Statewide Total
2000	7	26	115	24	72	68	**312**
2001	7	27	115	19	75	84	**327**
2002	11	26	115	24	75	75	**326**
2003	11	34	115	24	75	68	**327**
2004	12	34	115	22	75	68	**326**
2005	7	40	115	21	75	68	**326**
2006	7	40	115	20	75	67	**324**
2007	6	40	115	20	75	68	**324**
2008	4	40	113	23	73	54	**307**
2009	3	41	111	25	72	47	**299**

Source: FAA Terminal Area Forecasts; Landmark Aviation Services

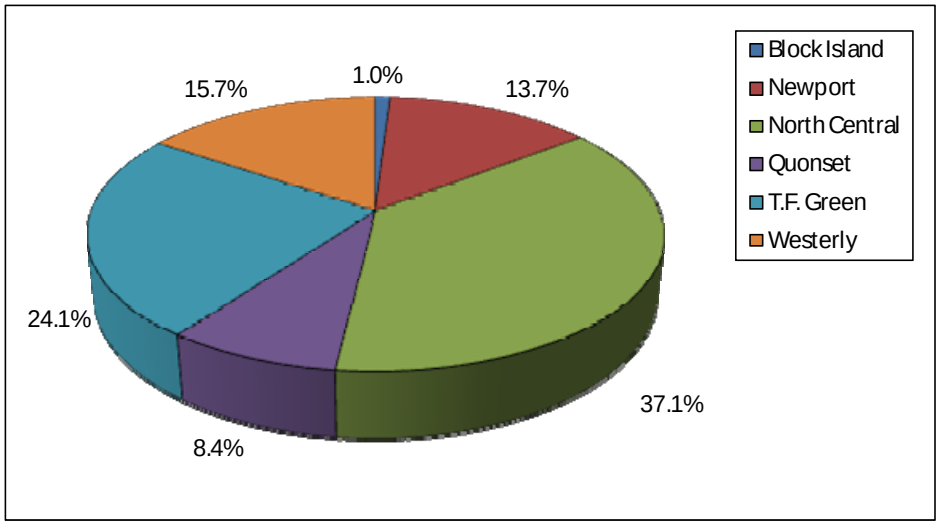
Figure 640-03(5) below presents each airport's share of the statewide 2009 based aircraft. North Central captured 37 percent of the statewide based aircraft. T.F. Green accounted for 24 percent of the based aircraft in Rhode Island, 16 percent were based at Westerly, and 14 percent were based at Newport. Quonset and Block Island each accounted for less than 10 percent of the statewide based aircraft.

Figure 640-03(4) Historic Based Aircraft in Rhode Island (Excluding Military)



Source: FAA Terminal Area Forecasts; Landmark Aviation Services

Figure 640-03(5) Airport Share of Rhode Island's 2009 Based Aircraft



Source: Landmark Aviation Service

Historic annual general aviation operations are presented below in Table 640-03(3). Similar to based aircraft, general aviation operations were reported to have experienced an overall decline between 2000 and 2009. Again, it is important to note that other than T.F. Green totals that are based on actual tower counts, the operational totals are largely estimates generated by the local Landmark Aviation representative. While these totals are based on specific data sources such as fuel sales receipts, pilot sign-in logs, numbers of based aircraft, etc. they are nonetheless estimated.

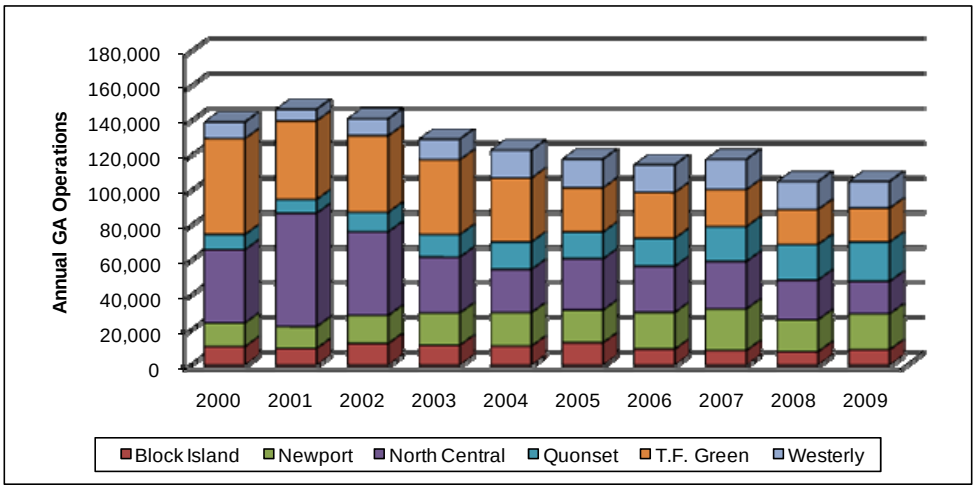
Table 640-03(3) Historic General Aviation Operations

Year	Block Island	Newport	North Central	Quonset	T.F. Green	Westerly	Statewide Total
2000	10,755	13,521	41,984	8,767	55,000	9,453	139,480
2001	9,674	12,485	65,000	7,927	45,095	6,585	146,766
2002	12,500	16,091	47,957	11,193	43,937	9,675	141,353
2003	11,520	18,454	32,020	12,964	42,878	11,825	129,661
2004	11,018	19,151	24,808	15,782	36,646	15,926	123,331
2005	12,958	18,699	29,430	15,333	25,350	16,462	118,232
2006	9,276	21,012	26,476	15,997	26,351	15,818	114,930
2007	8,509	23,789	27,265	19,976	21,212	17,320	118,071
2008	7,783	18,313	22,767	20,427	20,025	15,966	105,281
2009	8,985	20,491	18,628	22,597	19,438	15,265	105,404

Source: FAA Terminal Area Forecasts; Landmark Aviation Services; Tower Counts

As depicted below in Figure 640-03(6), the Rhode Island airport system appears to have experienced a downward trend in general aviation activity from 2000 through 2009. However, while this general trend may be accurate, it is still worth noting that part of this trend may be the result of improvements in tracking and reporting of operational totals. It is worth acknowledging that much of the reported decline may simply be the result of more accurate counting of annual operations in recent years.

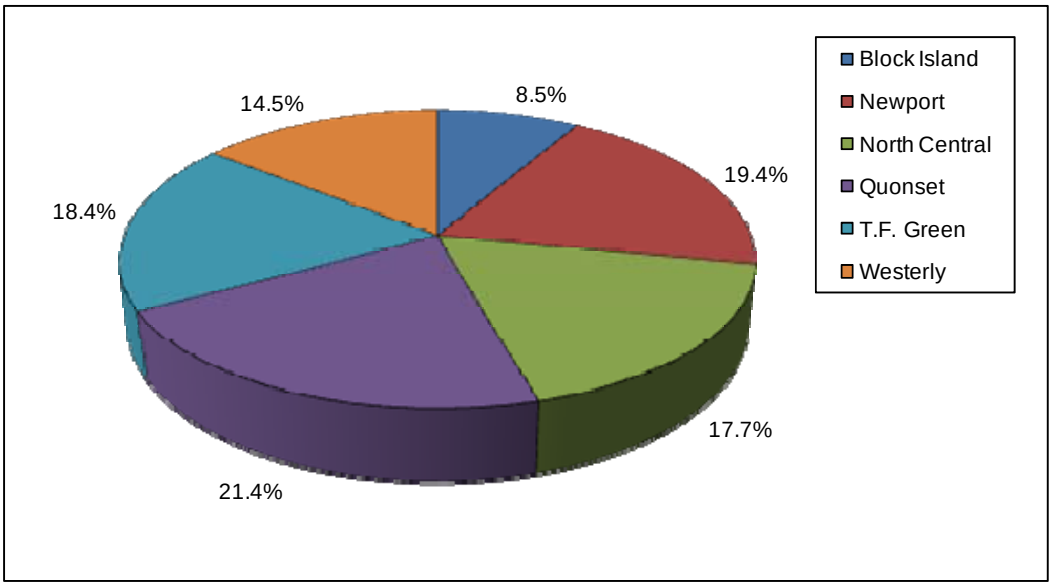
Figure 640-03(6) Historic General Aviation Operations



Source: FAA Terminal Area Forecasts; Landmark Aviation Services

As shown in Figure 640-03(7), approximately 21 percent of total statewide general aviation operations occurred at Quonset in 2009, with approximately 19 percent and 18 percent of statewide general aviation operations occurring at Newport and T.F. Green, respectively. Block Island experienced the fewest general aviation operations with only nine percent of the statewide total.

Figure 640-03(7) Airport Share of Rhode Island's 2009 General Aviation Operations



Source: Landmark Aviation Services

03-01-03 Baseline Projection of Based Aircraft

Several methodologies were considered to project based aircraft at the five study GA airports. (The methodologies and results for T.F. Green are discussed separately in Section 03-02.) These methodologies included trend analysis, market share, and methodologies based on socioeconomic factors. Based on the current economic uncertainties and associated volatility in the aviation industry, it was determined that the projection of based aircraft for Rhode Island's airports using trend analysis or traditional regression analysis techniques would be inappropriate. Due to the downward trend in based aircraft, it was also difficult to develop projections of based aircraft using traditional methodologies such as population, employment, and income socioeconomic factors. Rhode Island experienced stable to positive socioeconomic and demographic growth for much of the period from 2000 to 2009. Reasonably, positive growth in such socioeconomic and demographic factors should translate directly into positive growth in the number of general aviation aircraft. In fact, this is a common trend typically experienced within the general aviation industry throughout the country. However, in Rhode Island, this positive growth did not correlate with based aircraft trends over the same period. In fact, Rhode Island's socioeconomic and demographic indicators show an inverse relationship with the trends in general aviation. This inverse relationship disqualified the use of the socioeconomic forecasting methodology.

Other viable methodologies that are appropriate to project based aircraft are limited. After review of available activity data for the study airports and after consideration of methodologies that could be used to project based aircraft, a market share methodology was selected as the sole projection technique for this demand factor. The FAA's most recent projection of U.S. active general aviation aircraft, as detailed in *FAA Aerospace Forecast, Fiscal Years 2010-2030* (Aerospace Forecast), was used to project based aircraft for Rhode Island's general aviation airports for the years of 2014, 2019, and 2029. The selected methodology used a top down approach and its results are presented below in Table 640-03(4).

Table 640-03(4) Projections of Rhode Island's Based Aircraft

		2009 Market	Projected Based Aircraft		
Airport	**2009**	**Share**	**2014**	**2019**	**2029**
Block Island	3	1.3%	3	3	4
Newport	41	18.1%	42	44	49
North Central	111	48.9%	115	120	133
Quonset	25	11.0%	26	27	30
Westerly	47	20.7%	49	51	57
Statewide Total (excl. T.F.Green)	**227**	**100%**	**235**	**245**	**273**
FAA U.S. Active Aircraft	229,149		237,577	247,206	275,210
RI % of U.S.	0.10%		0.10%	0.10%	0.10%

Source: Wilbur Smith Associates

Specifically, this methodology assumes that Rhode Island's share of total U.S. active general aviation aircraft in 2009 will remain relatively constant throughout the forecast period. Based on this assumption and using the Aerospace Forecast, a statewide projection of the total based general aircraft for Rhode Island was developed. That total number was then broken down into the individual general aviation airports within the state based on historical based aircraft allocations. Using this approach, statewide based aircraft are projected to increase from 227 in 2009 to 273 in 2029, an average annual growth rate of 0.9 percent. By applying each airport's current market share of statewide based aircraft in 2009, individual airport projections of based aircraft were produced.

These baseline projections of based aircraft reflect a continuation of national historic conditions. These projections do not consider additional demand that could be realized through either, or a combination of, improved facilities and services at study airports (i.e. if more T-hangars were available at Newport and North Central to meet demand).

A. Based Aircraft Fleet Mix

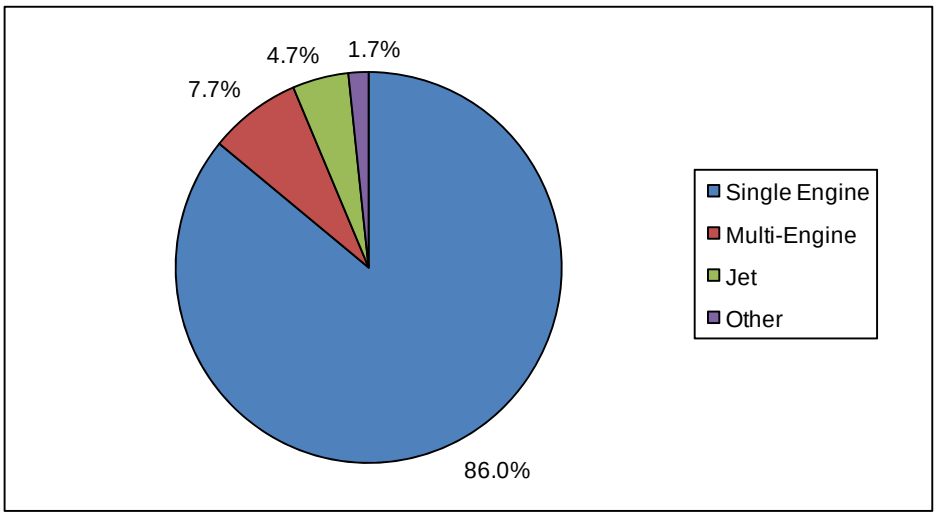
In establishing a projection of the statewide based aircraft fleet mix, consideration was given to the continually changing national active general aviation aircraft fleet. Table 640-03(5) below provides the 2009 based aircraft fleet mix for the Rhode Island general aviation airports, while Figure 640-03(8) and Figure 640-03(9) graphically present the current based aircraft fleet mix and active general aviation aircraft fleet in the U.S. The proportional share of single-engine aircraft in the state fleet was significantly higher than that of the U.S. fleet. Additionally, the "other" aircraft category, which includes helicopters, gliders, ultra-lights, and other experimental aircraft, composed over 20 percent of the national active aircraft fleet, while representing only 1.7 percent (or five aircraft) of the state's fleet.

Table 640-03(5) 2009 Based Aircraft Fleet Mix at Rhode Island Airports

Airport	Single Engine	Multi-Engine	Jet	Other*	Total
Block Island	2	1	0	0	3
Newport	36	3	0	2	41
North Central	103	8	0	0	111
Quonset	23	2	0	0	25
Westerly	38	5	2	2	47
Statewide Total (excl. T.F.Green)	**202**	**19**	**2**	**4**	**227**

* Other includes helicopters, experimental aircraft, sport aircraft, and others.
Source: Landmark Aviation Services

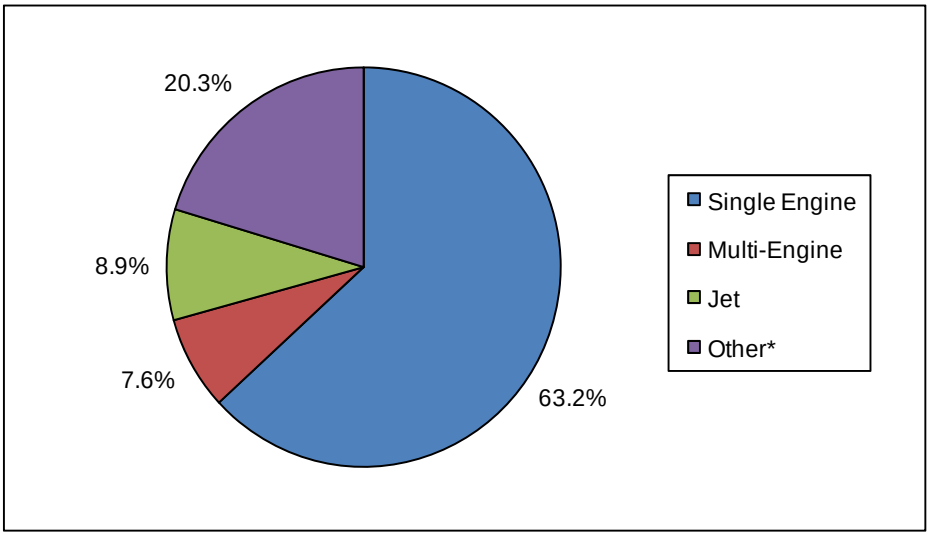
Figure 640-03(8) 2009 Rhode Island General Aviation Fleet (including T.F. Green)



Source: Wilbur Smith Associates

As described within the Aerospace Forecast, the FAA has indicated that there will be relatively strong growth in active general aviation jet aircraft. This trend illustrates a movement in general aviation toward more sophisticated, higher performing, and more demanding aircraft. This trend will impact the types of activity occurring at general aviation airports and the types of facilities and services required at those airports. The FAA projects that the percentage increase in jet aircraft will significantly outpace growth in other components of the general aviation aircraft fleet. Single engine and multi-engine aircraft in the national fleet are projected to experience low growth or negative growth with an average annual growth rate of 0.1 percent per year for single engine aircraft over the forecast period while multi-engine aircraft are projected to decline at 0.8% annually.

Figure 640-03(9) 2009 U.S. Active Aircraft



Source: FAA Aerospace Forecast, Fiscal Years 2010-2030

As described previously, Rhode Island's fleet mix of based aircraft is heavily weighted to single engine aircraft and significantly lags behind national fleet mix breakdown percentages. Based on historic based aircraft fleet mix trends in Rhode Island, it is not anticipated that the state's projected fleet mix in 2029 will change to the extent projected for the U.S. as a whole in the *FAA Aerospace Forecast, FY 2010-2030.* A more reasonable expectation is that the Rhode Island's 2029 based aircraft fleet mix will progressively migrate toward the fleet mix percentages currently observed for the U.S. in 2009. Table 640-03(6) presents the projected based aircraft fleet mix in Rhode Island that results from applying this methodology and assumptions. It is projected that by 2029, single-engine aircraft will account for 63.2 percent of the total based aircraft in Rhode Island, as opposed to the 86% currently realized within the state. Aircraft totals in the "other" category will experience the largest increase, comprising 20.3 percent of Rhode Island's total based aircraft by 2029, compared to 1.7 percent in 2009.

Table 640-03(6) Projection of Based Aircraft Fleet Mix in Rhode Island in 2029

Airport	Single Engine	Multi-Engine	Jet	Other*	Total
Block Island	3	0	0	1	4
Newport	31	4	4	10	49
North Central	84	10	12	27	133
Quonset	19	2	3	6	30
Westerly	36	4	5	12	57
Statewide Total (excl. T.F.Green)	172	21	24	56	**273**

* Other includes helicopters, experimental aircraft, sport aircraft, and others.
Source: Wilbur Smith Associates

03-01-04 Baseline Projection of General Aviation Operations

The projection of operational demand at an airport determines the need for airside improvements. Total annual operational demand can consist of several types of activity including air carrier, military, air taxi, and general aviation. For those airports with scheduled commercial air service, air carrier activity was projected separately in a subsequent section. For those airports with annual military operations, the military operations were subtracted from the total operational estimate, as were commercial operations, to arrive at an annual general aviation activity level for each system airport. Air taxi operations are included in the general aviation operations projections.

Several methodologies were investigated to project general aviation operations for forecast years 2014, 2019, and 2029. As discussed previously, the current economic uncertainties and associated volatility in the aviation industry make it difficult to develop projections based on historic operational growth. The "reported" decline in general aviation operations also makes it impractical to develop projections using socioeconomic factors such as population, employment, and income.

Therefore, the average annual growth rate of general aviation aircraft hours flown as projected by FAA was used as the basis to project general aviation operations at Rhode Island's system airports. According to the Aerospace Forecast, FY 2010-2030, the numbers of hours flown by general aviation aircraft are projected to increase 2.5 percent per year on average over the forecast period. It is assumed that the number of hours flown by general aviation in Rhode Island will increase the same percentage as the U.S. as a whole.

Table 640-03(7) below reflects the baseline projection of general aviation operations at each of Rhode Island's general aviation airports. In concert with the FAA projections, operations at the state's airports (excluding T.F. Green) are forecasted to grow at 2.4 percent annually between 2009 and 2014 and 2.5 percent from 2014 to 2029.

Table 640-03(7) Projection of General Aviation Operations at Rhode Island Airports

		Projected General Aviation Operations		
Airport	**Actual 2009**	**2014**	**2019**	**2029**
Block Island	8,985	10,100	11,500	14,600
Newport	20,491	23,100	26,100	33,300
North Central	18,628	21,000	23,800	30,300
Quonset	22,597	25,500	28,800	36,800
Westerly	15,265	17,200	19,500	24,800
State Total (excl. T.F. Green)	**85,966**	**96,900**	**109,700**	**139,800**

Sources: Landmark Aviation Services; Wilbur Smith Associates

Additionally, the split between local and itinerant general aviation operations was projected for each of the Rhode Island system airports. The FAA defines local operations as operations performed by aircraft that: operate in the local traffic pattern or within sight of an airport; are known to be departing for or arriving from flight in local practice areas located within a 20-miles radius of the airport, or are expecting simulated instrument approaches in low pass at an airport. Itinerant operations include all other general aviation aircraft operations, including air taxi.

Table 640-03(8) presents the 2009 local/itinerant splits for the system's general aviation airports. Overall, 62 percent of the state's general aviation operations were local operations, with Block Island having the fewest local operations (only three percent of its total general aviation operations in 2009). Newport had the highest number of local operations, with 83 percent of its total general aviation operations in 2009.

Table 640-03(8) 2009 Local/Itinerant General Aviation Operations at Rhode Island Airports

Airport	**Local Operations**	**Percent Local**	**Itinerant Operations**	**Percent Itinerant**	**Total General Aviation Operations**
Block Island	297	3%	8,688	97%	8,985
Newport	17,007	83%	3,484	17%	20,491
North Central	10,566	57%	8,062	43%	18,628
Quonset	18,074	80%	4,523	20%	22,597
Westerly	7,690	50%	7,575	50%	15,265
State Total (excl. T.F. Green)	**53,634**	**62%**	**32,332**	**38%**	**85,966**

Source: Landmark Aviation Services

Table 640-03(9) reflects how each airport's split between local/itinerant general aviation operations is expected to change by 2029. The local/itinerant split at the five general aviation airports in the state is projected to remain unchanged throughout the forecast period.

Table 640-03(9) 2029 Projection of Local/Itinerant Split at Rhode Island Airports

Airport	Local Operations	Percent Local	Itinerant Operations	Percent Itinerant	Total General Aviation Operations
Block Island	500	3%	14,100	97%	14,600
Newport	27,600	83%	5,700	17%	33,300
North Central	17,200	57%	13,100	43%	30,300
Quonset	29,400	80%	7,400	20%	36,800
Westerly	12,500	50%	12,300	50%	24,800
State Total (excl. T.F. Green)	**87,200**	**62%**	**52,600**	**38%**	**139,800**

Source: Wilbur Smith Associates

03-01-05 Commercial Service Projections for Block Island and Westerly

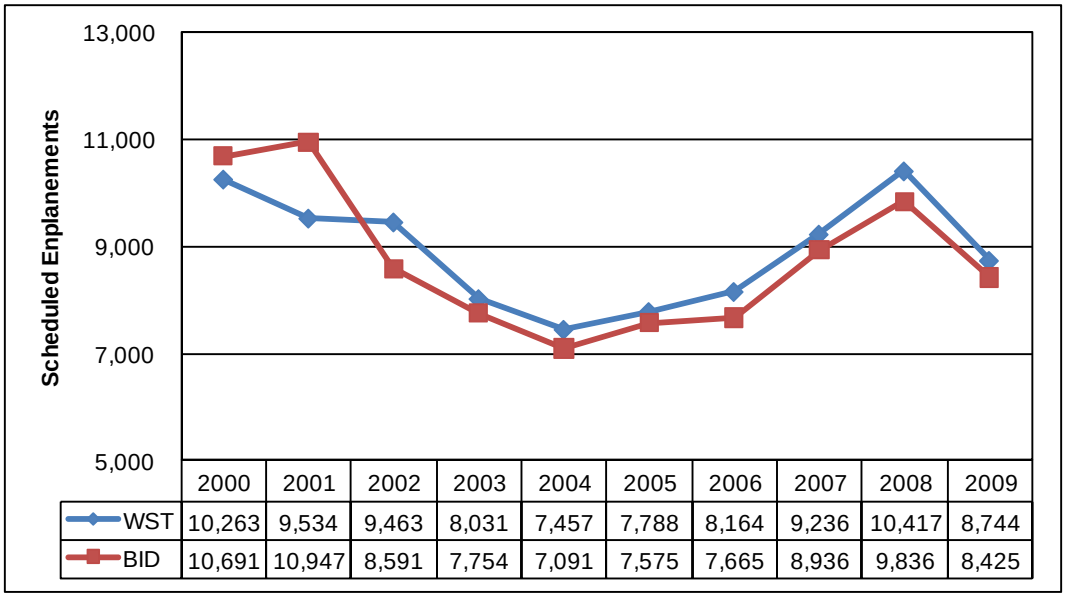
Two airports in Rhode Island, in addition to T.F. Green, have scheduled commercial air service. New England Airlines, a FAR Part 135 operator, operates scheduled nonstop service between Westerly Airport and Block Island Airport. This service, provided by single and multi-engine piston aircraft, meets the tourism demands and provides an essential means of access to and from the island for time sensitive cargo and medical activities. The schedule is flexible to meet tourism demands. Between Memorial Day and Labor Day hourly service is scheduled between Westerly and Block Island, while in the off-season, the carrier operates nonstop service every other hour. Only select national commercial service trends impact the Westerly/Block Island market. As with the aviation industry as a whole, general national and local economic conditions have a significant impact on the demand within this local market.

Commercial service activity projections were developed for both passenger enplanements and annual airline operations at Block Island and Westerly. Calendar year 2009 was used as the base year for these projections. Projections for T.F. Green were developed in the FEIS. The total number of annual enplanements for an airport is an important element in receiving funding from the FAA.

A. Enplanements

Figure 640-03(10) provides a summary of historic passenger enplanements at Westerly and Block Island Airports. Due to their exclusive market relationship, enplanements at these airports generally mirror each other. The average annual decline was 2.2 percent between 2000 and 2009.

Figure 640-03(10) Historic Enplanements at Block Island and Westerly Airports



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
WST	10,263	9,534	9,463	8,031	7,457	7,788	8,164	9,236	10,417	8,744
BID	10,691	10,947	8,591	7,754	7,091	7,575	7,665	8,936	9,836	8,425

Source: Landmark Aviation Services; FAA Terminal Area Forecast

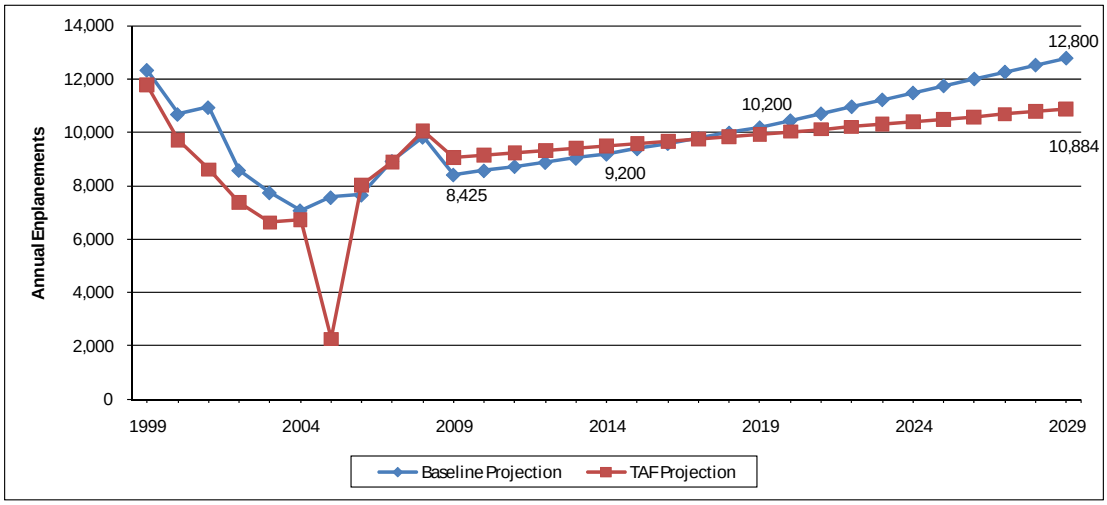
Commercial service enplanement projections have been prepared to provide a basis for determining the general adequacy of the airports to meet Rhode Island's unique needs for air travel to and from Block Island. Two forecast scenarios were developed for commercial service enplanements at Block Island and Westerly airports. The preferred methodology for generating baseline projections was developed using a market share approach in which airport specific trends and conditions in aviation were compared to select and relevant national trends and conditions in aviation during the same historical period. This approach allows the use of the approved national forecasts published within Aerospace Forecast, and takes into account historical trends in activity.

1) Block Island Airport Enplanements

Through discussions with New England Airlines, the carrier does not have any plans to increase its fleet or scheduled operations throughout the forecast period (2009-2029). Based on this assumption, enplanements at Westerly and Block Island airports are projected to experience modest growth over that period. Combined with an historic decline in U.S. market share, the preferred baseline enplanements projection for Block Island uses a decreasing market share approach.

Using this approach, passenger enplanements at Block Island Airport are projected to reach 12,800 by 2029; an average annual growth rate of 2.1 percent between 2009 and 2029 (See Figure 640-03(11)). Using this decreasing market share approach, the resultant growth in enplanements is slightly higher than the most recent FAA Terminal Area Forecast (TAF) projection for commercial enplanements for this airport after 2017. By 2029, the FAA projects a total of approximately 10,900 enplanements, whereas this forecast projects a total of 12,800. The FAA projection uses 2008 data and represents an average annual growth rate of 0.9 percent over the 2009-2029 forecast period.

Figure 640-03(11) Enplanement Projections for Block Island

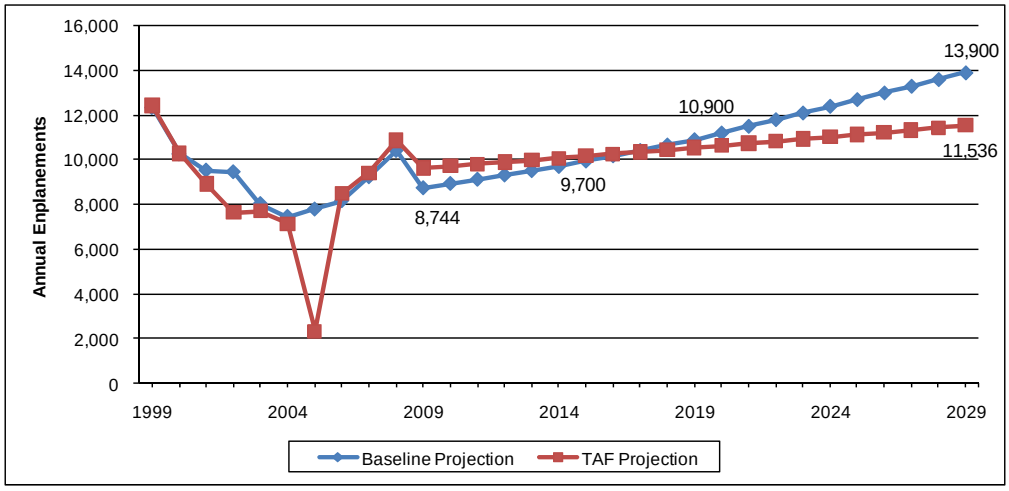


Source: Wilbur Smith Associates

2) Westerly Airport Enplanements

The projections of enplanements for Westerly Airport were based on the same assumptions as the passenger enplanement projections for Block Island. Based on historic enplanements trends and discussions with New England Airlines, a decreasing market share of total U.S. enplanements was chosen as the preferred methodology to project this airport's future enplanements. By applying this methodology, the airport's passenger enplanements are expected to increase at 2.3 percent per year on average over the planning period, reaching 13,900 annual enplanements by 2029 as shown below in Figure 640-03(12). The preferred growth in enplanements is slightly higher than the minimal growth projected for this airport in the TAF, which projects enplanements at Westerly to increase 0.9 percent per year on average between 2009 and 2029, reaching only 11,500 passengers annually by 2029.

Figure 640-03(12) Enplanement Projections for Westerly

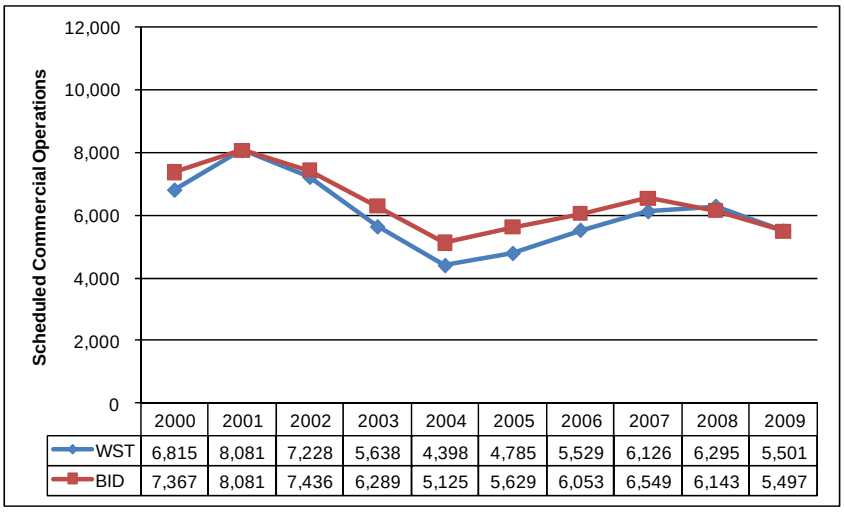


Source: Wilbur Smith Associates

B. Commercial Service Operations

Historic trends in commercial service operations for Block Island Airport and Westerly Airport are provided in Figure 640-03(13). Operations decreased from 2000 to 2004 and then experienced growth until 2008. In 2009, operations decreased again due to the downturn in the global economy. Specifically, nearly 11,000 commercial service operations were scheduled at the two airports in 2009, down sharply from 14,200 nine years earlier. This represents an average annual decline of 2.8 percent between 2000 and 2009. The baseline scenario reflects the preferred methodology for projecting commercial service operations through 2029.

Figure 640-03(13) Historic Commercial Service Operations at Block Island and Westerly Airports

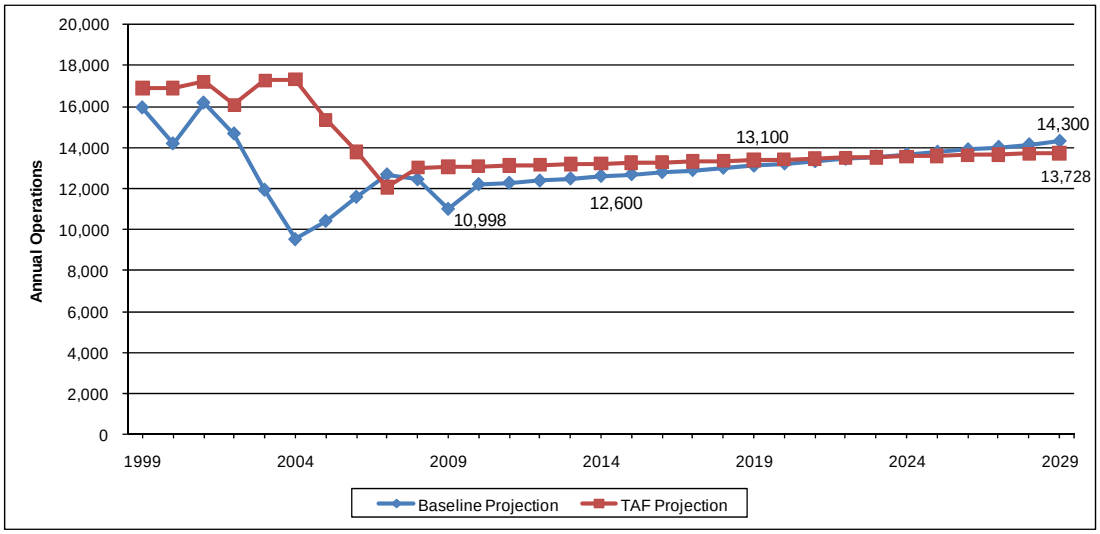


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
WST	6,815	8,081	7,228	5,638	4,398	4,785	5,529	6,126	6,295	5,501
BID	7,367	8,081	7,436	6,289	5,125	5,629	6,053	6,549	6,143	5,497

Source: FAA Terminal Area Forecast; Landmark Aviation Services

Figure 640-03(14) presents projected commercial service operations for Westerly and Block Island under the baseline forecast scenario, or high growth scenario, versus a TAF projection, or low growth scenario. The baseline scenario applies a market share methodology using each airport's share of commercial service operations in New England, as projected by the FAA TAF.

Figure 640-03(14) Projection of Commercial Service Operations at Block Island and Westerly Airports



Source: Wilbur Smith Associates

Reflective of the decreasing share of New England's commercial operations over the last decade, it is projected that this trend will continue. Using this approach, 14,300 commercial service operations are projected to occur at Block Island and Westerly airports combined by 2029, approximately the same number of annual operations (14,200) as was experienced in 2000. The FAA TAF projects 0.3 percent average annual growth in commercial service operations at Block Island and Westerly over the forecast period (2009-2029).

03-01-06 Military Activity Projections

In 2009, military operations occurred at two public use airports in Rhode Island, namely T.F. Green and Quonset. Military activity varies with the political climate and variations in government funding. It is anticipated that the 2009 level of military operations will remain constant throughout the planning period at both airports.

03-01-07 Airport User Needs and Enhanced Growth Projections

Baseline projections of based aircraft, general aviation operations, and commercial service activity for the Rhode Island Airport System Plan (ASP) were presented above.

The projections were based on a status quo or "business as usual" scenario. As suggested earlier, the lack of even average quality facilities or services at the general aviation airports has likely artificially limited the growth potential of general aviation activity in Rhode Island. This section presents an analysis of the services and facilities needed to realize these higher rates of future demand. Facilities and services needing improvement at each Rhode Island general aviation airport were identified through an extensive surveying effort of Rhode Island airport users.

It is assumed that if the state's airports are improved, aviation demand at Rhode Island's general aviation airports will be more like the aviation demand at general aviation airports in the rest of the U.S. There is a typically positive correlation between factors such as U.S. population and employment and U.S. general aviation demand. In Rhode Island, however, this correlation has been inversely related. While population and employment in the state has generally increased over the last 10 years, reported general aviation demand has decreased. Rhode Island's inability to record positive growth in general aviation demand could reasonably be linked to the current condition of the state's general aviation airports. The following sections explore the growth potential that may result from changed conditions in the state and at the airports.

A. User Facility and Service Enhancements

Rhode Island's general aviation activity has been artificially suppressed by the lack of adequate facilities and services at Rhode Island's general aviation airports that have not kept pace with those provided at competing airports in neighboring states. One action that must be taken to stimulate Rhode Island's general aviation demand is to significantly upgrade each airport's facilities and services. Out of the following list, survey respondents were asked to indicate the facilities that needed to be provided or upgraded at the Rhode Island airport from which they fly or base an aircraft. Respondents were asked to use a scale of 1-5, with 1 being the most important, to reflect the relative need for each facility. Facilities and services ranked by the survey process included the following:

1. Full Service Fixed Base Operator (FBO)
2. Fuel (100LL)
3. Fuel (JET A)
4. Aircraft Maintenance
5. Terminal Facilities/Pilot Lounge
6. Restaurant
7. Ground Transportation (on-site rental car)
8. Ground Transportation (courtesy car)
9. Additional Runway Length
10. Additional Runway Width
11. Precision/Instrument Approach
12. Parallel Taxiway
13. Paved Taxiway
14. Weather Reporting
15. Hangars
16. Paved Tie-downs
17. Additional Auto Parking
18. Increased Security
19. Lighting Requirements
20. Other

Additionally, respondents were asked to specify the total runway length and width requirement they would like to see at each airport. They were also asked to specify lighting and instrumentation requirements, as well as any other facilities that they would like to see at a particular airport. In each survey, the respondents were asked: "If the

improvements they noted were made, would you increase the number of annual operations that you conduct at the specified airport?" If an increase was noted, the survey respondent was subsequently asked how many additional operations would be made annually.

The surveys also asked respondents to identify the facility needs and upgrades at the Rhode Island airports other than the one that they based their aircraft at, typically fly out of, or completed their transient pilot survey at. Respondents were asked that if their recommended upgrades were made at these airports, how many additional operations each year would they perform at each respective airport.

The results of the surveys are presented, on an airport-by-airport basis, in the following section. The top facilities noted by survey respondents are ranked by the most popular responses. Additional comments regarding Rhode Island airports are noted as well.

1) Block Island Survey Results

From the three survey efforts, 71 pilots provided information on service and facility upgrades that they would like to see at Block Island. The top facility and service requests at Block Island obtained from the survey results are as follows:

Additional Runway Length: The top response by pilots for upgraded facilities was a runway extension at Block Island. Runway length requirements ranged from 3,000 to 3,500 feet, up from the current runway length of 2,501 feet.
Fuel (100LL): While the pilots with aircraft based at Block Island realized the environmental constraints to providing fuel at the airport, many transient pilots noted that it would be beneficial to have 100LL fuel offered at Block Island.
Paved Tiedowns: The lack of paved tiedowns to park airplanes at Block Island was also noted as a hindrance to additional operations at the airport.
Additional Aircraft Parking: Many survey respondents noted that they do not necessarily need paved tiedowns at Block Island. Respondents generally noted that they would like to see additional aircraft parking (paved or unpaved) at the airport.
Precision Approach/ILS: A number of respondents noted that they would like Block Island to have a precision approach, such as an ILS.
Parallel Taxiway: Several pilots also noted their desire for a parallel taxiway at Block Island.

Other facility and service improvements noted by Block Island survey respondents included a crosswind runway, courtesy car services, a "fair" resident tiedown charge, and the elimination of landing fees. Based aircraft owners noted that hangars would also be a beneficial addition at Block Island. According to the surveying effort, if the improvements listed above were made at Block Island, the respondents alone would make approximately 1,600 additional annual operations at the airport.

2) Robert F. Wood Airpark (Newport) Survey Results

The top facility upgrades noted by pilots through the survey effort at Robert F. Wood Airpark are listed below. Over 80 survey respondents noted some facility or service changes they would like to see implemented at Robert F. Wood Airpark.

Hangars: Nearly every pilot with an aircraft based at Robert F. Wood Airpark noted that additional hangars are badly needed at the airport. One pilot that currently bases their plane in Massachusetts noted that while they would like to base their aircraft at Robert F. Wood Airpark, no hangars were available, or even in existence.
Terminal Facilities/Pilot Lounge: Both based pilots and transient pilots noted that a new or upgraded terminal building and pilot lounge is desperately needed at the airport. One pilot noted that the airport's terminal should match the reputation of the area.
Restaurant: Mainly transient pilots noted that they would like to see a restaurant located at the airport.
Full Service FBO: A full service FBO was also indicated as an important improvement at Robert F. Wood Airpark. A few respondents to the surveys noted that a good, dedicated flight instructor and aircraft rental source are needed.
Courtesy Car: Pilots noted that it would be nice to have a courtesy car at the airport and/or shuttle service to downtown Newport.
Precision/Instrument Approach: A precision instrument approach was noted as an important facility improvement for the airport. Many pilots indicated that it would be useful to have a GPS or ILS approach for Runway 4/22. It was also indicated that a VASI on Runway 16/34 would be useful.
Additional Runway Length: Pilots also indicated the relative need for a runway extension at Robert F. Wood Airpark, namely on Runway 4/22. The desired runway length noted by pilots ranged from 4,000 to 5,000 feet.
Parallel Taxiway: Several pilots noted the desire for a full parallel taxiway for Runway 16-34.

Other facility and service improvements at Robert F. Wood Airpark noted by pilots participating in the surveying effort included aircraft maintenance, tiedown area lighting, automatic access to the ramp for autos, and having an attendant on the field later than 5pm. If improvements were made to the airport, the survey respondents noted that would conduct approximately 4,100 more operations at Robert F. Wood Airpark annually.

3) North Central Airport Survey Results

Approximately 118 pilots using North Central responded to the survey. The top facility and service improvements at North Central noted in all survey results are as follows:

Restaurant: Pilots overwhelmingly noted that a restaurant at North Central would be a large asset to the airport.
Hangars: Both pilots with aircraft based at North Central and transient pilots indicated that hangars should be constructed at the airport. One pilot suggested that RIAC improve or replace the large aircraft storage hangar and build more T-hangars. Another pilot

noted that it would be useful if North Central had hangar space for overnight rental by business aircraft users.
Courtesy Car: Nearly all of the pilots that filled out the Transient Pilot Survey at North Central noted the need for a courtesy car. One transient pilot noted that, although North Central is most convenient to their office, they often fly into Norwood, Massachusetts because their arrival is typically between 10 and 11 pm, and Norwood offers rental cars and a courtesy car.
Precision/Instrument Approach: Both pilots with aircraft based at North Central and transient pilots noted the desire to have a precision approach to the airport. Many pilots noted that an ILS would be most beneficial. One pilot noted that an ILS to Runway 5 would make it safer to land at the airport and would increase airport utility under poor weather conditions. Pilots also indicated that a VASI on Runway 5 would be helpful.
Full Service FBO**:** Several pilots noted that they would like to have a full service FBO at North Central.
Terminal Facilities/ Pilot Lounge: Numerous pilots indicated the desire for an improved terminal building. Comments included that the current terminal is an "embarrassment visually" and that the terminal should be "presentable" and "more inviting".
Aircraft Maintenance: Pilots with based aircraft at North Central and transient pilots noted that it would be beneficial to have aircraft maintenance offered at the airport

Other facility upgrades noted on the surveys included a full parallel taxiway for Runway 15/33, repaving of the ramp and Runway 5-23, improved apron and tiedown area lighting, and the addition of an air traffic control tower. Survey respondents also pointed out that the Unicom frequency (122.7) for North Central should be changed because it is too congested. It was also noted that the airport should lower fuel prices to compete with Massachusetts's airports. Several pilots indicated that skydiving operations at the airport pose safety hazards to other pilots. If RIAC addressed these noted facility and service needs, the respondents indicated that they would fly 3,800 additional operations at North Central annually.

4) Quonset Airport Survey Results

The top facility and service upgrades and improvements for Quonset as noted in all surveys are listed below. The surveys were completed by 55 pilots either living in Rhode Island or visiting the airport from out of state.

Hangars: Pilots noted in the surveys that additional hangars are the most needed facility upgrade at Quonset. One pilot noted that if Hangar 1 could be repaired for less than the cost of tearing it down, it could provide space for many aircraft and businesses.
Aircraft Maintenance: Many pilots noted the need for a full time aircraft mechanic.
Full Service FBO: Pilots with aircraft based at Quonset noted that FBO services are needed. One pilot indicated that a modern but simple FBO would be a big asset at the airport.

Terminal Facilities/Pilot Lounge: Many transient pilots noted that the terminal needs a face-lift and a nicer pilot lounge.
Restaurant: Transient pilots noted the importance of a full-service restaurant at the airport.
Ground Transportation: Many transient pilots noted the need for ground transportation services at the airport. Pilots would like to see either a courtesy car and/or rental car capabilities at Quonset.
Increased Security: Several pilots noted the desire for increased security at Quonset.

Other facility upgrades noted by pilots included repaving the ramp, runways, and taxiways; a full parallel taxiway for Runway 5/23; visual NAVAIDS for Runway 5/23; 24-hour fuel availability; and the removal of abandoned buildings in front of the terminal (since completed). Pilots also noted that they would like to see the museum cleaned up and more courtesy from the tower. Several pilots noted that if facilities were upgraded, Quonset could complement T.F. Green, providing a better place for general aviation activity. Other pilots would like to see a new terminal built at Quonset for international commercial flights. Others indicated the desire to move cargo operations (FedEx, UPS) from T.F. Green to Quonset. According to the survey results, an additional 3,000 operations would be made at Quonset each year if these facility and service needs were addressed by RIAC.

5) T.F. Green Airport Survey Results

Many of the state's pilots either base aircraft at or regularly fly out of T.F. Green. Sixty-six pilots completed and returned the surveys. The top facility need indicated through the surveys was additional hangars for general aviation aircraft. Other facility needs noted included additional tiedowns, especially for temporary aircraft parking, and a taxiway extension for Runway 5/23. Respondents also noted that a full service FBO (in addition to NorthStar) would be beneficial. Many respondents also thought a runway extension at T.F. Green for Runway 5/23 to accommodate more of the commercial flights would be appropriate. Other pilots noted that either lengthening Runway 16/34 or adding an overrun would help make the runway safer. If the improvements noted in the survey were made to T.F. Green, the survey respondents indicated that they would fly an additional 4,300 operations at T.F. Green each year.

6) Westerly Airport Survey Results

Through the surveying effort, over 50 pilots that use Westerly Airport recognized needed facility upgrades. The top recommendations are listed below.

Restaurant: Survey respondents overwhelmingly indicated that a restaurant was needed at Westerly. One pilot said that RIAC should invest in preparing the available space at the terminal for a restaurant in order to make it more attractive to a prospective operator. Another pilot noted that coffee and vending machines should be offered at the airport.

Ground Transportation: Both transient pilots and based pilots noted the need for ground transportation. Since the airport serves a vacation area and the Foxwoods casino, pilots noted that rental car operation might be useful. Many pilots also stated that a courtesy car would be beneficial.
Precision/Instrument Approach: Several pilots noted that they would like to have a precision/instrument approach to Westerly. An ILS, GPS, and NDB were all mentioned as suggested approaches.

Full Service FBO: Many pilots with aircraft based at Westerly noted that they would like to see a full service FBO at the airport.
Lighting: Pilots indicated that the runway approach lighting at Westerly needs to be updated. Several pilots noted that they would like to see VASI on all the runways. Other pilots noted that the current beacon is poor, and would like to see it replaced with one that can be seen better at night.
Fuel (100LL): Pilots with aircraft based at Westerly noted the relative need for 100LL fuel at the airport.

Many survey respondents noted that the recent improvements at Westerly have been appreciated. Several pilots indicated that an active, attended Unicom response system is also needed at the airport. The pilots noted in the survey, that if these suggested facility and service improvements were implemented, they would fly approximately 1,600 additional operations at Westerly each year.

B. Statewide Summary

Combined, 254 surveys were completed and returned. Table 640-04(10) presents the top facility and service needs noted by pilots in the surveys. According to the results of the three surveys (Aircraft Owner Survey, Resident Pilot Survey, Transient Pilot Survey), an additional 18,000 annual operations would be generated by these users alone if the facilities and services noted for each airport were implemented or upgraded. However, it should be noted that it might not be feasible to provide all of the facilities and services desired by the airport users. Environmental concerns, lack of community support, insufficient funds, and statewide need are just a few reasons why some of the facility upgrades may not be practical. Recommendations and prioritization for the facility and service needs of the Rhode Island airport system will be analyzed in subsequent chapters of the ASP.

In addition to the individual airport needs, many of Rhode Island's airport users also made comments regarding the airports overall condition and operations.

Table 640-03 (10) Summary of Survey Results

	Top Facility/Service User Needs					
Airport	**1**	**2**	**3**	**4**	**5**	**6**
Block Island	Additional Runway Length	Terminal/ Pilot Lounge	Fuel (100LL)	Paved Tiedowns	Additional Aircraft Parking	Precision Approach/ ILS
Robert F. Wood Airpark (Newport)	Hangars	Terminal/ Pilot Lounge	Restaurant	Full Service FBO	Courtesy Car	Precision/ Instrument Approach
North Central	Restaurant	Hangars	Courtesy Car	Precision/ Instrument Approach	Full Service FBO	Terminal/ Pilot Lounge
Quonset	Hangars	Aircraft Maintenance	Full Service FBO	Terminal/ Pilot Lounge	Restaurant	Ground Transportation
Westerly	Restaurant	Ground Transportation	Precision/ Instrument Approach	Full Service FBO	Lighting	Fuel (100LL)

Source: Rhode Island Airport Surveys.

Several pilots noted that Rhode Island must repeal the sales tax on aircraft and remove the tax on fuel in order to be more competitive, and in January 2005, the state was successful in repealing the sales tax. Many pilots emphasized the need for hangars in the entire state. Other pilots noted the need for professional, full service FBOs at all Rhode Island airports, including flight schools, aircraft rental, and fuel. Several airport users suggested that RIAC look to airports in other states as examples of "good" general aviation airports. While several pilots noted that they were happy with the condition of Rhode Island's airports, many pilots indicated an overall need for facility upgrades and improvements at all of the state's airports.

03-02 T.F. Green Operations and Forecasts

The following summarizes existing operations; industry trends; and forecasts relative to T.F. Green. The information provided has been extracted from the T.F. Green Airport Improvement Program, Environmental Impact Statements (EIS) prepared for the Federal Aviation Administration; DEIS published July 2010 and the FEIS published July 2011. It represents the most current information available on the topic at this time. For additional information please refer to the EIS in its entirety.

Table 640-03(11) Summary of Enhanced Growth Projections at General Aviation Airports in Rhode Island

Airport	Year	Demand Projections Based Aircraft	GA Operations	Commercial Operations	Total Operations	Enplanements
Block Island						
	2009	3	8,985	5,497	14,482	8,425
	2014	3	10,100	6,300	16,400	9,200
	2019	3	11,500	6,550	18,050	10,200
	2029	4	14,600	7,150	21,750	12,800
Robert F. Wood Airpark (Newport)						
	2009	41	20,491	0	20,491	0
	2014	42	23,100	0	23,100	0
	2019	44	26,100	0	26,100	0
	2029	49	33,300	0	33,300	0
North Central						
	2009	111	18,628	0	18,628	0
	2014	115	21,000	0	21,000	0
	2019	120	23,800	0	23,800	0
	2029	133	30,300	0	30,300	0
Quonset						
	2009	25	22,597*	0	22,597*	0
	2014	26	25,500	0	25,500	0
	2019	27	28,800	0	28,800	0
	2029	30	36,800	0	36,800	0
Westerly						
	2009	47	15,265	5,501	20,766	8,744
	2014	49	17,200	6,300	23,500	9,700
	2019	51	19,500	6,550	26,050	10,900
	2029	57	24,800	7,150	31,950	13,900
TOTAL						
	2009	227	85,966	10,998	96,964	17,169
	2014	235	96,900	12,600	109,500	18,900
	2019	245	109,700	13,100	122,800	21,100
	2029	273	139,800	14,300	154,100	26,700

*Includes military operations
Commercial operations include operations by all-cargo carrier as well as passenger carriers. Total passenger projections were halved in order to develop enplanement projections for this Study.
Source: Wilbur Smith Associates

03-02-01 Existing Operations and Markets Served *(for T.F. Green)*

T.F. Green Airport served over 4.3 million passengers with over 227 daily aircraft operations in 2009.[3] In 2004, the baseline analysis year for the FEIS published in July 2011, 5,509,186 million air passengers were served, including 5,463,610 domestic scheduled passengers, 13,871 domestic charter passengers, and international scheduled passengers or Caribbean or Azores charter passengers. A total of 121,428 annual operations[4] were flown in 2004, consisting of 53,764 air carrier operations, 30,957 air taxi operations, 31,055 general aviation, and 301 military operations. Table 640-03(13) shows the monthly operations at T.F. Green Airport for 2004.

From 2003 through 2004, total aircraft operations at T.F. Green Airport decreased from approximately 132,500[5] to 121,500,[6] representing a decline of 8 percent; however, during this same period, total commercial passenger enplanements and deplanements increased from approximately 5,176,000 to 5,500,000, representing a 6 percent growth.[7] This decline in operations concurrent with a growth in total passengers is because of larger aircraft in the operating fleet and higher load factors at T.F. Green Airport.

Scheduled air service at T.F. Green Airport was provided by eight major national airlines, two commuter airlines, two charter airlines, and one international airline in 2004. Two all-cargo airlines, Federal Express, United Parcel Service, also operate at the Airport.[8]

A. Role of Low Cost Carriers at T.F. Green

Low cost carriers (LCC) have had an influential role on the passenger demand at T.F. Green Airport and the region. Southwest Airlines' inauguration of low cost carrier services to T.F. Green Airport in 1996 caused a dramatic growth of traffic. This resulted both from the capture of passengers that had previously used Logan, and through generation of altogether new traffic, the so-called "Southwest effect". However, the recent increase in LCC presence at Logan and increases in competition among legacy carriers has caused further shifts in traffic at T.F. Green Airport.

Between 2000 and 2004, T.F. Green Airport-Baltimore traffic fell by over 220,000 passengers, or 28 percent. During the same period, Logan-Baltimore traffic expanded by over 224,000 passengers, or an 86 percent increase. Both T.F. Green Airport and Logan obtained LCC service to Philadelphia, and T.F. Green Airport saw particularly strong growth.

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3 *T.F. Green Airport – Monthly Airport Passenger Activity Summary*, December 2009, Rhode Island Airport Corporation.
4 An aircraft operation is a landing, take-off or touch-and-go procedure on a runway.
5 *Terminal Area Forecast*, FAA, Aviation Policy and Plans, 2003.
6 Supporting Attachment D.A.2, *Air Passenger and Operations Forecast.*
7 *Passenger Enplanements*, Rhode Island Airport Corporation, 2003-2004.
8 One other all-cargo airline (DHL) operated at the airport in 2004, the EIS existing year, until 2008.

Table 640-03(12) Summary of Growth Projections in Rhode Island GA Airports

		Demand Projections					Enhanced Growth Projections				
Airport	**Year**	**Based Aircraft**	**GA Operations**	**Commercial Operations**	**Total Operations**	**Enplanements**	**Based Aircraft**	**GA Operations**	**Commercial Operations**	**Total Operations**	**Enplanements**
Block Island											
	2001	7	9,674	8,081	17,755	10,947	7	9,674	8,081	17,755	10,947
	2021	8	12,300	10,200	22,500	14,300	12	16,800	13,500	30,300	24,000
Robert F. Wood Airpark (Newport)											
	2001	26	12,485	0	12,485	0	26	12,485	0	12,485	0
	2021	28	15,700	0	15,700	0	36	18,600	0	18,600	0
North Central											
	2001	115	65,000	0	65,000	0	115	65,000	0	65,000	0
	2021	123	81,700	0	81,700	0	188	114,000	0	114,000	0
Quonset											
	2001	19	7,927	0	14,879*	0	19	7,927	0	14,927*	0
	2021	20	10,000	0	17,000*	0	28	13,100	0	20,100*	0
Westerly											
	2001	84	6,585	8,081	14,666	9,534	84	6,585	8,081	14,666	9,534
	2021	90	8,300	10,200	18,500	13,600	122	16,200	13,500	29,700	20,900
TOTAL											
	2001	251	101,671	16,162	124,785*	20,481	251	101,671	16,162	117,833*	20,481
	2021	269	128,000	20,400	155,400*	27,900	386	178,700	27,000	205,700*	44,900

*Includes military operations

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Table 640-03(13) Aircraft Operations 2004

	Itinerant[1]						
Month	**Air Carrier[2]**	**Air Taxi[3]**	**General Aviation[4]**	**Military**	**Total**	**Local Civilian[5]**	**Total**
January	3,758	1,485	1,641	27	6,911	298	7,209
February	3,998	1,695	2,599	28	8,320	760	9,080
March	4,511	2,078	2,302	23	8,914	538	9,452
April	4,100	1,712	2,358	17	8,187	412	8,599
May	4,285	2,088	2,600	39	9,012	214	9,226
June	4,535	2,808	3,073	40	10,456	719	11,175
July	4,661	3,417	3,248	33	11,359	425	11,784
August	4,700	3,516	3,131	18	11,365	458	11,823
September	4,458	3,542	3,069	29	11,098	295	11,393
October	4,495	3,197	2,808	26	10,976	442	11,418
November	4,834	2,916	2,325	17	10,092	368	10,460
December	4,979	2,503	1,901	4	9,387	422	9,809
Total	**53,764**	**30,957**	**31,055**	**301**	**116,077**	**5,351**	**121,428**
Average Daily	147	85	85	1	318	15	333

Source: Rhode Island Airport Corporation.
1 Itinerant aircraft operations are reported on the basis of "place arrived from" or " place departed to", i.e., operations that leave the airport's airspace.
2 Air Carrier – Aircraft with passenger seating configuration of more than 30 seats. Includes charter.
3 Air Taxi – Aircraft having a maximum passenger seating configuration of 30 seats or less.
4 General Aviation – rotorcraft or fixed wing aircraft.
5 Local – those aircraft that remain within T.F. Green Airport's local air traffic area (e.g., touch and go training flights).

It is important to note that changes in the business models for the LCCs will shape the future role of legacy carriers. While LCCs are very strong in today's national market (43 percent of the share[9]), legacy carriers are restructuring and cutting costs so that their business models are likely to become more in line with those of the LCCs. The future competition between the legacy and LCCs will add to the volatility of the market and the influence of low fares and service choices.

03-02-02 Aviation Industry Trends *(for T.F. Green)*

- The 2008-2009 national and global economic recession resulted in declines in aviation activity at most airports in the nation, including T.F. Green Airport. The FAA predicts that aviation activity will grow over the long-term as the economy

[9] According to the FAA's Aerospace Forecast 2005-2016.

improves. Regionally, New England accounts for 80 percent greater air passenger trips per capita than the national rate.[10] However, air traffic is not predicted to rise to prior forecast levels even when the economy recovers because of the absence of significant price cuts in the near term.[11] The airline industry's response to aftermath of the events of September 11, 2001 was to stimulate demand by reducing fares sharply. The industry's response to the 2008-2009 economic recession has been to match supply (seats, or flights) and demand (passengers) by modestly reducing fares and dramatically reducing capacity.[12] Also, there is a trend in the airline industry to lease aircraft rather than to own aircraft outright. Presently, approximately 34 percent of air carrier aircraft are leased and it is projected to increase to 50 percent by year 2019[13]. This trend toward leasing allows airlines greater flexibility in adjusting the number of aircraft and aircraft models in their fleet mix based on passenger demand on any given route.

- Implications for T.F. Green: In the midst of challenging airline economics and global economic conditions, airports such as T.F. Green will need to provide necessary facilities to accommodate long-haul traffic more effectively to meet its market demand. Although the airline industry is cutting its capacity resulting in reduced overall aviation activity demand, T.F. Green Airport must remain efficient and flexible to meet existing demands and attract and grow service to new markets. Primarily due to national and global economic conditions and fluctuating fuel prices, the airline industry is volatile and difficult to predict. T.F. Green Airport cannot assume that any one carrier will continue to serve passengers through the planning period. As a result, airlines require more operating flexibility to serve key markets and deploy the appropriate aircraft to achieve profitability.

- Despite having a reputation for offering low fares through LCC services, T.F. Green Airport has lost passengers to LCCs that entered the Logan Airport market with non-stop, long-haul flights.

- Implications for T.F. Green Airport: To continue to play a key role in serving its market area by providing air service to passengers in the Providence and eastern New England areas, T.F. Green will need to provide flexibility to airlines. This could be achieved by providing the appropriate facilities to accommodate the anticipated growth and reduce leakage rates to other airports such as Logan. The New England Regional Airport System Plan (NERASP) underscores this need, stating that "to support the economic activities of Providence and Manchester, there is a need to develop facilities to support non-stop flights from those cities to

[10] *The New England Regional Airport System Plan*, New England Airport Coalition, 2006, Page 4.
[11] *FAA Aerospace Forecast, Fiscal Years 2009-2025*, U.S. Department of Transportation, FAA Aviation Policy and Plans.
[12] *Ibid.*
[13] *Woes of Aircraft Leasing Companies Could Mean higher Ticket Prices*, Nicola Clark. New York Times, October 6, 2009.

the West Coast."[14] Appropriate facilities to support non-stop West Coast flights would include:

- Extension of the primary Runway 5-23 to serve West Coast-capable aircraft while minimizing weight penalties to the greatest extent practicable.

The NERASP study concludes that the New England airport system has the ability to meet passenger demand through 2020, but continued efforts to enhance the performance of each airport in the system are required. NERASP cites T.F. Green Airport as one of "several airports that could improve the performance of the regional system if they can overcome the challenges they face in developing the services required by their communities."[15]

- Growing demand in long-haul domestic and international markets is especially important relative to future facility requirements, and accommodating this demand is a strategic priority of LCCs and legacy airlines alike. The regulatory environment related to access to the European air service market has improved substantially with the implementation of the U.S.-European Union "Open Skies" Agreement in 2008. The NERASP study states that the T.F. Green Airport market "is approaching the size that could support non-stop service to the West Coast and select destinations in Canada, the Caribbean, and North Atlantic Europe."[16]

- Implications for T.F. Green Airport: With its current primary runway length, T.F. Green Airport does not provide flexibility for airlines to provide non-stop long-haul services with a variety of equipment. The current runway length also increases the potential for airlines to incur weight penalties on their existing routes (most likely on hotter days, which results in a higher "density altitude" and decreased takeoff performance). The limited runway length at T.F. Green Airport can prevent some carriers from meeting current and anticipated demand on long-haul and international routes. Airlines might choose to offer long-haul flights using the existing 7,166-foot runway, but could incur substantial payload penalties in doing so. In addition, terminal gate constraints could also limit T.F. Green Airport's ability to accommodate airline need for facilities. Providing the facilities to allow for service expansion would enable T.F. Green to continue to fulfill its role in the New England region to serve the needs of its market area. The current runway length also increases the potential for airlines to incur weight penalties on their existing routes (most likely on hotter days, which results in a higher "density altitude" and decreased takeoff performance).

03-02-03 Forecasts *(for T.F. Green)*

Aviation activity forecasts are necessary for planning, for decision-making, and for

[14] *The New England Regional Airport System Plan*, New England Airport Coalition, Fall 2006, Page 30.
[15] *Ibid*, Page 1.
[16] *The New England Regional Airport System Plan*, New England Airport Coalition, Fall 2006, Page 51.

review and evaluation of prospective development options.[17] Forecasts should be considered as a reasonable possibility of future demand to plan development alternatives. RIAC developed aviation activity forecasts for T.F. Green Airport as part of a strategic master planning process to guide future development at the airport. The forecast and subsequent development of alternatives are initial steps in the strategic planning process designed to allow RIAC to respond adequately with new infrastructure/facilities when they are necessary and not before the required aviation demand begins to materialize. Safety and efficiency related projects are not tied to forecast aviation demand levels.

The July 2011 FEIS forecast uses a base year of 2004 and extends to 2025, which fully brackets the 2020 evaluation period. The forecast is demand-oriented since it considers the availability of services from T.F. Green Airport as well as the two other major airports serving the eastern New England region, and gives consideration to the differences in ticket prices and services offered at the three airports.

The forecast assumes that the future level of traffic at the Boston-Manchester-Providence region airports is determined by economic growth, population, incomes, and airline industry economics. The distribution of air traffic among the three airports, T.F. Green Airport, Manchester, and Logan, will depend on the availability of air service and relative air fares. Any changes in the distribution of air service and fares will lead to changes in the traffic at T.F. Green Airport, although the fundamental relationships and rankings of the three airports will not change. For example, the forecast assumes that Logan will remain the leading gateway to the region, both domestically and internationally, and the other airports will serve as alternatives to Logan, while also serving the needs of their adjacent market areas. During any forecast period, the quantity of traffic is considered fixed, although its distribution among the different regional airports will depend on relative air fares and service. The forecast does not take into account the likely stimulative effect of new service at T.F. Green Airport by low cost carriers, and therefore is a conservative approach.

The original forecast of aviation activity developed for the July 2011 FEIS was based on realistic assumptions and methodologies at the time it was originally developed in 2004. The forecast was demand-oriented because it considered the availability of services from the Airport as well as the two other major airports serving the eastern New England region (Logan and Manchester), as well as the differences in ticket prices and services offered at the three airports. The forecast also represented the aircraft operational demand and passenger demand with T.F. Green Airport's current facilities. The forecast estimated that total passengers using T.F. Green Airport would increase from 5.5 million in 2004 to approximately 9 million by 2020 (and 10.4 million by 2025). Aircraft operations were predicted to increase from 121,428 in 2004 to 152,275 by 2020.

Since the aviation activity forecast was originally developed in 2004, however, the national and global economic recession occurred in 2008 and has affected overall aviation demand. In 2009 FAA found that the 2004 forecast for aviation activity

[17] *Understanding and Using Forecasts*, forward to "Passenger Forecasts for Logan International Airport, Richard de Neufville, pg. 1, April 20, 1991.

(referred to as the 2004 DEIS Forecast) were no longer within the FAA consistency criteria. The original 2004 forecast was adjusted in the DEIS to within an acceptable range[18] Forecasts are considered to be consistent with FAA's Terminal Area Forecast (TAF) if they differ by less than or greater than 15 percent within a minimum 10-year period.

The FAA revised the environmental analysis for the DEIS to be based on the lower baseline forecast level that was consistent with the then most recent FAA TAF at the time (published in December 2008). The revised baseline, or No-Action, forecast was referred to as the 2009 EIS Forecast. As required by FAA guidance, this forecast was within ten percent of the FAA's TAF published in December 2008. Not withstanding the economic downturn, the FAA determined that there was still current anticipated demand for commercial non-stop service to the West Coast markets from T. F. Green Airport. The 2009 EIS Forecast revision did not alter the forecast of aviation activity associated only with the implementation of the Proposed Project alternatives.

The variation in forecasts does not invalidate the use of the 2004 EIS Forecasts in the Purpose and Need analysis. The proposed Projects are primarily intended to fulfill two goals: improve safety and efficiency. Safety improvements, such as the Runway Safety Areas and relocation of Taxiway C, are needed regardless of how many passengers utilize the Airport. Efficiency improvements, such as the runway extension, can still benefit the passengers forecasted to use the Airport. The benefits will simply be realized by fewer people in the near-term. Very few of the proposed improvements relate to airport capacity. Capacity, related improvements, such as increased number of gates and increased cargo capacity, are directly affected by the downturn in the forecasts.

Since the DEIS was filed in July of 2010, the FAA updated the TAF for T. F. Green Airport. The FAA evaluated the 2010 Draft TAF (the latest TAF information available at the time of the FEIS analysis) and adjusted the FEIS No-Action Alternative Forecast to within 10 percent of the 2010 Draft TAF thus meeting FAA's consistency criteria. Appendix E in the July 2011 FEIS, *Purpose and Need and Alternatives* outlines the forecasting assumptions, methodology, and results. The methodology used to adjust the FEIS Forecast considered changes in the individual aircraft operator categories within the TAF.

The forecast is still based on the following assumptions:

- Economic growth will continue, but at somewhat lower rates than those expected by the Federal Reserve Bank.
- Fuel prices will remain volatile, but will increase through the forecasting period because of increasing demand from the developing countries of Asia.
- Airline costs for labor will rise at nominal rates.

[18] *FAA Advisory Circular 150/5070-6B, Airport Master Plans, Change 1, U.S. Government Printing Office, Washington, DC, May 1, 2007.*

- Airline and aircraft technical efficiencies will continue to improve, but at diminishing rates.
- Low cost carriers will continue to grow at Logan with the addition of Southwest Airlines in August 2009, causing fares to continue to fall at Logan and thus reducing the price advantage held by T.F. Green Airport for the past decade.
- Both legacy and LCC will continue to increase their service at T.F. Green Airport. However, new route activity will continue at a slower pace than was seen immediately following Southwest Airlines' entry in 1996.
- Growing congestion and delays at other airports, particularly Logan, will not be a significant factor in the growth of traffic at T.F. Green Airport.[19]
- An average annual growth rate in passenger traffic of 2.9 percent was assumed through 2012 and an overall of 3.1 percent average growth rate through 2020.
- No legal or administrative measures can be applied to shift passengers and flights among the three primary airports in the region (Logan, Manchester and T.F. Green Airport).
- T.F. Green Airport's air fares will rise. While the LCC at T.F. Green Airport are already highly efficient and charge very low fares, they will need to pass on to their customers any increases in fuel prices. Similarly, their relatively young labor force has growing salary expectations that will need to be reflected in their fare structure.
- Some airlines and types of aircraft cannot operate long-haul domestic flights from the current runway at T.F. Green Airport[20] because of its relatively short length. Some airlines might use the existing 7,166-foot runway for such flights, but would incur payload penalties to do so, thus reducing their profits.

A. Unmet Demand for New Service

New air services, particularly by LCCs, can increase traffic at T.F. Green Airport, both by redistributing traffic among the region's airports, and by fostering altogether new traffic. The 1996 inauguration of service by low cost carrier Southwest Airlines caused several years of rapid growth. The current forecasts now assume lower growth rates commensurate with a mature market. For the analysis, several routes were identified as representative of the types of demand T.F. Green Airport would be able to meet now and possible routes for the future considering existing facility constraints. Table Figure 640-03(14) outlines the new air service assumptions used to develop the forecast.

[19] Although the forecast assumes that congestion and delays at Logan will not be a significant factor in the growth of traffic at T.F. Green, the reduction of demand and congestion at Logan would be a benefit of the T.F. Green Proposed Airport Improvement Program.

[20] At least without some level of operating restrictions during high temperature periods.

Table 640-03(14) Unmet Demand: Possible New Destinations with Existing Airfield Facilities

Destination	Rationale
Pittsburgh	Possible new destination by Southwest.
Raleigh-Durham	Discontinued service by American Eagle suggests that route has long-term prospects.
West Palm Beach	Conspicuous gap in the Florida market.
Houston	Would restore service that previously operated in 2000.

Source: InterVISTAS Consulting, Inc., 2004.

B. Passenger Forecasts (No Action)

The 2004 EIS Forecast assumes that air passenger traffic matures, that is, that the initial high rate of growth in air passengers slows after new carriers become established. From 1995 to 2000, passenger activity levels expanded by 20.1 percent annually, reflecting the immediate consequences of Southwest Airlines' entry in 1996. Through 2020, the 2004 EIS Forecast passenger activity levels were expected to grow at 3.1 percent annually, while the 2009 EIS Forecast passenger activity levels were expected to grow at 1.2 percent annually and the 2011 FEIS Forecast passenger activity levels are expected to decline through 2015 then gain roughly 2 percent annually through 2020. Table 640-03(15) summarizes the EIS Forecasts of passenger traffic prepared in 2009 and 2011.

The operations accommodate the growing traffic through changes in the fleet mix and the number of flights. The 2004 EIS Forecast predicted that operations would increase to 143,096 annual flights by 2015. The 2009 EIS Forecast reflected the national economic conditions and its effect on air travel, therefore the forecast predicted lower total aircraft operations in 2015 than T.F. Green recorded in 2004. The 2009 EIS Forecast predicted that aircraft operations would increase again after 2015 at a similar rate as the same time period in the 2004 EIS Forecast. The 2011 FEIS Forecast predicts a similar projection in aircraft operations. General aviation and military aviation have been static at T.F.

Table 640-03 (15) Forecast Annual Passengers (No-Action)

	2009 EIS Forecast Passengers		2011 FEIS Forecast Passengers	
Year	Total	Percentage Change	Total	Percentage Change
2004	5,509,186	-	5,509,186	-
2015	5,951,119	8.0%	5,274,876	-4.3%
2020	6,694,257	12.5%	5,844,797	10.8%

Note: The 2004 EIS Forecast data remains a valid basis for the determination of Purpose and Need because the projects proposed by RIAC at T.F. Green are related to safety and efficiency of the airport, and not related to the overall capacity of the airfield to accommodate a forecast aviation activity demand level. Enplaned plus Deplaned. With Existing Facilities (Future No-Action).

C. Operations Forecasts (No Action)

The operations forecasts reflect the aircraft traffic growth expected associated with the passenger forecasts. Table 640-03 (16) summarizes the operations forecast for the 2009 EIS and 2011 FEIS Forecasts.

Table 640-03 (16) Summary of Forecast– Annual Aircraft Operations (No Action)

	2009 EIS Forecast Operations		2011 FEIS Forecast Operations	
Year	Total	Percentage Change	Total	Percentage Change
2004	121,428		121,428	
2015	103,245	-15.0%	93,500	-23.0%
2020	109,913	6.5%	99,330	6.2%

Notes: The percentage of change in annual operations differs and is lower than the percentage of change in annual passengers as identified in Table 640-03(15). The increase can be attributed to increasing load factors, and the airlines running more efficiently with a more efficient fleet. The 2004 EIS Forecast data remains a valid basis for the determination of Purpose and Need because the projects proposed by RIAC at T.F. Green are related to safety and efficiency of the airport, and not related to the overall capacity of the airfield to accommodate a forecast aviation activity demand level. Either a landing or a take-off. With Existing Facilities (Future No-Action).

Green Airport. The 2004, 2009 EIS and 2011 FEIS forecasts assume that both sectors remain at 2004 levels of activity. North Central Airport (Smithfield) and Quonset Airport are predicted to accommodate Rhode Island's corporate and general aviation growth. Military aviation activity will remain limited and intermittent.

1. Fleet Mix

In the July 2011 FEIS, the same types of aircraft operating in 2004 are forecast to serve T.F. Green Airport in the future. The fleet mix anticipates that single-aisle narrow-body aircraft of 120 to 150 seats will operate most flights from T.F. Green Airport. Narrow-body aircraft would operate all of the potential future long-haul services. The forecast relies on narrow-body aircraft of gradually increasing size (in terms of seating capacity). In 2004, the average seat capacity was 137; which is anticipated to grow to 142 seats by 2012. Wide-body aircraft would be deployed on a few high density routes such as to Chicago and Atlanta. The forecasts call for service by 767-300 aircraft, or similar-sized replacements such as the 787, on the few high density routes. The 767-300 remains the "design aircraft" with the 2009 EIS Forecast. None of the fleet mix forecasts include large wide-body aircraft such as the 777, 747, 330 or A-380. Some charter flights to the Azores have used A-330s; however, the projected frequencies of such operations are inconsequential.

The most recent Official Airline Guide (OAG) data for 2009 was reviewed to determine if the scheduled passenger air carrier fleet mix assumptions in the 2004 EIS Forecast were still valid. The 2009 EIS Forecasts and 2011 FEIS Forecasts simply scaled down the 2004 forecast, therefore the percentage of aircraft operations performed by each aircraft type remains consistent with the 2004 EIS Forecast.

The OAG data provides the scheduled aircraft type (aircraft type/series; for example, Boeing 737-700). The OAG data was compared to the EIS Forecast years (2012, 2020, and 2025), and was consistent with the most prevalent air carrier jets and the EIS Forecast of Air Carrier operations. For example, the B737 Classic Series (-300/400/500; out of production) makes up 13.4 percent of the 2009 OAG Air Carrier fleet and 12.6 percent to 10.8 percent of the 2012 to 2025 EIS Forecast Air Carrier fleet. The B737 Next Generation Series (-700/800; in production) makes up 25.3 percent of the 2009 OAG Air Carrier fleet and 32.0 percent to 38.1 percent of the 2012 to 2025 EIS Forecast Air Carrier fleet.

D. Cargo Operations

The forecasts assume no significant change to the make-up of air cargo (i.e., the share of air freight and air mail) at T.F. Green Airport, but the volumes will increase over time (see Table 640-03 (17)). The integrated cargo operators such as Federal Express and United Parcel Service will continue to meet most of Rhode Island's needs for air cargo. They will continue to serve both premium small package and heavy freight, and will accommodate growing quantities of air mail. The passenger airlines will continue carrying air freight. It is assumed that the USPS will transport mail via integrated cargo carriers and not as belly cargo.

Table 640-03 (17) Forecasts of Air Cargo

Year	Freight (pounds)	Mail (pounds)
2004	30,620,798	8,210,165
2012	36,277,135	9,263,895
2015	39,381,261	9,586,309
2020	44,687,922	10,223,048

Source: July 2011 FEIS *Appendix E: Purpose and Need And Alternatives*

E. Build Scenario Forecasts

Passenger Forecasts

Table 640-03 (17) summarizes the forecast of passenger traffic for the No-Action and Build Scenarios from the FEIS analysis, for Alternative B4. The Build Scenario FEIS Analysis for Alternative B4 uses the revised 2011 FEIS Future No-Action forecast as its baseline.

By 2020, the additional services, incorporated in the Build Scenario, FEIS Analysis Alternative B4 would represent up to 13 percent of T.F. Green's passenger throughput. The forecast scheduled non-stop transcontinental flights would account for a portion of this passenger traffic. Some of the passengers on these flights already use T.F. Green, and would shift from indirect services (e.g., T.F. Green to San Diego via Philadelphia) to the non-stop flight. Other passengers would be attracted to T.F. Green from Logan or Manchester; they account for the total change in the Airport's traffic shown above. A third component, representing altogether new passengers, and not served out of any existing airport, would be encouraged to travel by the additional non-stop services.

Table 640-03 (18) Summary Enplaned-Deplaned Passenger Forecasts for No-Action and FEIS Analysis Build Scenario-Alternative B4

	Incremental Build Alternatives				Future No-Action Alternative	Total Build
	Domestic Long Distance	Expanded Charter	International Scheduled	Total		
2004	—	—	—	—	5,329,356	5,329,356
2012	—	—	—	—	4,988,529	4,988,529
2015[1]	548,187	124,100	93,440	765,727	5,303,085	6,068,812
2020[2]	549,689	124,440	93,696	767,825	5,876,589	6,644,414
2025	635,736	124,100	93,440	853,276	6,519,307	7,372,583

Source: 2004 aircraft operations and passengers data provided from T. . reen Airport Monthly Airport Pa enger Activity Su ary, Rhode Island Airport Corporation, December 2004; Forecast aircraft operations and passengers adjusted by Vanasse Hangen Brustlin (2009, 2010) from FAA's Terminal Area Forecast, TAF (2008, 2010 Draft).

1 Alternative B4 runway extension opens in 2015.

2 Alternative B2 runway extension opens in 2020. In the years prior to 2020, the Alternative B2 total is the Future No-Action Case.

Operations Forecast

The operations forecast reflect the aircraft traffic growth expected from the passenger forecast. Growing traffic prompts changes in the fleet mix and the number of flights, the operations accommodate the growing traffic. Table 640-03 (18) summarizes the commercial operations forecast of the No-Action (2004 and 2009 EIS Forecasts, where appropriate) and Build Scenario (Level 6).

The Build Scenarios FEIS Analysis, Alternative B4 assumes that frequencies for the new long-haul services will be limited by the market. Los Angeles, San Francisco, and San Diego were forecast to receive a maximum of two non-stop flights daily when the runway extension would be operational. Seattle, San Jose, London and the Caribbean charter non-stop flight were forecast to operate on a daily frequency when the runway extension would be operational.

The No-Action Scenario relies on narrowbody aircraft, of gradually increasing size. In 2004, the average seat capacity was 137; this will grow to 143 seats by 2019. Widebody aircraft, particularly the 767-300 or its later counterparts, would operate some high density domestic routes. The future aircraft fleet mix will be similar to the existing fleet mix. The No-Action Scenario does not anticipate service by aircraft such as the A-380, 747, or 777.

The Build Scenarios FEIS Analysis, Alternative B4 relies entirely on narrowbody aircraft of 120-190 seats. The proposed London route would be operated by a 737-900 extended range aircraft or a later equivalent. Caribbean charter flights would use aircraft similar to the 757-200, although widebody equipment such as the 747 or 777 might see intermittent use at T.F. Green. The forecast assumes that all transcontinental flights would be operated by single-aisle A-319, A-320, and 737 aircraft.

Table 640-03 (19) Operations Forecast for No-Action and Build Scenario FEIS Analysis (Alternative B4)

	Incremental Build Alternatives				Future No-Action Alternative	Total Build
	Domestic Long Distance	Expanded Charter	International Scheduled	Total		
2004	—	—	—	—	121,873	121,873
2012	—	—	—	—	90,178	90,178
2015[1]	7,300	730	730	8,760	93,500	102,260
2020[2]	7,320	732	732	8,784	99,330	108,114
2025	7,300	730	730	8,760	105,551	114,311

Source: 2004 aircraft operations and passengers data provided from T. . reen Airport Monthly Airport Pa enger Activity Su ary, Rhode Island Airport Corporation, December 2004; Forecast aircraft operations and passengers adjusted by Vanasse Hangen Brustlin (2009, 2010) from FAA's Terminal Area Forecast, TAF (2008, 2010 Draft).

1 Alternative B4 runway extension opens in 2015.

2 Alternative B2 runway extension opens in 2020. In the years prior to 2020, the Alternative B2 total is the Future No-Action Case.

03-03 Conclusion

In 2004, the baseline analysis year for the EIS, T.F. Green Airport served 5,509,186 million air passengers, including 5,463,610 domestic scheduled passengers on eight major national airlines and two commuter airlines. In addition, charter and international airlines served 13,871 domestic charter passengers, international scheduled passengers, and Caribbean or Azores charter passengers. A total of 121,428 annual operations[21] were flown in 2004, consisting of 53,764 air carrier operations, 30,957 air taxi operations, 31,055 general aviation, and 301 military operations. In 2008, the Airport served over 4.7 million passengers with over 250 daily aircraft operations. The airlines' response to the decreased passenger demand during the 2008-2009 recession has been to reduce the amount of flights (operations). The decrease in operational and passenger demand is consistent with the short-term national trend due to the economic recession.

Low cost carriers (LCC) have had an influential role on the passenger demand at T.F. Green Airport and the region. Southwest Airlines' inauguration of low cost carrier services to T.F Green Airport in 1996 caused a dramatic and sustained growth of traffic. This resulted both from the capture of passengers that had previously used Logan, and through generation of altogether new traffic, the so-called "Southwest effect". However, the recent increase in LCC presence at Logan and increases in competition among legacy carriers has caused further shifts in traffic at T.F. Green Airport. Currently, Logan is providing more LCC services than T.F. Green Airport and is successful in attracting passengers that formerly chose T.F. Green Airport. There is evidence of leakage from the T.F. Green catchment area to use non-stop West Coast airline service from Logan.

The aviation industry is rapidly changing, with legacy carriers merging or restructuring, air carriers moving into new airports and offering new services, and future growth in air travel demand dependent on national and global economic conditions. The airline industry is and will remain volatile and unpredictable. Airports must respond quickly and effectively to changes in the airline industry. As noted in the NERASP, "it is important that airport facilities maintain the ability to accommodate and quickly adjust to increases in demand in order to support cycles of economic expansion. This requires leading rather than reacting to passenger requirements. Investing for demand that is supported by an airport's catchment area characteristics is different from "build it and they will come" development."[22]

The forecast assumes that the future level of traffic at the Boston-Manchester-Providence region airports is determined by economic growth, population, incomes, and airline industry economics. The distribution of air traffic among the three airports, T.F. Green Airport, Manchester, and Logan, will depend on the availability of air service and relative air fares. The forecast originally developed for the EIS in 2004 was based on realistic assumptions and methodologies at the time. Since the 2004 EIS Forecasts were originally developed, a national and global economic recession has occurred that has

[21] An aircraft operation is a landing, take-off or touch-and-go procedure on a runway.
[22] The New England Regional Airport System Plan, New England Airport Coalition, 2006, Page 19.

affected overall aviation demand. Nationwide, air passenger demand has decreased. FAA predicts that growth in aviation demand will start again, when national and global economic conditions improve.[23] However, FAA notes in its 2009 national forecast that "while demand for air transportation has proven to be resilient over time in the face of numerous challenges, there is a greater degree of uncertainty around the FAA's current forecast of aviation demand than in the past."[24] This uncertainty is due to the fact that the current recession has been the result of numerous factors, and "the extent and magnitude of these effects and their linkages to air transportation demand are not completely evident yet."[25]

The FAA's updated national forecasts vary well over 30 percent in 2020 compared to the 2004 EIS No-Action forecast. However, this variation does not invalidate the use of the 2004 EIS Forecast in the EIS Purpose and Need because the projects proposed by RIAC at T.F. Green are related to safety of the airport and to meet the flexibility and current and anticipated demand for non-stop long-haul service to the greatest extent that is prudent and feasible and provide flexibility for the airlines. As a result of the comparison with FAA's most recent TAF, an updated forecast was developed to promote a forecast range based on lower levels of aircraft operational and to determine the environmental consequences of FEIS Alternatives Analysis. The 2011 FEIS Forecast for Build Scenario FEIS Analysis reflects the nationwide downturn in aviation activity.

Regardless of the recent downturn in aviation activity, aircraft operations and passenger demand will start to increase as the global and national economy improves. The forecasts detailed in this section reflect a long term growth in aviation activity through the EIS planning period.

[23] *FAA Aerospace Forecast: Fiscal Years 2009-2025*, U.S. Department of Transportation, Federal Aviation Administration, Aviation Policy and Plans.
[24] *Ibid*, page 50.
[25] *Ibid*.

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640.04 Airport and System Performance

04-01 Airport and System Performance Measures

In conducting airport system planning it is important to have an understanding of the current "condition" of the system to establish the base measure against which to assess future performance. This measuring process requires (a) defining the functional roles of each airport and (b) establishing a system of measures by which to quantify performance.

On one hand the assessment process will utilize reasonably well defined aviation parameters, but it must also be understood that quantifying or measuring the individual results can be somewhat subjective. In summary, the assessment provides a general understanding of the airport and system performance.

Each of the six airports in Rhode Island's system has a functional role but they also service various types and levels of demand. As a result, though similar in some regards they can also service their roles differently. As an example; while T.F. Green is the State's only primary commercial service airport, with a focus on scheduled airline service, it also plays a role in meeting general aviation needs. Conversely, while Westerly and Block Island are considered to be primarily GA airports, they also have limited commercial service.

04-01-01 Functional Roles

A number of factors were used to determine the current contribution of each airport to Rhode Island's air transportation and economic needs. First, the airports were categorized according to their functional roles. Then, the planning factors established at the beginning of this planning process were translated into system performance measures against which the performance of each airport and the performance of the overall system were evaluated. Chapter 640.02, Inventory and Roles, identified and discussed factors that determined each airport's current role and contribution to the system. The following is a brief description of airport roles.

Primary Commercial Air Service (P) airports, such as T.F. Green, are developed to accommodate scheduled commercial airline service. Primary Commercial Service airports have greater than 10,000 passenger enplanements as recorded by the U.S. Department of Transportation (US/DOT). These airports also receive FAA AIP entitlement funds that are based on the enplaned passenger count. They are also capable of supporting cargo, charter and general aviation activities. In terms of GA activity the emphasis is on corporate aircraft operations because they can accommodate the larger GA aircraft.

Commercial Service (CM) airports, such as Westerly and Block Island accommodate scheduled service but usually with smaller aircraft types. The recorded passenger enplanements are greater than 2500 but less than 10,000. The FAA AIP funding is also different than primary commercial air service airports. Commercial service airports

typically serve general aviation needs as well. In a given year Westerly and/or Block Island may have enplaned passenger counts to elevate them to primary airport status.

General Aviation (GA) airports, such as, North Central, Quonset, and Newport, support a variety of general aviation activities, such as business/corporate and, flight training and provide support to aviation activities. They also provide aircraft owners covered (hangar) and uncovered (apron parking) storage. General aviation airports include smaller facilities that service single and small twin engine aircraft, such as Newport and larger ones, such as Quonset with a runway that could service large turbine and jet aircraft. These airports also support some special operational activities such as emergency evacuation service, passenger service to more remote or isolated locations, and military operations.

Reliever (R) airports include those airports that are designated to attract general aviation flight activity away from the congested, primary commercial service airports (T.F. Green). They are typically located in close proximity to a primary commercial service airport and should provide the same precision approaches and support systems that are found at the larger airport. Reliever airports receive a higher priority for FAA funding. North Central and Quonset have been classified as Reliever Airports by FAA. System Performance Measures

04-01-02 System Performance Measures

The current functional roles were used to determine how well the airport system is currently performing. The evaluation of the airport system was accomplished using a performance-based approach.

The planning factors, identified in Chapter 640.01, Introduction and Background define the framework for the performance based analysis that is utilized to identify the adequacy of the airport system. A series of benchmarks under each planning factor was evaluated or graded based on the role of the airport. The planning factor and corresponding performance measure category are shown below in Table 640-04(1).

Table 640-04(1) Planning Factors and Performance Measures

No.	Planning Factor	Performance Measure
1.	Support the economy and be financially self-sufficient.	Economic Incentives
2.	Have sufficient capacity to meet both current and projected demand.	Airport Capacity
3.	Be readily accessible from the air.	Air Accessibility
4.	Be readily accessible from the ground.	Ground Accessibility
5.	Compatible with their surrounding environs.	Compatibility Planning
6.	Comply with federal, state and local environmental requirements.	Environmental Compliance
7.	Be safe and efficient and meet applicable FAA design standards.	Design Standard

The benchmarks that were identified encompass a variety of quantifiable factors that could be applied to the characteristics of the individual system performance measure. For example, in analyzing Air Accessibility a benchmark was established to measure the "Percentage of Airports with a Precision Approach". This is just one of several quantifiable measures by which the airport system can be evaluated for "Air Accessibility". When incorporated with similar benchmarks, an overall view of the airport system performance can be established. It is also important to note that some benchmarks are action-oriented, while others are more informational in nature. From the analysis completed in this chapter, the ability of all public airports in the system to meet each of the study benchmarks was determined.

04-01-03 System Performance

The benchmarks set forth below in Table 640-04(2) were developed to assess system performance. In assessing current system performance it was important to consider how each of the airports in the system contributes individually to the airport system as a whole in order to determine how improvements or enhancements would achieve better performance for the system. Areas in need of improvements are identified in this chapter. Future system performance objectives were established to serve as the foundation for final recommendations or needs. Not every identified need translates directly to a recommendation. For example, Newport does not meet its Primary Runway Length objective however there is no recommendation for a runway extension because the Master Planning process concluded that an extension is not currently justified.

It is important to recognize that the T.F. Green Master Plan and Environmental Impact Statement process are in progress concurrently with this assessment. As noted in Chapter 640.01, an airport master plan is more tactical and detailed than a system plan, which is, by definition, more strategic and generalized in nature. This ASP update has had the benefit of detailed information available in the FEIS for T.F. Green. Several source documents have been used in this analysis. For more detailed information, please refer to the T.F. Green July 2011 FEIS and RIAC's General Aviation System Plan dated December 2004.

Table 640-04(2) Benchmarks and Criteria

BENCHMARK	CRITERIA
Economic	Ability to support Rhode Island's economy and airport financial self-sufficiency.
Revenues Exceed Operating Expenses (excl. Admin)	Does the airport produce enough operating revenue to cover operating and maintenance costs?
Revenues Exceed Operating Expenses (incl. Admin)	Does the airport produce enough operating revenues to cover operating and maintenance costs, including administrative costs?
Capable of Supporting Business Jets	Does the airport have the ability to support business aircraft by providing corporate aircraft

	ground services and amenities?
FBO	Does the airport provide either an enhanced or basic FBO service depending on the type of airport?
Fuel	Does the airport provide Jet-A and/or 100LL fuel depending on the type of airport?
Food Service/Restaurant	Does the airport provide some type of food service ranging from vending machines to a restaurant depending on the type of airport?
Capacity	Ability to provide airside and landside facilities to meet existing and future needs
Runway System Capacity	Does the airport have operations at or below 60% to 80% of its calculated Annual Service Volume which is the estimated number of annual takeoffs and landings an airport can process when there is always an aircraft ready to land or depart?
Covered Aircraft Storage	Does the airport have covered aircraft storage broadly categorized as either T-hangars or conventional hangars, to accommodate the demand from both based and transient aircraft?
Auto Parking	Does the airport have adequate auto parking as determined by evaluating the number of based aircraft, employees, visitors, and other airport businesses such as rental cars?
Aircraft Parking	Does the airport have adequate aircraft parking areas for loading and unloading passengers, short-term parking by aircraft utilizing the airport's facilities, and for visiting transient aircraft?
Terminal/Administration Building	Does the airport have adequate terminal/administration building facilities for serving peak hour operations/passengers and providing amenities?
Air Accessibility	Ability of Rhode Island's airport to be accessible from the air.
Precision Approach	Do commercial and reliever airports have a precision approach system that allows aircraft to locate an airport and land on a specific runway during periods of reduced visibility and/or inclement weather?
Non-precision Approach	Do all airports have non-precision approach systems which provide horizontal guidance with relation to a specific runway, but not vertical guidance or glide slope information? This applies to all airports.

On-site Weather Reporting Capabilities	Does the airport have weather reporting equipment that compliments the airport's precision or non-precision approach capabilities and promotes an increased margin of safety during periods of inclement or changing weather?
Primary Runway Length	Does the airport have a runway length adequate to service the current and/or projected design aircraft?
Ground Accessibility	Ability of Rhode Island's airport to be accessible from the ground.
Access Road Functionally Classified	Is the primary access road to the airport functionally classified and therefore eligible for federal funding?
Scheduled Transit Service	Do primary commercial service airports have regularly scheduled transit service? Commercial service airports should have some level of transit (e.g. Westerly Airport lies within RIPTA's flex service zone.)
On-site ground transportation	Does the airport provide access to rental or courtesy cars? Access to off-site services is not considered.
Compatibility	Ability to operate compatibly with surrounding community.
Noise Contour	Does the medium hub primary commercial service airport have an FAA-approved Noise Exposure Map/and is RIAC in compliance with RIGL 1-5, Permanent Noise Monitoring Act?
Local Comprehensive Plan	Is the local comprehensive plan currently state approved, consistent with the State Guide Plan, and does it address pertinent airport issues?
Height Zoning (FAR Part 77 Surfaces)	Has the airport identified their specific Part 77 Surfaces and does the community have zoning in place to limit the height of objects within the Part 77 surfaces?
Airport Hazard Zoning	Has RIAC defined Airport Hazard Areas, and has the community adopted Airport Hazard Zoning consistent with RIGL 1-3, Airport Zoning?
Compatibility Planning and Zoning	Has RIAC and local governments coordinated to define Airport Influence Areas and adopt compatible aeronautical and community related land uses, and other such controls that limit incompatible land uses; and protect the opportunity for future enhancements of the airport system?

Current Master Plan or ALP	Does the airport have a current master plan (prepared within the last 5 years) and airport layout plan that is representative of all recent changing demands, conditions, or standards?
Environmental Compliance	Ability to meet regulatory requirements.
Spill Prevention Control Countermeasures (SPCC) Plan	Does the airport have a SPCC plan established which documents how airport operations conform to prevention guidelines under the oil pollution prevention regulation?
Underground Storage Tank(UST) Requirements	Does the airport comply with UST requirements which are defined by USEPA and RIDEM as any underground piping connected to a tank that has at least 10 percent of its combined volume underground?
Wildlife Management Plan	Does the airport have a WMP which complies with applicable guidelines prepared by the US Fish and Wildlife Service including, but not limited to, controlling access by wildlife to aircraft movement areas and operations areas?
Storm Water Pollution Prevention Plan (SWPPP)	Does the airport have a SWPPP that works to improve water quality by eliminating the threat of potential contaminates from coming in contact with storm water?
Underground Injection Control (UIC) Requirements	Does the airport use Class Five Underground Injection Control wells to discharge industrial wastewater that meets State requirements during installation and operation and prevents the ground and water from being contaminated?
Hazardous Materials Requirements	Does the airport identify and manage hazardous wastes properly to protect airport employees and host communities as well as the environment?
Air Quality: On Airport	Does air quality monitoring at T.F. Green comply with RIGL 1-7, Permanent Air Quality Monitoring Act?
Air Quality: Off Airport	Is vehicular traffic to and from the airport included in conformity for surface transportation plans? Conformity is determined by statewide travel demand modeling and not by air quality testing at the individual airports.
Vegetation Management Plan (VMP)	Does the airport have a VMP which identifies the foliage surrounding a facility and establishes a goal to create a mix of vegetation that will naturally comply with airspace restrictions which will decrease the need for human intervention for

	maintenance?
Standards	Ability to meet applicable design standards.
Airport Reference Code (ARC)	Are the airport's facilities designed to meet the airport's FAA standards in accordance with the current Master Plan or ALP?
Runway / Taxiway Separation	Do the airport's runway/taxiway separations meet FAA design standards?
"Good" Pavement Condition	Is the airport's pavement in "good" condition?
Runway Safety Area (RSA)	Do the airport's runway safety areas meet FAA design standards?
Primary Surfaces	Do the airport's primary surfaces meet FAA design standards?
Runway Protection Zone (undeveloped or airport land)	Do the airport's runway protection zones meet FAA design standards?
Runway Object Free Area (ROFA)	Do the airport's runway object free areas meet FAA design standards?
Unobstructed Approaches	Do the airport's unobstructed approaches meet the airport FAA design standards?
Security	Does the airport meet all security requirements?

Table 640-04(03) provides an overview of the existing and future performance of each airport and the system overall. It provides a basic "meets objective" or "doesn't meet objective" assessment. For a comprehensive overview of the assessments see RI/ASP dated December 2004, Section 640.07, (page 07-1 to 07-78), Section 640.08 (page 08-1 to 08-36) and Section 640.09, (page 09 to 0-26).

Chapter 640-05 includes a table for each of the six airports highlighting the future improvements that should be addressed by each airport in order to function as an effective state airport system.

Table 640-04(3) Existing and Future Performance of the Rhode Island Airports and System

● Does Meet Objective
O Does Not Meet Objective
NA Not Applicable

Benchmarks	EXISTING CONDITIONS										FUTURE CONDITIONS									
	T.F. Green (PR)	North Central (GA-R)	Quonset (GA-R)	Newport (GA)	Westerly (CM)	Block Island (CM)	Primary Service (PR)	General Aviation (GA)	Commercial (CM)	System Total	T.F. Green (PR)	North Central (GA-R)	Quonset (GA-R)	Newport (GA)	Westerly (CM)	Block Island (CM)	Primary Service (PR)	General Aviation (GA)	Commercial (CM)	System Total
Performance Measures	By Airport						By System				By Airport						By System			
Ground Accessibility																				
Access Road Functionally Classified	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Auto Parking	O	O	O	●	●	O	O	O	O	O	●	●	●	●	●	O	●	●	O	O
Scheduled Transit Service	●	NA	NA	NA	●	O	●	NA	O	O	●	NA	NA	NA	●	O	●	NA	O	O
On-site Ground Transportation	●	●	●	O	O	O	●	O	O	O	●	●	●	●	●	●	●	●	●	●
Air Accessibility																				
Precision Approach	●	O	●	NA	O	O	●	O	O	O	●	●	●	NA	O	O	●	●	O	O
Non-precision approach	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
On-site weather reporting capabilities	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Primary Runway Length	O	●	●	O	●	●	O	O	●	O	●	●	●	O	●	●	●	O	●	O
Crosswind Runway Length	●	O	O	●	●	NA	●	O	●	O	O	O	O	●	●	NA	O	O	●	O
FAA Airport Standards																				
Airport Reference Code	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Runway / Taxiway Separation	O	●	O	●	O	O	O	O	O	O	●	●	●	●	●	O	●	●	O	O
"Good" Pavement Condition	●	●	●	●	●	●	●	O	O	O	●	●	●	●	●	●	●	●	●	●
Runway Safety Area (RSA)	O	O	●	●	O	O	O	O	O	O	●	●	●	●	●	●	●	●	●	●
Primary Surfaces	●	O	●	O	O	O	●	O	O	O	●	●	●	●	●	●	●	●	●	●
Runway Protection Zone (undeveloped or airport land)	O	O	O	O	O	O	O	O	O	O	●	●	●	●	●	●	●	●	●	●
Runway Object Free Area (ROFA)	O	O	O	O	O	O	O	O	O	O	●	●	●	●	●	●	●	●	●	●
Unobstructed Approaches	O	O	O	O	O	O	O	O	O	O	●	●	●	●	●	●	●	●	●	●
Security	●	O	O	O	O	O	●	O	O	O	●	●	●	●	●	●	●	●	●	●
Environmental Compliance																				
Spill Prevention Control Countermeasures (SPCC) Plan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Underground Storage Tank(UST) Requirements	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Wildlife Management Plan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stormwater Pollution Prevention Plan (SWPPP)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Underground Injection Control (UIC) Requirements	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hazardous Materials Requirements	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Air Quality: On Airport	●	NA	NA	NA	NA	NA	NA	NA	NA	NA	●	NA	NA	NA	NA	NA	NA	NA	NA	NA
Air Quality: Off Airport	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Vegetation Management Plan (VMP)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Airport Capacity																				
Runway System Capacity	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hangar Aircraft Storage /1	O	●	●	O	O	O	O	O	O	O	O	●	●	●	●	O	O	●	O	O
Aircraft Apron /1	O	●	O	O	●	●	O	O	●	O	O	●	●	●	●	O	O	●	O	O
Terminal/Administration Building	O	●	●	O	●	●	O	O	O	O	●	●	●	●	●	●	●	●	●	●
Economic																				
Revenues Exceed Operating Expenses (excl. Admin)	●	●	●	●	O	O	●	●	O	●	●	●	●	●	O	O	●	●	O	O
Revenues Exceed Operating Expenses (incl. Admin)	●	O	●	O	O	O	●	O	O	●	●	O	●	O	O	O	●	O	O	O
Capable of Supporting and Promoting Aviation Activity:																				
Maintenance Services (FBO)	●	●	O	●	●	●	●	O	●	O	●	●	●	●	●	●	●	●	●	●
Fuel Services	●	●	●	O	●	●	●	O	●	O	●	●	●	●	●	●	●	●	●	●
Food Services	●	O	●	O	O	●	●	O	O	O	●	●	●	●	●	●	●	●	●	●
Compatibility Planning																				
Integrated Noise Model Mapping	●	NA	NA	NA	NA	NA	●	NA	NA	●	●	NA	NA	NA	NA	NA	●	NA	NA	●
Local Comprehensive Plan	O	●	●	●	O	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Height Zoning (FAR Part 77 Surfaces)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Airport Hazard Zoning	O	O	O	O	O	O	O	O	O	O	●	●	●	●	●	●	●	●	●	●
Compatibility Zoning	O	O	O	O	O	O	O	O	O	O	●	●	●	●	●	●	●	●	●	●
Current Master Plan or ALP	●	●	●	●	●	●	●	O	●	O	●	●	●	●	●	●	●	●	●	●

Notes:

1. There are projects currently in the RIAC Capital Improvement Plan (CIP) or under construction that address airport and system performance identified above as "Does Not Meet Objective" under *Existing Conditions* but will or may result in "Meets Objective" under *Future Conditions*.
2. There is an EIS in progress to evaluate the environmental impacts of the Airport Layout Plan – "Airfield Development Plan" at T.F. Green that will address development to "Meets Objective" under *Future Conditions*.
3. There is an airport master plan being conducted at the Newport State Airport that will evaluate the airport "Does Not Meet Objectives" items.
4. Certain FAA Airport Standards not achievable because of physical or environmental limitations can be resolved by a special evaluation and documentation requiring FAA approval. In those cases it will be judged under *Future Conditions* as "Meets Objective".
5. Although there are revenue short falls at individual airports, the system overall was considered "Meeting Objective". As a system of airports, under one sponsorship, RIAC, FAA allows redistribution of revenue within the system.
6. The performance assessment outlined in this plan was used to develop a set of recommendations in Chapter 640.06 Implementation Plan. Please note that not every deficiency translates directly to a recommendation in the Implementation Plan.

640.05 Needs Assessment

This chapter outlines the future needs of RI's airport system as perceived at this point in time based on the anticipated future demands presented in Chapter 3 and the performance assessment presented in Chapter 4. The needs are based on the airport's role within the system and region, and the design aircraft for the airport. The needs have been tempered somewhat by feasibility, fiscal realities, and the desire to minimize impacts to the environment and host communities. The tables set forth why certain needs will not be implemented during the planning period. The next chapter, "Goals, Policies, Objectives, and Strategies" will further advance the Needs Assessment according to the desire of the State to implement projects and invest public funds, while balancing aviation needs with other State Guide Plan elements. The discussion is once again ordered around the seven planning factors used throughout this Plan.

05-01 Economic: Ability to Support Rhode Island's Economy and Airport Financial Self-Sufficiency

Convenient and robust transportation networks are necessary to remain competitive and connected. In an increasingly global economy, business networks wrap around the planet. While it is true that telecommunications are highly evolved, there is always a need for face-to-face communication and site visits that keep the business networks in place. Rhode Island is home to two Fortune 500 companies and other multi-national corporations. Innumerable small businesses in Rhode Island have suppliers and customers located throughout the world.

Higher education and health services are also economic sectors that are critical to the future of the state. In addition, tourism ranks second as the greatest job generator in Rhode Island. People come from around the country to visit the great cities of Providence and Newport, as well as Narragansett Bay and the South Coast beaches. Closely related to tourism is the convention business. Aviation services need to keep pace with these important economic activities.

The overall economic impact of Rhode Island's airport system itself was studied by RIAC in 2006[35]. Through this effort RIAC found that there are three basic economic impacts created by the airports. These include:

- $190 million in direct economic benefits (those associated with on-airport employment, business and tenants resulting from providing aviation services);
- $791.5 million in indirect economic benefits (those arising from the spending by visitors who arrive at the airports); and
- more than $2 billion in annual multiplier benefits that are generated as the direct and indirect impacts circulate through the local, state and regional economies.

[35] Figures obtained from "Rhode Island Airport Economic Impact Study, Update 2006, Rhode Island Airport Corporation.

The vast majority of this economic impact is associated with activity from T.F. Green. There are more than 2,700 jobs directly associated with employment at the six airports and more than 23,000 jobs related to the airport system when indirect and multiplier impacts are included. Again the primary impacts related to jobs are associated with the performance of T.F. Green and employment generated by the seven passenger and two cargo airlines.

Additionally, the July 2011 FEIS, found that there would be significant economic benefits derived from on-Airport business activities, increased visitor spending, and development of spin-off Airport related businesses as a result of the T. F Green Airport Improvement Program. For example, potential economic gains for the Preferred Alternative (B4) between 2015 and the end of 2020 would total $385 million in business revenues in the City of Warwick and $816 million for the State of Rhode Island, and $13 million in state tax revenue (sales and income taxes).

GA is an important part of both the aviation industry and our economy as well. It provides on-the-spot efficient and direct aviation services to many medium and small communities that commercial aviation cannot or will not provide. RIAC's 2006 study states that $140 million in economic activity was generated in 2005 by just the five GA airports alone. With some strategic improvements, especially at the smaller airports, general aviation will become a more powerful economic engine. As indicated by the performance evaluation, FBO services, along with food services and fuel where appropriate, are needed to enhance the airport's marketability to visiting and based aircraft.

When demand for RI's airports grows, so will the economic and other benefits attributable to the airport system.

05-02 Capacity: Ability To Provide Airside and Landside Facilities To Meet Existing and Future Needs

The term "capacity" is used to refer to a variety of things and it is closely related to air and ground accessibility. One element of capacity is the airfield itself, the number and configuration of runways and taxiways and the ability of air traffic control to manage aircraft operations without delays. Rhode Island's airports currently operate within their airfield capacity, when referring to the number of operations, and are expected to remain as such.

One area where capacity is not sufficient is covered hangar space and open apron parking. These capacity constraints may force aircraft owners to base their aircraft at other airports in neighboring states, not allowing RI airports to capture that revenue stream. Although these facilities can be expanded and improved, fully meeting the identified needs is not considered feasible at some of the airports.

Apron improvements are needed at Newport, North Central and T.F. Green. RIAC has just completed construction of new terminals for Block Island and Quonset but terminal

and administration building capacity (the ability to accommodate passengers, users, operations, and provide a sufficient number of aircraft gates) is still an issue at Newport. The growth of T.F. Green since the new terminal was constructed combined with the new security procedures has created certain inefficiencies which are identified in the FEIS. It is desirable and feasible for all airports to have sufficient terminal capacity.

05-03 Air Accessibility: Ability Of Airports To Be Accessible From The Air

Each airport has a designated role in the system. Airfield and airside facilities (runways, taxiways, hangars, etc.) should be designed to safely accommodate the design aircraft. A crosswind runway, particularly in New England, is desirable to allow operations in varying wind conditions. Only Block Island is served by a single runway. Navigational and visual aids (lighting, instrument approaches, etc.) should be available to improve safety and permit operations in adverse weather conditions. These types of facilities increase the utility and effectiveness of the airport to business and corporate activity. The topic of air accessibility overlaps with Capacity as well as with Standards, both of which are discussed later in this chapter.

05-03-01 Precision Approach

T.F. Green, as the Primary Commercial Service Airport, is served by the largest aircraft in RI's airport system and a control tower staffed 18 hours per day, 7 days per week by FAA. It has precision approaches and approach lighting (ILS/MALSR) on both runways. Quonset, one of the state's two reliever airports, is the only other state airport with a staffed control tower, which is in operation from 8-15 hours per day, 6 days per week[36] and has an instrument approach on one runway. North Central, as the other reliever in the system, should be considered for precision approaches, especially to serve more business and corporate aviation. The current lack of a precision approach has been identified as an operational need. Block Island and Westerly have commercial service and precision approaches are very desirable, but may not be feasible.

05-03-02 Non-precision Approach

Block Island, Westerly, and Newport have various navigational/visual aids that provide non-precision instrument and/or visual approaches and visibility minimums. Needs have been previously noted.

05-03-03 On-site Weather Reporting Capabilities

No deficiencies have been noted in the system, and this activity should continue.

[36] Tower operates Tuesday-Friday 0800-2300, Saturday 0900-1700, Sunday 1000-1800, and is closed Monday.

05-03-04 Primary Runway Length

A significant accessibility-related issue for the state's primary air carrier airport is the fact that T.F. Green's main runway is only 7,166' long. This is less than the optimal runway length required for the airport's current and projected "design aircraft" to operate at full capacity in certain weather conditions, as well as, on certain long distance, non stop flights. As a result, the current runway length has essentially limited the destinations that can be served nonstop to Florida and the middle part of the country (see Figure 640-05(1)) even though service to Phoenix and Las Vegas has been initiated in recent years.

Figure 640-05(1) Existing Non-Stop Destinations

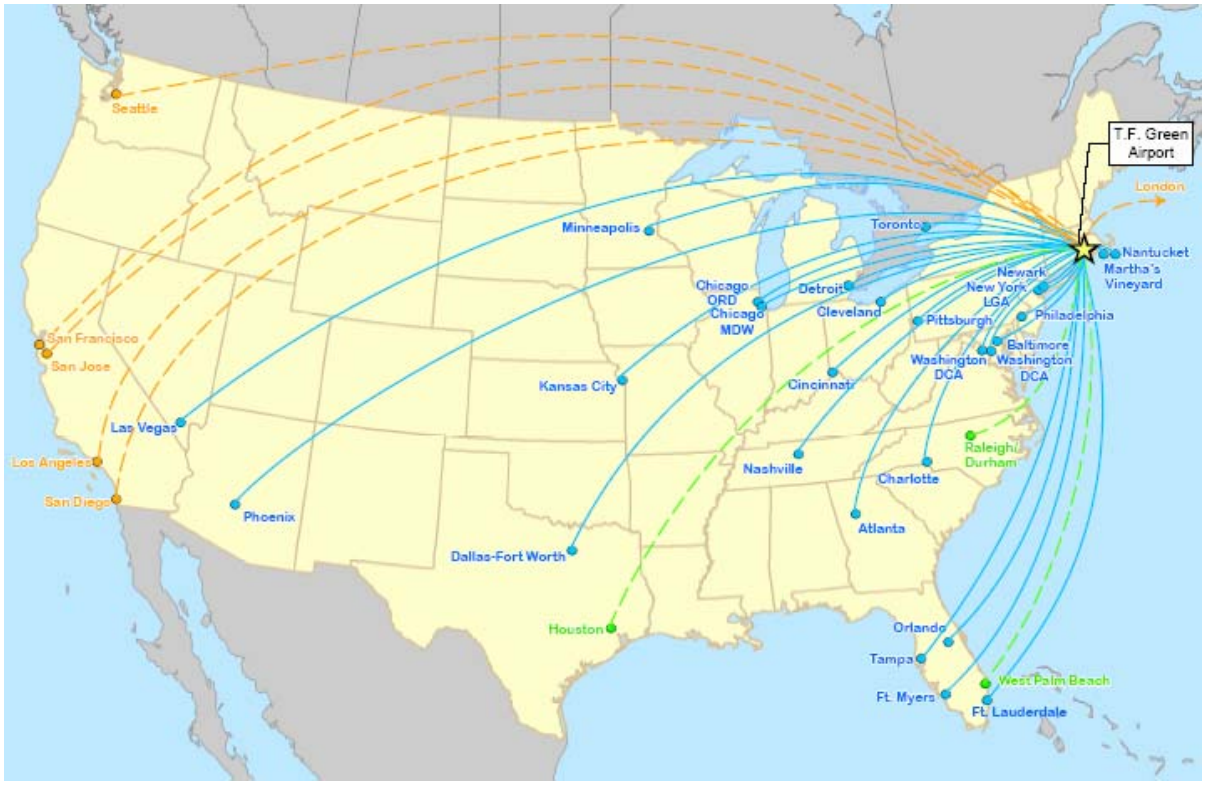
This is a constraint seen as adversely impacting the airport's and state's economic growth potential. As noted in the July 2011 FEIS, T.F. Green Airport is vital to the state's economy and the New England regional airport system and runway extension is critical to ensuring a balanced regional system. Furthermore, the operations forecast in the Purpose and Need statement of the T.F. Green DEIS indicate opportunities for potential market expansion and demand for nonstop long-haul service (See Figure 640-05(2). This corresponds to the national trend away from hub and spoke networks in favor of more direct flights.

Surveys conducted by the Greater Providence Chamber of Commerce[37] showed strong support for T.F. Green expansion. For example a public opinion survey (536 responses statewide with 95% confidence level) conducted in 2002 regarding a proposed runway

[37] Greater Providence Chamber of Commerce: Quantitative Research Study, T.F. Green Airport, 2002 and Qualitative Research from Rhode Island Business Leaders, 2003; Acadia Consulting Group.

extension to 7500'. Although that length is less than what is currently recommended in the July 2010 FEIS: 74% favored lengthening both runways; 71% favored nonstop service to the West Coast; 61% favored additional destinations (international, West Coast, and Florida); and 50% favored increased frequency of flights. Twenty one percent of the respondents opposed runway extension. Two thirds of those opposed cited wetlands as the reason; one third cited "other". Eighty four percent of the respondents had used the airport one or more times in the last year and Ninety seven percent of respondents felt that the airport was important to the State's economy.

Figure 640-05(2) Existing and Possible New Non-Stop Destinations



This Plan recognizes that a longer runway at T.F. Green will increase the efficiency of existing aircraft and routes in certain weather conditions and acknowledges that the changing market, changing airline industry, and evolving economy of the state warrant runway extension. It defers however to the ongoing NEPA/EIS process as the proper means for determining the preferred extension alternative. The EIS process is anticipated to be completed with the issuance of a Record of Decision in 2011. Until such time, local planning and zoning for some of the potentially affected areas may not be finalized. As such, issues such as neighborhood integrity and future land use will continue to be paramount concerns to the host community, its residents and RIAC.

Newport's main runway length is also not desirable even though it can still safely and efficiently serve 95% of the aircraft that currently and are anticipated to use the airport. The 2008 Master Planning process found however that the projected demand does not

warrant a runway extension at this time. The proximity of Quonset, with its 7500' runway is sufficient for corporate jets for the foreseeable future.

05-03-05 Crosswind Runway Length

The planning guidance in the FAA Advisory Circular recommends that the crosswind runway length should generally be 80% of the main runway length. Currently North Central and Quonset do not meet this guideline. Given site constraints and demand at Quonset, a runway extension is not feasible at this time. The recent North Central Master Plan Update also considered the additional 790' that would be needed for its secondary runway to meet FAA guidance. The Master Plan determined, given the existing terrain constraints and the fact the combined runway coverage was at 95%, that an extension was not warranted. Should the main runway at T.F. Green be extended, the crosswind runway (16-34) would no longer be 80% of that length, Due to site constraints particularly roadways, wetlands and streams, lengthening this runway is not considered to be feasible at this time.

05-04 Ground Accessibility: Ability Of Airports To Be Accessible From The Ground

Accessibility from the ground refers to many factors including mode of surface transportation used to arrive at or depart from the airport, the vehicular circulation in the terminal area, vehicle parking, and the terminal facilities themselves. Each airport differs in its ground accessibility requirements based on its role.

05-04-01 Access Road

The access roads to all six airports are included in the Highway Functional Classification. They are sufficient to meet vehicular traffic demands, and they are eligible for federal funds, should improvements be necessary.

05-04-02 Parking

Parking is sufficient at Newport, Block Island, Quonset and Westerly, but is lacking at North Central airport. T.F. Green, as the system's Primary Commercial Service Airport requires parking for thousands of airport employees and passengers, efficient pick-up and drop-off areas, and efficient on-site circulation. Future parking expansion is warranted, although alternative modes are encouraged to reduce parking demand. These issues are currently being examined in the EIS process and the Master Plan Update.

05-04-03 Scheduled Transit Service

Scheduled transit service is highly desirable at airports where airline passengers are arriving and departing. RIPTA currently serves T.F. Green with 14 express round trips

per weekday plus eight express trips on Saturday to downtown Providence. RIPTA also provides a local route which offers more than 30 weekday and 20 weekend daily trips.

Construction of the InterLink provided commuter rail service to the airport starting in December 2010. The commuter rail (provided by MBTA) provides access to Providence and Boston. Amtrak has no current plans to stop at the InterLink, thus, connections to southern Rhode Island and southeastern Connecticut will not be effectively served, at least in the short term. The new rail platform and parking facility includes consolidated rental car facilities and a moving walkway connection to the T.F. Green terminal. This facility will benefit airport patrons and the host community through expanded access options, lessened roadway congestion, and reduced vehicle emissions. The InterLink will be a focus for stimulating redevelopment of a mixed-use business center that will provide new economic opportunities and revenues for Warwick and the state.

Westerly and Block Island, as commercial service airports, could also benefit from transit options. Passengers flying from New Shoreham to Westerly have few ground transportation options, although Westerly is served by RIPTA Flex Service. Year-round transit in New Shoreham is not feasible, but seasonal options should be explored. In general, ongoing communication and coordination with transit providers is needed in order to achieve optimal service.

05-04-04 Ground Transportation

At T.F. Green, visitors have access to multiple rental car agencies, taxis, and shuttles. These transportation options are expected to keep pace with passenger growth.

The obvious need for ground transportation on Block Island is to serve the seasonal tourism industry; additionally, and not so obvious, the Town of New Shoreham depends year-round on professional services from the mainland (everything from orthodontists to therapists to attorneys). Those people arriving at Block Island Airport need a means to get to their island destination. The passenger need is currently met by taxis, but a courtesy car for pilot use is recommended

Arriving business travelers and other visitors at the Smithfield, Quonset, and Newport general aviation airports also need a way to reach their destinations from terminal buildings. Where the level of demand may not warrant public transportation service, courtesy cars, taxis, and shuttle vans provide access.

05-05 Compatibility: Ability To Operate Compatibly With Surrounding Environs

Convenient and safe air travel comes at a cost, a cost that is borne primarily by those who live closest to the airports. Whereas airports and aircraft started out small, both have grown over the years, as have the populations living in proximity to the state's airports. As a result, noise, air quality, traffic and land use conflicts have increasing been raised as quality of life concerns, especially in the City of Warwick. Unfortunately in a small state

such as Rhode Island, there are no available options for the siting of a new airports and therefore RIAC and host communities, particularly the City of Warwick, must work together to address these concerns.

Over the last several decades, airport / land use related programs and regulations that strive to assist with this challenge have been promulgated at both the national and state levels. Some of the more prominent of these include:

- The Federal Aviation Safety and Noise Abatement Act of 1979;
- The Federal Aviation Regulation Part 150 Noise Compatibility Program;
- The Federal Airport and Airway Improvement Act of 1982;
- The Federal Airport Noise and Capacity Act of 1990;
- The National Environmental Policy Act (NEPA) of 1969.
- The Rhode Island Airport Zoning Act (R.I.G.L. 1-3).
- The Rhode Island Permanent Noise Monitoring Act (R.I.G.L. 1-5);
- The Rhode Island Permanent Air Quality Monitoring Act (R.I.G.L. 1-7); and the
- Rhode Island Comprehensive Planning and Land Use Regulation Act.

Since its inception, RIAC has been implementing the above in working to improve the compatibility of airport operations with surrounding land uses. For example, compliance with R.I.G.L. 1-5 Permanent Noise Monitoring Act and R.I.G.L. 1-7 Permanent Air Quality Monitoring Act are ongoing.

In addition, a home acquisition and residential/school sound insulation program for T.F. Green has been underway since 1992 (Program). The Program has been working to reduce the number of residents exposed to incompatible noise levels and will continue into the future in accordance with pertinent regulations. As noted previously, noise mapping that indicates areas subjected to noise levels greater than 65DNL has been in place for the area surrounding T. F. Green since 1995 and was just updated in 2010. Noise contours at small GA airports such as those in the Rhode Island system, even though the 65 DNL line falls entirely within airport property are also periodically assessed through the master planning process.

The noise contours that, under FAA guidelines, allow for acquisition and sound abatement programs seldom align with distinct neighborhood boundaries. The unintended consequence is that some homes may be eligible for acquisition while others next door or across the street may not be eligible. This can result in neighborhood fragmentation which is often difficult for homeowners to accept. A related concern is the compatible redevelopment and use of properties acquired by RIAC. On one hand RIAC must first ensure that properties acquired using FAA funding sources are reused in a manner that is consistent with airport purposes and pertinent federal regulatory and programmatic requirements. On the other hand, host communities, particularly in T.F. Greens case must work to ensure that the future use of properties acquired by RIAC don't conflict with existing abutting uses and fit with their long term land use plans.

The process in place that specifies local development and state agency review of municipal comprehensive plans provides a mechanism that could be used to gain progress in these areas. State and local coordination throughout the community comprehensive planning process could also serve as the basis for ensuring proper local implementation of airport height, hazard and influence area zoning requirements. This, however, should also be augmented with the provision of direct technical assistance to the host communities in the formulation and drafting of effective land use controls, zoning ordinances, and performance standards relative to airport hazards and aviation compatibility.

05-06 Compliance: Ability To Meet Environmental Regulatory Requirements

05-06-01 ASP Environmental Process

This section addresses factors affecting the ability of the state's airport system to conform to established standards of environmental performance. Consistent with airport system planning guidance, the System Plan's analysis is general – it is not a comprehensive environmental analysis for individual state airports. Additional environmental information is available in completed airport master plans, for Quonset, North Central, Westerly, Newport and Block Island airports. Environmental Assessments and/or detailed Environmental Impact Studies will also be conducted if necessary to assess the environmental impacts of specific projects.

As an example, an Environmental Assessment (EA) was recently conducted at Newport and completed in August 2009. The EA assessed the impacts from certain airfield improvements. The result of the study was a Finding of No Significant Impact (FONSI), and the recommended projects proceeded.

The FEIS for T. F. Green was published in July 2011-and it identifies the environmental conditions as they exist at the airport today and the potential future impacts from the recommended improvements. After the ROD is issued the AMP and Airport Layout Plan will be finalized.

05-06-02 Federal Environmental Requirements

FAA and airport sponsors must comply with federal requirements. FAA Order 1050.1, "Policies and Procedures for Considering Environmental Impacts" and FAA Order 5050.4A, "Airport Environmental Handbook" were developed by FAA and are consistent with the National Environmental Policy Act (NEPA).

The requirements establish 20 areas of potential environmental impact that must be assessed for any airport development requiring a "major federal action". A "major federal action" may include FAA approval of an Airport Layout Plan, produced from the airport master plan process, as is the case at T.F. Green Airport, or it may be a prerequisite to FAA issuing a grant for airport development, as was the case at Block

Island Airport. The environmental action could be an EIS or EA or in some instances the action may be categorically exempt from environmental action. The FAA makes the specific determination on a case by case basis as determined by the environmental consequences. Specific categories that require assessment of potential impacts are identified below.

The 20 Categories of Environmental Consideration are:

1. Noise
2. Air Quality
3. DOT 4(f) Resources – Public Lands
4. Endangered & Threatened Species
5. Wetlands
6. Prime and Unique Farmlands
7. Solid and Hazardous Waste
8. Surface Transportation
9. Coastal Zone Management and Coastal Barriers
10. Historic, Architectural, Archaeological & Cultural Resources
11. Children's Health and Safety and Environmental Justice
12. Compatible Land Use
13. Induced Socioeconomic Impacts
14. Water Quality
15. Biotic Communities
16. Floodplains
17. Energy Supply & Natural Resources
18. Construction Impacts
19. Cumulative Impacts
20. Light Emissions

When the proposed action requires an EIS, FAA must select the consultant, direct the consultant activities and manage the EIS process. The FAA must ensure that it is an objective and fair evaluation of reasonable alternatives. In addition to the environmental and technical evaluation, the process also includes coordination with the appropriate local, state and federal agencies. Special interest groups, representing, local property owners, business, airport users and the aviation providers are also given the opportunity for significant representation and participation in the public process.

05-06-03 Rhode Island Airport System Plan Environmental Topics

As noted earlier, the RI ASP did not attempt to classify any specific environmental impacts as a result of operations or proposed development noted in the plan. It is expected that before any plans are implemented the prescribed projects will be environmentally assessed as part of master planning and the appropriate environmental studies. In general, of the 20 environmental impact categories noted above, the most prevalent issues typically are Noise, Wetlands, Air Quality and Archaeological and Cultural Resources. These are discussed below:

A. Noise

Noise impacts are measured in accordance with 14 CFR Part 150. Airport proprietors must identify the land uses in the contours with average annual decibel noise levels of 65 dB or above, and determine whether those land uses are compatible with those noise levels. All land uses are generally considered to be compatible with noise levels that are less than the annualized noise contour of 65 dB. Based on the public comments received during the T.F. Green EIS process, noise impacts are a significant concern for Rhode Island's primary air carrier airport. Reducing noise impacts at large airports like Green is a complex issue, involving both improvements over time in aircraft noise performance –

which is mandated by federal law, and efforts by the FAA and airport operators to remove or soundproof sensitive land uses within impacted areas. It is also important to restrict the introduction or expansion of sensitive land uses (such as residential) within the noise impact area. Such efforts require the coordination and cooperation of airport operators, community officials, and private landowners to be effective. Airports may also establish voluntary operational rules or guidelines including takeoff and landing procedures to minimize noise exposure. There are, however, specific procedures that must be followed prior to implementing noise regulations, and such efforts are closely monitored by FAA to ensure that proposed rules (such as mandatory curfews) do not interfere with interstate commerce.

RIAC has conducted noise studies at T.F. Green to recommend and adopt noise procedures and policies to improve the noise environment around the airport. RIAC operates a voluntary acquisition program for residences in those areas identified as incompatible for residential use under FAA guidelines. Noise effects for the T.F. Green Improvement Program have been addressed as part of the FEIS that was published in July 2011.

Due to their lower traffic volumes and the smaller aircraft they service, noise is a lesser, but not insignificant concern for other airports in the Rhode Island system. General aviation airports with annual activity levels less than 100,000 operations and where the dominant activity is by single engine and light twin-engine piston aircraft (<12,500 lbs.) are not considered significant by FAA. Essentially, the 65 DNL noise contour would not extend beyond the runway boundaries for such airports. Nearby residents may still be disturbed by a single or multiple aircraft operations activities, runups, reverse thrust, sideline, and touch and go operations that routinely traverse over a residential area, especially when they occur during very early morning or very late evening hours. Residents may also be disturbed by repetitious operations, as typically occurs during training activities conducted at GA airports.

B. Water Quality and Wetlands

Impacts to water quality and wetlands are given considerable attention in airport system operations and airport development projects. Impacts to receiving waters may arise from the runoff from the expansive impervious surfaces commonly found at airports, from chemicals used in airport operations, or from mishandling or accidental release of petroleum products such as aircraft fuels. The development or expansion of airports may create direct physical impacts to wetlands, watercourses and groundwater on or adjoining airport properties.

Airports must be carefully managed to comply with federal and state environmental regulations because they commonly have on-site fuel supplies and utilize other substances which can degrade water quality. As such all Rhode Island airports implement Stormwater Pollution Prevention Plans (SWPP), Spill Prevention Control and Countermeasures (SPCC), and meet Underground Injection Control (UIC) and Underground Storage Tank (UST) requirements.

Wetlands in Rhode Island are regulated by the U.S. Army Corps of Engineers, R.I. Department of Environmental Management (alterations of most freshwater wetlands in the state), or R.I. Coastal Resources Management Council (saltwater wetlands and certain freshwater wetlands in defined jurisdictional areas).

C. Air Quality

General aviation airports of the type and operational level found in the RI State Airport System typically do not create air quality emissions that exceed federal standards. Although not documented as exceeding any federal limits, air quality has also been identified as an environmental concern at T.F. Green. Air quality concerns include emissions from airport activities (such as fuel storage), as well as emissions from ground service vehicles and the vehicles used by airport patrons. Emissions from both ground vehicles and aircraft can contribute pollutants including carbon monoxide, carbon dioxide, hydrocarbons, oxides of nitrogen (which is a precursor to ozone formation), and particulate matter. Aircraft engine emissions are regulated in accordance with federal standards and have declined as cleaner-operating equipment has entered the fleets (although increasing aircraft operations have offset this decline somewhat).

Air quality concerns have been raised by the community in connection with the proposed expansion of T.F. Green and this issue continues to be studied as part of the T.F. Green EIS. KM Chng Environmental Inc. conducted a study to analyze particulate matter including "soot", oily films and other ambient air deposits collected at the airport and in the surrounding communities and whether aircraft operations contribute to those deposits. An enhanced chemical analysis was undertaken to identify the sources of deposited material in the community. The results of the fingerprinting analyses strongly and consistently confirm that soot deposition in the communities surrounding T.F. Green is more the result of contamination from regional background pollution rather than from aircraft fuel or aircraft engine exhaust from the Airport.

In addition, on July 3, 2007 legislation was passed requiring RIAC to develop a long term air quality monitoring program with installation of long-term air quality monitors by December 30, 2007. RIAC began monitoring air quality at 4 locations around TF Green Airport in April of 2007. The 2007 airport legislation also required RIAC to provide $200,000 to the Rhode Island Department of Health to conduct health studies around TF Green. The Rhode Island Department of Environmental Management, Office of Air Resources prepared a report entitled Characterization of Ambient Air Toxics in Neighborhoods Abutting T. F. Green Airport and Comparison Sites, dated April 2008. The Department of Health studied "whether and to what extent air quality is associated with health outcomes for residents of Warwick living near the TF Green airport." The findings, presented in October of 2009 included the following results:

- "High Risk Area in Warwick-Areas of high risk for lung cancer were also at high risk for other respiratory diseases and heart disease.
- Risk Factors (Behavioral and Environmental) contribute to health outcomes: High risk areas for respiratory and heart disease are also areas with higher rates for risk

factors associated with respiratory and heart disease -- 1) smoking 2) exposure to second hand smoke, and 3) diabetes.

- Kent County overall has higher smoking rates than the state.
- Differences in the contaminant levels for monitoring stations upwind vs. downwind of the airport provide an indication of the impact the airport has on air quality.
- It is unclear how VOCs or carbonyls relate to either airport activities or the health of residents in high risk areas. In contrast, particle counts, which are a measure of ultrafine particulate, are clearly associated with airport activities. Wind direction can also influence levels of black carbon and particle bound PAH.
- This disparity in risk factors is a barrier to studying the impacts of outdoor air quality on the health of residents of the high risk area. An effective campaign to reduce this disparity would both improve the health of Warwick residents and facilitate the study of air quality impacts on health.
- Measuring particulate levels is challenging. Equipment for continuous monitoring of ultrafine particulates is difficult to maintain/repair. Strict adherence to procedures for PM2.5 monitoring is essential to obtaining credible results."

Emissions from vehicles traveling to and from the airports on the roadway system are captured in surface transportation air quality conformity determinations in which budgets have been set by RIDEM and approved by EPA. The conformity process ensures that transportation projects that receive federal funding do not worsen air quality or exceed the mobile source emissions budget. The InterLink, planned to connect T.F. Green's terminal directly with commuter rail service to Providence and Boston, will offer potential to reduce air emissions attributable to vehicular traffic from airport patrons. The magnitude of reduction will be tied to the success in motivating potential Green customers to utilize rail service to access the airport, and perhaps adjustments in train schedules to better accommodate airline schedules. Marketing campaigns by the MBTA, RIAC and airlines at Green may be needed to familiarize customers with the convenience that the Intermodal Center can offer. The consolidated car rental facilities to be included in the InterLink will also offer potential emissions reductions by eliminating the need for fleets of shuttle vehicles and incorporating all quick turnaround facilities (gas, washing and vacuuming) within the facility.

D. Archaeological and Cultural Concerns

Potential impacts on archaeological and cultural resources are also environmental issues affecting Rhode Island's airport system. In most instances the possibility for these impacts are noted during the master planning process and analyzed in the environmental process. Where necessary, archeological surveys are incorporated in the environmental contract and can be very comprehensive. Airport projects in RI are closely coordinated with the RI Historic Preservation and Heritage Commission and the Narragansett Indian Tribal Historic Preservation Office to ensure there is conformity with both federal coordination requirements and local tribal interests.

E. Other Environmental Concerns

Wildlife may be adversely impacted by airport operations or by degradation of habitat. Conversely, the presence of wildlife may present hazards to operating aircraft. Airport Wildlife Management Plans are required by the FAA and are prepared according to guidelines issued by the US Fish and Wildlife Service. These plans should be kept current and implemented in order to minimize conflicts between wildlife and aircraft.

The Rhode Island Airport Corporation has an Environmental Office to ensure compliance with environmental laws. This level of commitment to specifically manage airport environmental issues is not typical in other New England states.

05-07 Standards: Ability To Meet Applicable Design And Safety Standards

Design and safety standards exist mainly as dimensional requirements on the airfield and airspace, and in part are also based on the aircraft using the airport. These standards exist to provide safe takeoff and landing operations. On the airfield, length, width, and separation of runways and taxiways, and size of the runway safety areas are some examples. Federal Aviation Regulation Part 77, Object Affecting Navigable Airspace, identifies the airport surfaces for airports. The length, width, and slope of approach surfaces are based on the instrumentation and the navigation aids for each runway end.

According to FAA design criteria, adequate runway taxiway separation is needed for two aircraft to pass while one is on the runway and the other on the taxiway with a margin of safety to eliminate the potential for wingtip-to-wingtip collisions. That dimension is based on the design aircraft for the airport. Quonset and Westerly currently do not meet these design criteria and are planned for future compliance. Block Island also can not meet this objective because of land and environmental constraints.

Providing adequate runway safety areas can be a particularly tough issue. There are finite land resources in the communities where airports reside, and runway safety areas do require that land be kept open and free of obstructions. All of RI's system airports have land constraints, either open water, wetlands, roads, railroad tracks, or some type development at nearly every runway end. T.F. Green is addressing runway safety areas and length as discussed in the FEIS.

The airspace around the airport should be free from obstructions (towers, antennas, vegetation, etc.) that could a present a hazard to aircraft. RIAC currently has efforts underway to ensure that all obstructions are appropriately addressed either by lighting, removal or requesting FAA to issue the appropriate airspace determination on an obstruction. Meeting airport standards and maintaining good pavement condition is another element of providing for a safe runway environment. Seven years ago RIAC began its ongoing effort to ensure that pavement at all airports meets FAA standards.

05-08 Individual Airport Needs Assessments

The tables that follow summarize the results of the needs assessment and recommendations for each of the State's six airports.

Table 640-05 (1) Recommendations for Block Island Airport

●	Does Meet Objective
O	Does Not Meet Objective
NA	Not Applicable

Benchmarks	Block Island - Existing Conditions	Block Island - Future Conditions	Recommendations
Performance Measures			
Ground Accessibility			
Access Road Functionally Classified	●	●	
Auto Parking	●	●	
Scheduled Transit Service	O	O	Scheduled transit service is not currently included in the Recommended Facility and Service Improvements.
On-site Ground Transportation	O	●	A crew car is included in the Recommended Facility and Service Improvements.
Air Accessibility			
Precision Approach	O	O	A precision approach is not included in the Recommended Facility and Service Improvements due to activity levels required by FAA Planning Standards not expected to be achieved.
Non-precision approach	●	●	
On-site weather reporting capabilities	●	●	
Primary Runway Length	●	●	
Crosswind Runway Length	NA	NA	
FAA Airport Standards			
Airport Reference Code	●	●	
Runway / Taxiway Separation	O	O	No runway/taxiway separation projects are included in the Recommended Facility and Service Improvements due to environmental and site constraints.
"Good" Pavement Condition	●	●	
Runway Safety Area (RSA)	●	●	
Primary Surfaces	●	●	
Runway Protection Zone (undeveloped or airport land)	●	●	
Runway Object Free Area (ROFA)	●	●	
Unobstructed Approaches	●	●	
Security	O	●	Security enhancements are included in the Recommended Facility and Service Improvements.
Environmental Compliance			
Spill Prevention Control Countermeasures (SPCC) Plan	●	●	
Underground Storage Tank(UST) Requirements	●	●	
Wildlife Management Plan	●	●	
Stormwater Pollution Prevention Plan (SWPPP)	●	●	
Underground Injection Control (UIC) Requirements	●	●	
Hazardous Materials Requirements	●	●	
Air Quality: On Airport	NA	NA	
Air Quality: Off Airport	●	●	
Vegetation Management Plan (VMP)	●	●	
Airport Capacity			
Runway System Capacity	●	●	
Hangar Aircraft Storage /1	O	O	Aircraft hangar storage is not recommended in the master plan.
Aircraft Apron /1	●	O	Additional apron parking is included in the Recommended Facility and Service Improvements, but is not based on accommodating peak demand.
Terminal/Administration Building	●	●	
Economic			
Revenues Exceed Operating Expenses (excl. Admin)	O	O	Revenues and expenses will be balanced by incorporating the airport financials as part of the system costs.
Revenues Exceed Operating Expenses (incl. Admin)	O	O	Revenues and expenses will be balanced by incorporating the airport financials as part of the system costs.
Capable of Supporting and Promoting Aviation Activity:			
Maintenance Services (FBO)	●	●	
Fuel Services	●	●	
Food Services	●	●	
Compatibility Planning			
Integrated Noise Model Mapping	NA	NA	
Local Comprehensive Plan	●	●	
Height Zoning (FAR Part 77 Surfaces)	●	●	Adequate height zoning exists.
Airport Hazard Zoning	O	●	RIAC will identify Airport Hazard Areas and provide to community for adoption of Airport Hazard Zoning consistent with RIGL 1-3, Airport Zoning Act.
Compatibility Zoning	O	●	RIAC will coordinate with local governments to define Airport Influence Areas and provide community with information to assist in their adopting compatible aeronautical and community related land uses, building
Current Master Plan or ALP	●	●	

Note: The performance assessment outlined in this plan was used to develop a set of recommendations in Chapter 640.07 Implementation Plan. Please note that not every deficiency translates directly to a recommendation in the Implementation Plan.

Table 640-05 (2) Recommendations for Newport Airport

● Does Meet Objective
O Does Not Meet Objective
NA Not Applicable

Benchmarks	Newport - Existing Conditions		Newport - Future Conditions	Recommendations
Performance Measures				
Ground Accessibility				
Access Road Functionally Classified	●		●	
Auto Parking	●		●	
Scheduled Transit Service	NA		NA	
On-site Ground Transportation	O		●	A courtesy car service is included in the Recommended Facility and Service Improvements.
Air Accessibility				
Precision Approach	NA		NA	
Non-precision approach	●		●	
On-site weather reporting capabilities	●		●	
Primary Runway Length	O		O	2008 Master Plan Updated determined that current runway length was adequate
Crosswind Runway Length	●		●	
FAA Airport Standards				
Airport Reference Code	●		●	
Runway / Taxiway Separation	●		●	
"Good" Pavement Condition	●		●	
Runway Safety Area (RSA)	●		●	
Primary Surfaces	O		●	The primary surfaces are part of the VMP clearing plan and subject to a FAA Aeronautical determination.
Runway Protection Zone (undeveloped or airport land)	O		●	The RPZs are part of the VMP clearing plan and subject to a FAA Aeronautical determination.
Runway Objective Free Area (ROFA)	O		●	The ROFAs are part of the VMP clearing plan and subject to a FAA Aeronautical determination.
Unobstructed Approaches	O		●	The unobstructed approaches are part of the VMP clearing plan and subject to a FAA Aeronautical determination.
Security	O		●	Security enhancements are included in the Recommended Facility and Service Improvements.
Environmental Compliance				
Spill Prevention Control Countermeasures (SPCC) Plan	●		●	
Underground Storage Tank(UST) Requirements	●		●	
Wildlife Management Plan	●		●	
Stormwater Pollution Prevention Plan (SWPPP)	●		●	
Underground Injection Control (UIC) Requirements	●		●	
Hazardous Materials Requirements	●		●	
Air Quality: On Airport	NA		NA	
Air Quality: Off Airport	●		●	
Vegetation Management Plan (VMP)	●		●	
Airport Capacity				
Runway System Capacity	●		●	
Hangar Aircraft Storage /1	O		●	ALP shows locations for private investment
Aircraft Apron /1	O		●	Aircraft apron areas are included in the recommended facilities and services improvements.
Terminal/Administration Building	O		●	Terminal expansion was evaluated as part of the 2008 Master Plan.
Economic				
Revenues Exceed Operating Expenses (excl. Admin)	●		●	
Revenues Exceed Operating Expenses (incl. Admin)	O		O	Revenues and expenses will be balanced by incorporating the airport financials as part of the system costs.
Capable of Supporting and Promoting Aviation Activity:				
Maintenance Services (FBO)	●		●	
Fuel Services	●		●	
Food Services	O		●	Enhanced user amenities are included in the Recommended Facility and Service Improvements.
Compatibility Planning				
Integrated Noise Model Mapping	NA		NA	
Local Comprehensive Plan	●		●	
Height Zoning (FAR Part 77 Surfaces)	●		●	Adequate height zoning exists.
Airport Hazard Zoning	O		●	RIAC will identify Airport Hazard Areas and provide to community for adoption of Airport Hazard Zoning consistent with RIGL 1-3, Airport Zoning Act.
Compatibility Zoning	O		●	RIAC will coordinate with local governments to define Airport Influence Areas and provide community with information to assist in their adopting compatible aeronautical and community related land uses, building codes, performance standards, and other such controls.
Current Master Plan or ALP	●		●	A Master Plan Update was completed in 2008

Note: The performance assessment outlined in this plan was used to develop a set of recommendations in Chapter 640.07 Implementation Plan. Please note that not every deficiency translates directly to a recommendation in the Implementation Plan.

Table 640-05 (3) Recommendations for North Central Airport

● Does Meet Objective
O Does Not Meet Objective
NA Not Applicable

Benchmarks	North Central - Existing Conditions	North Central - Future Conditions	Recommendations
Performance Measures			
Ground Accessibility			
Access Road Functionally Classified	●	●	
Auto Parking	O	●	Auto parking is included in the recommended facility and service improvements.
Scheduled Transit Service	NA	NA	
On-site Ground Transportation	●	●	
Air Accessibility			
Precision Approach	●	●	An LPV precision approach is in process by FAA.
Non-precision approach	●	●	
On-site weather reporting capabilities	●	●	
Primary Runway Length	●	●	
Crosswind Runway Length	●	●	The crosswind runway was evaluated as part of the 2010 Master Plan Update and found to be sufficient .
FAA Airport Standards			
Airport Reference Code	●	●	
Runway / Taxiway Separation	●	●	
"Good" Pavement Condition	O	●	Pavement rehabilitation is included in the Recommended Facility and Service Improvements.
Runway Safety Area (RSA)	●	●	Satisfactory per 2010 Airport Master Plan Update.
Primary Surfaces	●	●	Satisfactory per 2010 Airport Master Plan Update.
Runway Protection Zone (undeveloped or airport land)	●	●	Determined to be adequate in 2010 Master Plan Update
Runway Object Free Area (ROFA)	●	●	
Unobstructed Approaches	●	●	
Security	O	●	Security enhancements are included in the Recommended Facility and Service Improvements.
Environmental Compliance			
Spill Prevention Control Countermeasures (SPCC) Plan	●	●	
Underground Storage Tank(UST) Requirements	●	●	
Wildlife Management Plan	●	●	
Stormwater Pollution Prevention Plan (SWPPP)	●	●	
Underground Injection Control (UIC) Requirements	●	●	
Hazardous Materials Requirements	●	●	
Air Quality: On Airport	NA	NA	
Air Quality: Off Airport	●	●	
Vegetation Management Plan (VMP)	●	●	
Airport Capacity			
Runway System Capacity	●	●	
Hangar Aircraft Storage /1	O	●	2010 ALP provides location for private investment
Aircraft Apron /1	●	●	
Terminal/Administration Building	●	●	Evaluated as part of the 2010 master plan and found to be sufficient.
Economic			
Revenues Exceed Operating Expenses (excl. Admin)	●	●	
Revenues Exceed Operating Expenses (incl. Admin)	O	O	Revenues and expenses will be balanced by incorporating the airport financials as part of the system costs.
Capable of Supporting and Promoting Aviation Activity:			
Maintenance Services (FBO)	●	●	
Fuel Services	●	●	
Food Services	O	●	Enhanced user amenities are included in the Recommended Facility and Service Improvements.
Compatibility Planning			
Integrated Noise Model Mapping	NA	NA	
Local Comprehensive Plan	●	●	Although there are no consistency issues with Smithfield's plan, the Economic Development element could be strengthened. Lincoln's Plan mentions the need for Airport Hazard Zoning.
Height Zoning (FAR Part 77 Surfaces)	●	●	Adequate height zoning exists.
Airport Hazard Zoning	O	●	RIAC will identify Airport Hazard Areas and provide to community for adoption of Airport Hazard
Compatibility Zoning	O	●	RIAC will coordinate with local governments to define Airport Influence Areas and provide community with information to assist in their adopting compatible aeronautical and community related land uses, building codes, performance standards, and other such controls.
Current Master Plan or ALP	●	●	New Airport Master Plan Update completed 2010.

Notes: The performance assessment outlined in this plan was used to develop a set of recommendations in Chapter 640.06 Implementation Plan. Please note that not every deficiency translates directly to a recommendation in the Implementation Plan.

Table 640-05 (4) Recommendations for Quonset Airport

● Does Meet Objective
O Does Not Meet Objective
NA Not Applicable

Benchmarks	Quonset - Existing Conditions		Quonset - Future Conditions	Recommendations
Performance Measures				
Ground Accessibility				
Access Road Functionally Classified	●		●	
Auto Parking	●		●	
Scheduled Transit Service	NA		NA	
On-site Ground Transportation	●		●	
Air Accessibility				
Precision Approach	●		●	
Non-precision approach	●		●	
On-site weather reporting capabilities	●		●	
Primary Runway Length	●		●	
Crosswind Runway Length	O		O	A crosswind extension is not recommended but will be re-evaluated during the next AMP Update.
FAA Airport Standards				
Airport Reference Code	●		●	
Runway / Taxiway Separation	●		●	
"Good" Pavement Condition	●		●	Pavement rehabilitation is included in the Recommended Facility and Service Improvements.
Runway Safety Area (RSA)	●		●	
Primary Surfaces	●		●	
Runway Protection Zone (undeveloped or airport land)	●		●	
Runway Object Free Area (ROFA)	●		●	
Unobstructed Approaches	●		●	
Security	O		●	Security enhancements are included in the Recommended Facility and Service Improvements.
Environmental Compliance				
Spill Prevention Control Countermeasures (SPCC) Plan	●		●	
Underground Storage Tank(UST) Requirements	●		●	
Wildlife Management Plan	●		●	
Stormwater Pollution Prevention Plan (SWPPP)	●		●	
Underground Injection Control (UIC) Requirements	●		●	
Hazardous Materials Requirements	●		●	
Air Quality: On Airport	NA		NA	
Air Quality: Off Airport	●		●	
Vegetation Management Plan (VMP)	●		●	
Airport Capacity				
Runway System Capacity	●		●	
Hangar Aircraft Storage /1	●		●	
Aircraft Apron /1	●		●	
Terminal/Administration Building	●		●	
Economic				
Revenues Exceed Operating Expenses (excl. Admin)	●		●	
Revenues Exceed Operating Expenses (incl. Admin)	●		●	
Capable of Supporting and Promoting Aviation Activity:				
Maintenance Services (FBO)	●		●	
Fuel Services	●		●	
Food Services	●		●	
Compatibility Planning				
Integrated Noise Model Mapping	NA		NA	
Local Comprehensive Plan	●		●	
Height Zoning (FAR Part 77 Surfaces)	●		●	Adequate height zoning exists.
Airport Hazard Zoning	O		●	RIAC will identify Airport Hazard Areas and provide to community for adoption of Airport Hazard Zoning consistent with RIGL 1-3, Airport Zoning Act.
Compatibility Zoning	O		●	RIAC will coordinate with local governments to define Airport Influence Areas and provide community with information to assist in their adopting compatible aeronautical and community related land uses, building codes, performance standards, and other such controls.
Current Master Plan or ALP	●		●	

Note: The performance assessment outlined in this plan was used to develop a set of recommendations in Chapter 640.07 Implementation Plan. Please note that not every deficiency translates directly to a recommendation in the Implementation Plan.

Table 640-05 (5) Recommendations for T.F. Green Airport

● Does Meet Objective
O Does Not Meet Objective
NA Not Applicable

Benchmarks	T.F. Green - Existing Conditions	T.F. Green - Future Conditions	Recommendations
Performance Measures			
Ground Accessibility			
Access Road Functionally Classified	●	●	Connector is adequate, but internal circulation roads need upgrades.
Auto Parking	O	●	Additional long term parking being evaluated in the EIS process.
Scheduled Transit Service	●	●	
On-site Ground Transportation	●	●	The market will keep up with demand.
Air Accessibility			
Precision Approach	●	●	
Non-precision approach	●	●	
On-site weather reporting capabilities	●	●	
Primary Runway Length	O	●	A runway extension is needed to adequately support current and projected demand and is being evaluated as part of the EIS pro
Crosswind Runway Length	●	●	Current Draft AMP and DEIS do not recommend lengthening Runway 16-34.
FAA Airport Standards			
Airport Reference Code	●	●	
Runway / Taxiway Separation	O	●	Recommendations are pending the AMP and EIS process.
"Good" Pavement Condition	●	●	
Runway Safety Area (RSA)	O	●	Runway 16/34 RSA's do not currently meet FAA standards; alternative are being evaluated in EIS process.
Primary Surfaces	●	●	Continue with all feasible and prudent efforts to remove, clear, and/or light all obstructions to FAA criteria.
Runway Protection Zone (undeveloped or airport land)	O	●	Continue with all feasible and prudent efforts to remove, clear, and/or light all obstructions to FAA criteria.
Runway Object Free Area (ROFA)	O	●	Continue with all feasible and prudent efforts to remove, clear, and/or light all obstructions to FAA criteria.
Unobstructed Approaches	O	●	Continue with all feasible and prudent efforts to remove, clear, and/or light all obstructions to FAA criteria.
Security	●	●	
Environmental Compliance			
Spill Prevention Control Countermeasures (SPCC) Plan	●	●	
Underground Storage Tank(UST) Requirements	●	●	
Wildlife Management Plan	●	●	
Stormwater Pollution Prevention Plan (SWPPP)	●	●	
Underground Injection Control (UIC) Requirements	●	●	
Hazardous Materials Requirements	●	●	
Air Quality: On Airport	●	●	
Air Quality: Off Airport	●	●	RIAC is monitoring air quality in compliance with RIGL 1-7.
Vegetation Management Plan (VMP)	●	●	
Airport Capacity			
Runway System Capacity	●	●	
Hangar Aircraft Storage /1	O	O	Airport land will constrain the ability to accommodate demand for GA hangar space.
Aircraft Apron /1	O	O	Airport land will constrain the ability to accommodate demand for GA apron parking.
Terminal/Administration Building	O	●	Terminal Expansion to meet the forecast demand is planned pending the current EIS and ALP Update.
Economic			
Revenues Exceed Operating Expenses (excl. Admin)	●	●	
Revenues Exceed Operating Expenses (incl. Admin)	●	●	
Capable of Supporting and Promoting Aviation Activity:			
Maintenance Services (FBO)	●	●	
Fuel Services	●	●	
Food Services	●	●	
Compatibility Planning			
Integrated Noise Model Mapping	●	●	RIAC has a current NEM consistent with FAA standards and is complying with RIGL 1-5, Permanent Noise Monitoring Act.
Local Comprehensive Plan	○	●	
Height Zoning (FAR Part 77 Surfaces)	●	●	Adequate height zoning exists.
Airport Hazard Zoning	O	●	RIAC will identify Airport Hazard Areas and provide to community for adoption of Airport Hazard Zoning consistent with RIGL 1-3, Airport Zoning Act.
Compatibility Zoning	O	●	RIAC will coordinate with local governments to define Airport Influence Areas and provide community with information to assist in their adopting compatible aeronautical and community related land uses, building codes, performance standards, and other such controls.
Current Master Plan or ALP	○	●	Pending EIS process.

Note: The performance assessment outlined in this plan was used to develop a set of recommendations in Chapter 640.07 Implementation Plan. Please note that not every deficiency translates directly to a recommendation in the Implementation Plan.

Table 640-05 (6) Recommendations for Westerly Airport

● Does Meet Objective
O Does Not Meet Objective
NA Not Applicable

Benchmarks	Westerly - Existing Conditions	Westerly - Future Conditions	Recommendations
Performance Measures			
Ground Accessibility			
Access Road Functionally Classified	●	●	
Auto Parking	●	●	
Scheduled Transit Service	●	●	
On-site Ground Transportation	O	●	A courtesy car is included in the Recommended Facility and Service Improvements.
Air Accessibility			
Precision Approach	O	O	A precision approach is not included in the Recommended Facility and Service Improvements due to the activity levels required by FAA Planning Standards not expected to be achieved.
Non-precision approach	●	●	
On-site weather reporting capabilities	●	●	
Primary Runway Length	●	●	
Crosswind Runway Length	●	●	
FAA Airport Standards			
Airport Reference Code	●	●	
Runway / Taxiway Separation	O	●	A project to increase the runway/taxiway separation is included in the Recommended Facility and Service Improvements.
"Good" Pavement Condition	●	●	
Runway Safety Area (RSA)	●	●	
Primary Surfaces	O	●	The primary surfaces are subject to a FAA Aeronautical determination.
Runway Protection Zone (undeveloped or airport land)	O	●	The RPZ's clearing plan is subject to a FAA Aeronautical determination.
Runway Object Free Area (ROFA)	●	●	
Unobstructed Approaches	O	●	The unobstructed approaches are subject to a FAA Aeronautical determination.
Security	O	●	Security enhancements are included in the Recommended Facility and Service Improvements.
Environmental Compliance			
Spill Prevention Control Countermeasures (SPCC) Plan	●	●	
Underground Storage Tank(UST) Requirements	●	●	
Wildlife Management Plan	●	●	
Stormwater Pollution Prevention Plan (SWPPP)	●	●	
Underground Injection Control (UIC) Requirements	●	●	
Hazardous Materials Requirements	●	●	
Air Quality: On Airport	NA	NA	
Air Quality: Off Airport	●	●	
Vegetation Management Plan (VMP)	●	●	
Airport Capacity			
Runway System Capacity	●	●	
Hangar Aircraft Storage /1	O	●	Additional hangar storage is included in the Recommended Facility and Service Improvements.
Aircraft Apron /1	●	●	
Terminal/Administration Building	●	●	
Economic			
Revenues Exceed Operating Expenses (excl. Admin)	O	O	Revenues and expenses will be balanced by incorporating the airport financials as part of the system costs.
Revenues Exceed Operating Expenses (incl. Admin)	O	O	Revenues and expenses will be balanced by incorporating the airport financials as part of the system costs.
Capable of Supporting and Promoting Aviation Activity:			
Maintenance Services (FBO)	●	●	
Fuel Services	●	●	
Food Services	O	●	Enhanced user amenities are included in the Recommended Facility and Service Improvements.
Compatibility Planning			
Integrated Noise Model Mapping	NA	NA	
Local Comprehensive Plan	O	●	Town's Plan needs to be updated
Height Zoning (FAR Part 77 Surfaces)	○	●	Adequate height zoning exists.
Airport Hazard Zoning	●	●	RIAC will identify Airport Hazard Areas and provide to community for adoption of Airport Hazard Zoning consistent with RIGL 1-3, Airport Zoning Act.
Compatibility Zoning	O	●	RIAC will coordinate with local governments to define Airport Influence Areas and provide community with information to assist in their adopting compatible aeronautical and community related land uses, building codes, performance standards, and other such controls.
Current Master Plan or ALP	●	●	

Note: The performance assessment outlined in this plan was used to develop a set of recommendations in Chapter 640.06 Implementation Plan. Please note that not every deficiency translates directly to a recommendation in the Implementation Plan.

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640.06 Goals, Policies, Objectives, and Strategies

This chapter outlines the anticipated needs of the airport system and the framework for its future development through the seven planning factors established at the outset of the airport system planning process. It translates the planning factors addressed in prior chapters into specific goals, policies, objectives, and strategies to be pursued by the State, the Rhode Island Airport Corporation (RIAC), and the host communities. Many of the recommendations included in this chapter are a result of the information generated by the system planning process, and the recommendations will be used in future decision-making processes to achieve the stated goals.

06-01 Vision

A safe, secure, and efficient system of airports with convenient intermodal connections that meets the anticipated need for aviation services, advances economic development goals of the state, enhances transportation opportunities and quality of life, and exists compatibly with the environment and surrounding communities.

06-02 Goals, Policies, Objectives, and Strategies

Each goal addresses one of the seven planning factors used throughout this document. Policies are intended to guide decision makers and are used in the consistency review of comprehensive plans and projects. The performance measures used in Chapter 640-04 are translated into objectives for the entire airport system. Strategies are more specific action items, but are not necessarily just projects that would typically be included in a Capital Improvement Plan (CIP). The implementation plan is found in Chapter 640-07. The numbering system for goals, and listing for polices are only offered as a formatting function and are not intended to indicate priority.

Goal 1 – Rhode Island's system of airports will contribute to the State's economic growth while achieving financial self-sufficiency.

Policies	
A	Maximize the airport system's economic benefit to Rhode Island.
B	Pursue funding for necessary improvements, especially those projects that may generate revenue for the overall state aviation system.
C	Encourage the development of aviation related industries on or near airport property in cooperation with host communities, to the benefit of the state and the host communities.
D	Use best management practices to maintain and operate facilities and equipment in acceptable condition and protect infrastructure investments.
E	Employ current industry standards in establishing and maintaining appropriate rates, charges, and lease agreements for airport tenants.

F	Comply with all FAA requirements such as AIP grant assurances, land transfer processes, etc.
Objectives	
G	Produce sufficient revenue to cover operating and maintenance costs at a system level.
H	Provide services and amenities to support general aviation and attract business aircraft, thereby generating revenue from fees, fuel, repair and creating secondary economic impacts in the communities.
I	Provide basic or enhanced FBO services depending on the role of the airport.
J	Ensure sufficient fuel is available for each airport depending on the role of the airport and based on feasibility.
K	Provide some type of food service at all terminals ranging from vending machines to full service restaurants.
Strategies	
L	Plan and phase improvements that are consistent with the current Airport Layout Plan for each airport to maximize AIP funding through a continuous and effective Capital Improvement Planning process.
M	Plan and phase relevant non-AIP funded improvements that are consistent with industry best management practices to respond to demands and maximize efficiency and a consistent revenue stream for each airport, as well as for the system as a whole.
N	Work with the Department of Defense and the National Guard Bureau to ensure their maximum participation in funding relevant improvements at Quonset Airport.
O	Periodically conduct and publicize studies of economic impacts associated with airport activities.
P	Establish reasonable and relevant minimum standards at each airport to maintain a professional level of service and ensure consistent revenue streams. (Minimum standards include insurance, taxes, fees, certifications, etc.)
Q	Host events that are open to the public and promote the state aviation system (such as the Quonset Air Show), consistent with airports role and security demands.
R	Promote the airports through local community groups and chambers of commerce.
S	Use marketing and advertising to promote the state airport system.

Goal 2 – Rhode Island will be served by a system of airports whose roles and capacities are sufficient to meet both current and projected demand, within the context of the natural, social, and economic environment.

Policies	
A	Maximize efficiency of the existing system by fostering the ability of the individual airports to better fulfill their roles within the System. This includes encouraging GA traffic to use reliever airports to maintain capacity for commercial operations at T.F. Green.
B	Recognize T.F. Green's role not only as RI's primary commercial service airport, but also as a vital component of the New England Regional Airport System serving short, medium, and long-haul nonstop destinations. Strive to maintain convenience and user-friendly reputation as a competitive advantage.
C	Promote and develop the GA airports according to their roles as follows: North Central and Quonset: General Aviation – Reliever Block Island and Westerly: General Aviation and Primary Commercial Service as possible. Newport: General Aviation
D	Maintain capacity for military use by the RI Air and Army National Guard at Quonset for the purposes of national defense, homeland security, and emergency operations.
E	Expand airside, terminal, and landside facilities as planned and as necessary in response to demand and in consideration of local comprehensive plans for landside facilities.
F	Maintain adequate infrastructure to provide delay free operations.
G	Scrutinize projects or activities that may result in loss of capacity.

Objectives	
H	Maintain delay free operations and effectively plan for improvements.
I	Provide covered aircraft storage (either T-hangars or conventional hangars) to accommodate both based and transient aircraft.
J	Provide adequate aircraft parking areas to accommodate loading and unloading of passengers, short-term parking by aircraft utilizing the airport's facilities, and visiting aircraft.
K	Provide adequate terminal/administration building facilities for serving peak hour operations and passengers, and accommodating amenities central to the airport's role.

Strategies	
L	Update master plans, system plan and forecasts in order to anticipate future increased demands on the aviation system.
M	Plan for improved infrastructure before operations reach capacity.

Goal 3 – Rhode Island will be served by a system of airports that is readily accessible from the air.

Policies	
A	Provide and maintain runway systems that are consistent with the role of the airport, effectively accommodate critical design aircraft, and provide the greatest operational flexibility with the least amount of community and environmental impact.
B	Provide facilities to ensure that T.F. Green is competitive considering its role in the New England region. Defer to the NEPA process where applicable as the proper vehicle for assessing and balancing community and environmental impacts in the selection of preferred runway extension alternatives.
C	Provide, maintain, and enhance airfield lighting, aids to navigation, and air traffic control as appropriate.
D	Provide facilities for air cargo of local origin and destination.
E	Ensure that intrastate commercial service between Westerly and Block Island is maintained

Objectives	
F	Provide precision approach systems to commercial and reliever airports.
G	Provide non-precision approach systems to all airports.
H	Maintain on-site weather reporting equipment at all airports.
I	Provide runway length adequate to service the current or projected design aircraft.
J	Provide a crosswind runway length of least 80% of the primary runway length where practicable.

Strategies	
K	Implement projects and mitigation measures identified in the Record of Decision for the T.F. Green Airport Improvement Program.
L	Implement airport projects consistent with approved ALP's, CIP's, and in response to projected or demonstrated demand.

Goal 4 – Rhode Island will be served by a system of airports that is readily accessible from the ground.

Policies	
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.

Objectives	
D	Maintain eligibility of primary access roads for federal funding through inclusion in the Highway Functional Classification System.
E	Work with RIPTA, MBTA 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.

Strategies	
H	Complete the InterLink pedestrian skywalk, consolidated rental car facility and rail connection at T. F. Green.
I	Provide proper signage for easy identification and access to aviation facilities.
J	Provide proper signage and information within airports for easy identification and access to transit and ground transportation.
K	Provide for sufficient medical transport capabilities.

Goal 5 – Rhode Island's airports will exist compatibly within their communities while providing air services appropriate to their roles.

Policies	
A	Promote land use planning principles that limit incompatible land uses; further safety, security, and viability and preserve opportunities for reasonable future enhancements of the airport system.
B	Maintain continuing and cooperative planning processes with host communities that encourage responsible land use practices in and

	around airports. Encourage multi-disciplinary participation in airport master and system plans; regional aviation planning efforts and local comprehensive planning.
C	Minimize noise impacts to the extent possible.
D	Develop land in the immediate vicinity of airports in a manner that will be compatible with airport operations. Promote re-use of vacant airport land with priority to airport purposes and consistent with state approved municipal comprehensive plans and the requirements of 14CFR Part150. Minimize adverse impacts, if any, to pre-existing land uses.
E	Promote protection of property and rights of way to secure the long- term transportation needs of the state.
Objectives	
F	Maintain and update the Noise Exposure Map at T.F. Green as operations warrant and in accordance with FAA Guidelines. Use the Integrated Noise Model to identify those areas beyond airport property that have incompatible residential land uses. Comply with RIGL 1-5 Permanent Noise Monitoring Act. Notify carriers of non-weather or safety related diversions from Part 150 operating procedures.
G	Ensure that landside airport plans and projects are consistent with state approved local comprehensive plans and the State Guide Plan.
H	Maintain adequate height zoning and Part 77 Surfaces with no penetrations.
I	Identify Airport Hazard Areas around each airport (RIAC) and work with host communities to adopt appropriate zoning (host communities), consistent with RIGL § 1-3-5.
J	Maintain current airport master plans and Airport Layout Plans (updated every 5 years) and a current state system plan (re-evaluated and amended as needed and updated every 10 years).
Strategies	
K	Host communities, the Division of Planning and RIAC are to formally engage and assist one another in community comprehensive plan development and update efforts.
L	When RIAC plans to pursue a project that will convert the use of land as identified in the following table, the chairperson of RIAC, in the exercise of the authority vested under § 42-64-14, will submit a written request for a determination of such project's conformance to the state guide plan with the secretary of the state planning council and the council shall act within forty-five (45) days and provide the written determination to the corporation.

	Current Use **Future Use** 1. Open Space, Recreational — Residential, Commercial, Business, Office Industrial or Manufacturing 2. Residential — Commercial, Business, Office Industrial or Manufacturing 3. Commercial, Business, Office — Industrial or Manufacturing
M	RIAC will comply with all applicable federal and state laws, statutes, rules and regulations.
N	Continue to implement noise programs at T.F. Green to reduce the number of residents exposed to noise levels that exceed FAA standards.
O	Work with the host communities to identify noise sensitive areas and/or flight patterns. Utilize data to promote flight operations that minimize impacts to those areas. At T. F. Green in cases where deviations to established patterns arise that are not related to weather or safety, RIAC will work with FAA ATCT and/or the carrier to resolve the issue.
P	Educate local planning officials on the proper use of FAA's Form 7460-1, *Notice of Proposed Construction or Alteration*[1] and include form on local development review checklists .
Q	Work cooperatively with communities for responsible redevelopment of land made available from acquisition Programs.
R	The State Planning Council recommends that the State consider establishing a non-airport revenue based funding mechanism to assist in replacing low or moderate income housing units, as defined by R.I.G.L. 45-53, that may be lost as a result of airport expansion or noise related acquisition and removal.
S	The State Planning Council recommends that 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 6 – Rhode Island's system of airports will meet and exceed all federal, state, and local environmental regulatory requirements.

Policies	
A	Promote actions that protect public health and the natural environment.
B	RIAC and the airlines should strive to minimize emissions of air pollutants and greenhouse gasses from aircraft operations and ground support equipment.

[1] Submission of this form is the responsibility of the developer or applicant and may apply to any type of development in proximity of an airport, including communications towers, and other potential obstructions and potential hazards to navigation.

C	Improve surrounding water quality by effectively managing stormwater runoff.
D	Ensure implementation of mitigation requirements identified in environmental documents.
E	Promote energy conservation, efficiency, and use of renewable sources of energy.

Objectives	
F	Maintain and implement current Spill Prevention Control Countermeasures (SPCC) plans in order to address accidental spills.
G	Meet requirements for Underground Storage Tanks (UST) in order to protect quality of groundwater.
H	Maintain and implement current Wildlife Management Plans (WMP) in order to protect both aircraft and wildlife.
I	Maintain and implement current Storm Water Pollution Prevention Plans (SWPPP) in order to protect water quality.
J	Meet requirements for Underground Injection Control (UIC) in order to protect groundwater.
K	Identify and properly manage hazardous materials in order to protect airport employees, host communities, and the environment.
L	Comply with RIGL 1-7 Permanent Air Quality Monitoring Act. In cases where deviations from Part 150 arise that are not related to weather or safety, RIAC will work with FAA ATCT and/or the carrier to resolve the issue.
M	Maintain and implement Vegetation Management Plans (VMPs) in order to protect aircraft and fully utilize available runway length. Avoid repeated disturbances in or near wetlands and rivers, and avoid cutting and planting during sensitive breeding, nesting, or spawning periods.

Strategies	
N	Coordinate with RI Departments of Health and Environmental Management with respect to air quality monitoring in Warwick in accordance with RIGL 1-7.
O	Use CNG powered ground support equipment and/or cleaner fuel vehicles at T.F. Green to the extent financially practicable.
P	Work with state and community officials to minimize vehicle trips to airports that contribute to congestion and air pollution.
Q	Use best management practices and new technologies in controlling stormwater runoff.
R	Regularly update plans and obtain permits to achieve and/or maintain compliance with environmental regulations.
S	The State Planning Council encourages the Department of

	Environment Management, the Department of Health and the Attorney General, in making their recommendation as to whether to continue air quality monitoring as required by RIGL 1-7-9, to consider whether a different set of pollutants should be evaluated and to seek non-airport revenues to finance such future studies

Goal 7 – Rhode Island's airport system will be safe, efficient and meet applicable FAA design standards and TSA security standards.

Policies	
A	Provide for an airfield layout that meets applicable design standards.
B	Control land in the runway protection zones through airport ownership or other legal means.
C	Protect airspace and maintain aircraft safety by preventing artificial and natural obstructions from penetrating critical airspace surfaces, and take all prudent measures to avoid runway incursions.
D	Embrace technological advances that improve efficiency, safety, and passenger experience, and reduce need for more costly infrastructure.

Objectives	
E	Maintain airport facilities consistent with approved ALP. The facilities include pavement, firefighting apparatus, terminal and hangar structures, and other essential facilities.
F	Maintain all airport pavement (above) in good condition in order to prevent costly reconstruction projects over the long term.
G	Provide sufficient runway/taxiway separation to reduce chances of wingtip collisions.
H	Provide Runway Safety Areas to meet FAA standards.
I	Maintain Primary Surfaces clear of all above ground objects.
J	Maintain Runway Protection Zones such that land is undeveloped and free of any objects.
K	Maintain Runway Object Free Areas clear of all above ground objects unless the object is for the purpose of air navigation or aircraft ground maneuvering.
L	Maintain approaches free from obstructions that present hazards to aircraft.
M	Meet requirements for passenger, baggage, cargo, and perimeter security.

Strategies	
N	Acquire easements for land in the Runway Protection Zones.
O	Obtain avigation easements as necessary to ensure the protection of

	airport imaginary surfaces.
P	Maintain ongoing pavement rehabilitation program.
Q	Continue to refine and improve facilities for more efficient passenger and baggage screening at T.F. Green.
R	Consider the use of Engineered Materials Arresting System (EMAS) where prudent and feasible to satisfy RSA requirements.

The goals, policies, objectives, and strategies listed above are intended to move the airport system forward. For more detailed information on specific projects, timeframes, and costs, please see Chapter 640-07 Implementation.

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640.07 Airport System Improvements

The recommended facility and service improvements, or projects, set forth below have been identified through the process described in Chapters 4 and 5 and in consideration of the goals and strategies established in Chapter 6 and airport-specific Master Plan Updates. Airport-specific recommendations were identified to meet system objectives and ultimately achieve higher performance levels for their system role.

Ideally, all airports would have airside and landside facilities and services commensurate with their designated system role. However, despite the need for new and improved facilities, priority will be given to maintenance and safety activities such as replacement of aging pavement.

As previously noted in this Plan, before any recommendations are implemented they are included in an FAA approved Airport Layout Plan (ALP). Some recommendations may also be subject to an Environmental Assessment or Impact Statement in accordance with FAA guidelines (Environmental Handbook, Order 5050.4B).

07-01 Recommended Facility and Service Improvements by Airport

The following tables identify recommended improvements for each airport in the State system. Improvements are categorized by the seven system goals which are abbreviated as follows:

- Goal 1 - Economic (ECO)
- Goal 2 - Capacity (CAP)
- Goal 3 - Air Access (AA)
- Goal 4 - Ground Access (GA)
- Goal 5 - Compatibility (COMP)
- Goal 6 - Environmental (ENV); and
- Goal 7 - Standards (STD).

The time periods used are defined as: **S**hort-term (0 – 5 years), **M**id-term (6 – 10 years) and **L**ong-term (11 – 15 years). Project timing may change based on future demand and/or RIAC and FAA budget appropriations. Development is subject to receiving FAA grant for the eligible airport work.

Anticipated costs are provided where available. The costs identified are estimates and may change based on actual design, inflation or the addition or deletion of projects. This is particularly the case with the estimates for projects at T. F. Green Airport. These cost estimates are taken from the NEPA Environmental Impact Statement (EIS) for the Airport Improvement Program and are based in 2006 dollar values with limited engineering design. Available FAA funding may change the scope and phasing of projects and the individual project estimates may evolve as the financial planning is conducted at the conclusion of the EIS process.

Each project list is representative. New projects may be needed and should be implemented provided they are consistent with the role of the airport, the current airport ALP and Master Plan, and the goals and policies of the State Guide Plan.

Table: 640-07(1) Block Island Airport Recommended Facility and Service Improvements

Project	Goal	Time	Est. Cost	Remarks
Replace MALS/F with REILS	AA	S	$226,340	In Process
Install PAPI on R/W 10	AA	S	$50,000	
Provide Aircraft Parking Apron	CAP	S	$400,000	
Relocate Tiedown in Primary Surface	STD	S	$250,000	
Remove Obstructions	STD	S	$10,000	Miscellaneous
AMP/ALP Update	STD	M	$150,000	
Provide Hangar Storage	CAP		$0	Private Investment
Total Estimated Costs			**$ 1,086,340**	

Source: AMP, Hoyle Tanner Associates, March 2006, updated to include projects through 2008.

Table: 640-07(2) Newport State Airport Recommended Facility and Service Improvements

Project	Goal	Time	Est. Cost	Remarks	
Airport Drainage Improvements	STD	S	$750,000		
Rehab./Expand Based Aircraft Apron (Phase I) w/Security Ltg.	CAP	S	$2,500,000	In Progress	
Obtain Easements and Clear Obstructions	STD	S	$600,000	In Progress	
Construct T- Hangars (Phase I and II)	CAP	S/M	$0	Private Investment	
Fencing Improvements	STD	M	$250,000		
Rehab. R/W 4-22 w/ MIRLS & PAPI Ltg	STD	M	$2,700,000		
AMP/ALP Update	STD	M	$150,000		
Expand Transient Apron (Phase I & II)	CAP	M	$400,000		
Construct Partial Parallel T/W to R/W 16	STD	L	$1,675,000		
Const. Based Aircraft Apron Phase II/ III	CAP	L	$1,570,000		
Realign & Rehabilitate Taxiway A	STD	L	$965,000		
Update SRE Equipment	STD	L	$250,000		
Construct New Terminal (including Utility Improvements)	STD	L	$4,500,000		
				Private Investment	
Total Estimated Costs			**$16,310,000**		

Source: 2008 AMP by Louis Berger updated to include projects completed through 2009.

Table: 640-07(3) North Central State Airport Recommended Facility and Service Improvements

Project	Goal	Time	Cost	Remarks
Install LPV Precision Approach R/W 5	AA	S	$0	FAA Ops Budget
Obstructions Removal for LPV Approach	STD	S	TBD	Pending SFZ EA
Reconstruct T/W B	STD	S	$2,000,000	
Const Access Rd Between Old & New Terminal	CAP	S	$150,000	
Upgrade Wastewater Utility System	STD	S	$400,000	
Relocate Tie Downs & Fuel Farm Penetrating Primary Surface and RVZ	STD	S	$1,000,000	
Construct SRE Building	STD	S	$2,700,000	
Develop T Hangars	CAP	S	$0	Private Investment
Update AMP	STD	M	$150,000	
Extend T/W A	STD	M	$750,000	
Reconstruct Parking Apron (Phase I)	STD	M	$3,700,000	
Expand Apron (Phase II)	CAP	M	$1,800,000	
Replace MALSF with MALSR	AA	M	TBD	Subject to AMPU
Develop T Hangars & Corp. Hangar	CAP	M	$0	Private Investment
Security Fencing	STD	L	$600,000	
Expand Apron (Phase III)	CAP	L	$1,600,000	
Reconstruct R/W 15-33	STD	L	$4,400,000	
Develop T Hangars & Corp. Hangar	CAP	L	$0	Private Investment
Total Estimated Cost			**$19,250,000**	

Source: AMP Update by Louis Berger Inc., June 2010.

Table: 640-07(4) Quonset State Airport Recommended Facility and Service Improvements

Project	Goal	Time	Est. Cost	Remarks
Reconstruct Parking Apron (Phase I)	STD	S	$400,000	
Install REILS & PAPI on R/W 5, 23, & REILS on R/W 34	STD	S	$425,000	
Extend TW W to R/W 23	CAP	S	$1,100,000	
Reconstruct Perimeter Road	STD	S	$100,000	
Relocate Airfield Lighting Vault	STD	S	$1,200,000	
Realign Fencing (R/W 5 ROFA)	STD	S	$25,000	
Const New Fuel Pad/Relocate Fuel Tanks	STD	S	TBD	
Construct Aircraft Deicing Pad	STD	S	TBD	
Construct Aircraft Run-up Pad	STD	S	TBD	
Demolish Old Terminal Building	CAP	S	$1,000,000	
Develop a VMP	ENV	S	$50,000	
Construct New T-Hangars/Demolish Old	CAP	S	TBD	
Construct Corporate Hangar	CAP	M	$3,000,000	

Construct SRE/Maintenance Facility	STD	M	$1,100,000	
Rehabilitate Runway 5-23	STD	M	$3,000,000	
Construct New Air Museum	ECO	M	TBD	
Update Airport Master Plan/ALP	STD	M	$150,000	
Construct Corporate Hangar	CAP	M	$3,000,000	
Remove Old Airfield Pavement	STD	M	TBD	
Rehab./Relocate T/W A (South Section)	STD	M	TBD	
Const. Eastside Parallel T/W to R/W 5-23	CAP	L	TBD	
Const. Eastside Parallel T/W to RW16-34	CAP	L	TBD	
Const. Access Road to Eastside of Airport	CAP	L	TBD	
Develop Aviation Related Activities on Eastside of Airport	CAP	L	TBD	
Total Estimated Costs			TBD	

SOURCE: Airport Layout Plan dated June 2006 prepared by Jacobs Edwards & Kelcey.

Table: 640-07(5) T.F. Green State Airport Recommended Facility and Service Improvements

Project	Goal	Time	Est. Cost	Remarks
Obstruction Removal Program	STD	S	TBD	Pending Aero Study
Aeronautical Study	STD	S	$527,000	In Process
Demolish Hangar #1	STD	S	$1,600,000	EIS project
Develop Additional Hangars	CAP	S	$0	Private investment
Noise Mitigation (2020 No Build and Build)	ENV	S	$32,000,000	Subject FAA $
Design for Long Term De-Icer Management System.	ENV	S	$2,700,000	In Progress
Implement De-Icer Management System	ENV	S	$22,550,000	Subject to design
Land Acquisition (Contiguous to Airport)	CAP	S	$9,300,000	Subject FAA $
Update ALP	STD	S	$0	Included in EIS
Relocate Airport Road	STD	S	$8,400,000	EIS project
Improve RSA R/W 16-34	STD	S	$28,120,000	EIS project
Relocate T/W C	STD	S	$10,700,000	EIS project
Upgrade Pavement R/W 16/34	STD	S	$14,500,000	EIS Project
Extend Runway – Land acquisition	AA/CAP	S	$18,800,000	EIS project
Relocate Main Avenue	AA/CAP	S	$5,900,000	EIS project
Extend R/W 5-23 and Parallel T/M	AA/CAP	S	$28,400,000	EIS project
Upgrade Pavement R/W 5/23	STD		$17,600,000	EIS Project
Apron and T/W Reconfiguration	CAP	S	$30,800,000	EIS project
Improve Hangar #2	CAP	S	$0	Private Investment
Develop New South Service Area	CAP	M	$23,800,000	EIS project
Internal Roadway Improvements	GA/CAP	M	$36,000,000	EIS project
New Integrated Cargo Building	CAP	M	$10,700,000	EIS project
Expand Auto Parking	CAP	M	$40,000,000	EIS project
Expand Terminal	CAP	M	$85,300,000	EIS project
New Fuel Farm	CAP	M	$63,300,000	EIS project
Total Estimated Costs			**$490,997,000**	

Source: FEIS dated July, 2011

FOOTNOTE:
T. F. Green cost estimates are based on the FEIS and are dependent on:
(a) An approved NEPA Record of Decision (ROD) from FAA
(b) Mitigation measures as required in the ROD
(c) Final designs being completed
(d) Available FAA funding

Table: 640-07(6) Westerly State Airport Recommended Facility and Service Improvements

Project	Goal	Time	Est. Cost	Remarks
Obtain Easements and Clear Obstructions	STD	S	$2,100,000	**In Progress**
Update Master Plan	STD	M	$200,000	
Security Fencing and Ltg. Improvements	STD	L	$750,000	
Build Operations/Maintenance Building	ECO	L	$1,050,000	
Provide T-Hangar Storage	ECO	L	$0	Private Investment
Provide Corporate Hangar Storage	ECO	L	$0	Private Investment
Total Estimated Costs			**$4,100,000**	

Source: AMP 2009, Vanasse, Hangen and Brustlin, Inc.

07-02 Funding Sources

To promote the development of a system of airports to meet the Nation's needs, the Federal Government embarked on a grants-in-aid program to units of state and local governments shortly after the end of World War II. The early program, the Federal-Aid Airport Program (FAAP) was authorized by the Federal Airport Act of 1946 and drew its funding from the general fund of the U.S. Treasury.

In 1970, a more comprehensive program was established with the passage of the Airport and Airway Development Act of 1970. This Act provided grants for airport planning under the Planning Grant Program (PGP) and for airport development under the Airport Development Aid Program (ADAP). These programs were funded from a newly established Airport and Airway Trust Fund, into which were deposited revenues from several aviation-user taxes on such items as airline fares, air freight, and aviation fuel.

The current program, known as the Airport Improvement Program (AIP), was established by the Airport and Airway Improvement Act of 1982 (Public Law 97-248). Since then, the AIP has been amended several times, most recently with the passage of the Century of Aviation Reauthorization Act (Vision 100). Funds obligated for the AIP are drawn from the Airport and Airway Trust fund which is supported by user fees, fuel taxes, and other similar revenue sources.

For large and medium primary hub airports, the grant covers 75 percent of eligible costs (or 80 percent for noise program implementation). For small primary, reliever, and general aviation airports, the grant covers 95 percent of eligible costs.

As noted in Chapter 2, the National Plan of Integrated Airport Systems (NPIAS) identifies more than 3,400 existing and proposed airports that are significant to national air transportation and thus eligible to receive Federal grants under the Airport Improvement Program (AIP). It also includes estimates of the amount of AIP money needed to fund infrastructure development projects that will bring these airports up to current design standards and add capacity to congested airports. The FAA is required to provide Congress with a 5-year estimate of AIP eligible development every 2 years.

The AIP provides grants to public agencies — and, in some cases, to private owners and entities -- for the planning and development of public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS) The national Airports Capital Improvement Plan (ACIP) is the internal FAA document that serves as the primary planning tool for identifying and prioritizing critical airport development and associated capital needs for the National Airspace System in the shorter range (1-5 years.). It also serves as the basis for the distribution of grant funds under FAA'S Airport Improvement Program.

For the purposes of this Plan and the projects it contains, it is assumed that the AIP will continue be the primary source of funding to implement the projects at the state's GA airports. Currently the AIP provides 95% federal funding for all eligible projects.

For T.F. Green Airport the FAA's grant eligible amounts for projects varies from 75% to 80%. Other funding sources for financing airport infrastructure and capital improvements at T.F. Green Airport include the Passenger Facility Charge (PFC) and General Airport Revenue Bonds (GARB). Debt service and principal from the GARB can be repaid with PFC funds.

The projects or improvements identified in the ASP would improve the function and services of the identified GA airport however they may not be implemented due to factors such as funding, costs or impacts. Projects that are not implemented will be considered in future airport planning.

It will require a significant amount of FAA, RIAC, and private investment to achieve system objectives. These estimates reflect only the potential capital federally funded future costs necessary to maintain, operate, and improve the State's airport system.